

SIDA'S GLOBAL RESEARCH PROGRAMMES

ANNUAL REPORTING

**INTERNATIONAL SCIENCE PROGRAMME
(ISP)**

ANNUAL REPORT 2018





Participants in the 5th ANFEC training/workshop in chromatography/mass spectrometry, quantification and quality assurance, 27 Jan. - 16 Feb., Camcontrol, Phnom Penh. Courtesy of IPICS CAB:01).

Cover picture: Prof. Rune Liminga, founder of the International Programme in the Chemical Sciences, born 30 November 1932, died 14 September 2018.

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SECTION 1: EXECUTIVE SUMMARY

International Science Programme Annual Report 2018

The Annual Report, since 2010, essentially follows “Sida’s Global Research Programmes Annual Reporting: Guiding Principles and Reporting Format”, provided in June 2010.

Objective, Structure and Organisation, and Impact (Sections 2 – 4)

Objective

The objective of the International Science Programme (ISP) is to contribute to the development of active and sustainable environments for higher education and scientific research in developing countries, within chemistry, mathematics, and physics, in order to increase the domestic production and use of results and skills relevant for the fight against poverty.

Structure and Organisation

The support is collaborative and long-term, with a strong local ownership. Support is provided to institutionally based research groups and scientific networks. It includes cooperation with research groups at more advanced host institutions at Swedish universities, in other Nordic and European countries, and in the regions.

ISP is a unit at the Faculty of Science and Technology at Uppsala University. It has three subprograms:

- International Programme in the Physical Sciences (IPPS, since 1961)
- International Programme in the Chemical Sciences (IPICS, since 1970)
- International Programme in the Mathematical Sciences (IPMS, since 2002)

In 2018, ISP operated the core program on contributions from Sida (30 million SEK), Uppsala University (3.273 million SEK) and Stockholm University (1.0 million SEK).

The operation of ISP is regulated in an ordinance established by the Swedish government in 1988. A Board and an Executive Committee to the Board is governing ISP. Each subprogram has a Scientific Reference Group to guide activities. The Board and the reference groups have participants representing institutions also outside Uppsala University and Sweden. A new Board was appointed 2018, and also a new Executive Committee to the Board. Two Scientific Reference Group members resigned and have to be replaced

In 2018, ISP had five core scientific and seven administrative staff members. Two additional staff members contributed with evaluation and monitoring, and project coordination.

Impact

In 2018, a tracer study of PhD graduates was published, covering 250 of the 259 graduates 2014-2017. It was found that 95% of the tracked PhD graduates are employed in their home countries (89%) and regions (6%), most of them employed at universities and research institutes.

Through ISP’s capacity building work and support to research of relevance to development challenges, ISP partners are contributing to several of the United Nation’s Sustainable Development Goals.

ISP's Gender Equality Grants constitute a successful strategy with the potential to attract more of women students to basic sciences on a longer term. In 2018, African women mathematicians and physicists have initiated a regional network named the Eastern Africa Network for Women in Basic Science (EANWoBAS).

ISP was evaluated in 2018, as commissioned by Sida. Overall, the evaluators find that ISP fulfils a direct, facilitating and promotive role in supporting scientific activities in its partner countries and that the reach of its capacity development interventions is justified by the public good argument to support such research. Nevertheless, the evaluators find several areas where ISP can develop to increase its efficiency in capacity building in the field of basic sciences' research and higher education.

Activities and Results (Sections 5 – 6)

Supported research groups and scientific networks

In 2018, ISP supported 43 research groups and 19 scientific networks. There were 20 research groups in chemistry, one in mathematics, and 22 in physics. In eleven of the twelve Swedish "focus countries" totally 36 research groups were supported. New research group support was initiated in Bolivia (chemistry) and Tanzania (physics), and a physics group in Bangladesh split in two. Support was concluded to a chemistry group in Ethiopia because of inactivity, and to the chemistry and physics groups in Cambodia, because they are expected to be adopted by Sida's new bilateral program with Royal University of Phnom Penh, projected to start 2019. Seven research groups were supported in three "non-focus countries", Laos, Myanmar and Zimbabwe, four in chemistry and three in physics.

The chemistry program supported eleven scientific networks, the mathematics program three, and the physics program five. Support to a chemistry network in Latin America was concluded because it had fulfilled its aims, and to a physics network in Africa because of inactivity. Two chemistry networks failed to submit activity reports for 2018, and another one did not submit complete PhD student data.

Major results

Groups and networks reported 425 active PhD students (28% female), and 752 students training for MSc, MPhil or Licentiate degrees (35% female), benefiting directly or indirectly from ISP support. About 20% of the PhD students and 1% of the Master students were trained in sandwich programs. In total, 69 PhD and 228 MSc (etc.) students graduated. Most of the PhD graduates (88%) were trained in local programs, 16% of them female, whereas 12% were trained in "sandwich" programs, 12% of them female. The majority of 228 graduated MSc (etc.) students were trained in local programs (98%, 28% of them female).

The research groups and networks disseminated more than 900 scientific papers as publications or at conferences. There were 344 publications in scientific journals and 24 book chapters or other single scientific or popular publications. The publications in journals were to 44% in journals listed with impact factors in Web of Science, and another 11% were in journals deemed as quality journals by the Norwegian Register for Scientific Journals, Series and Publishers. ISP was acknowledged in 29% of the chemistry journal publications, in 16% of the mathematics, and in 45% of the physics ones, respectively. Twenty-three of the articles (7% of the total number) were in journals by "predatory publishers" as defined in Cabell's blacklist, most of them by IPICS partners.

There were 549 contributions to scientific conferences, 236 to international conferences (67% oral), 204 to regional and 109 to national/local conferences, 82% and 85% of them oral, respectively. Groups and networks arranged 126 scientific meetings attended by about 8.300 participants.

Research findings

Several examples of research findings are given, in the fields of air pollution, archaeological chemistry, astronomy, electrochemistry, environmental and contamination chemistry, ecotoxicology,

food safety, human health, magnetic materials, materials science, nanobiomaterials, pharmacology, radiation hazard, seismology, solar energy conversion, and water chemistry and purification. The findings can be linked to the Sustainable Development Goals.

Results based management logical framework performance indicators

ISP’s results based management logical framework was established in 2012 and refined in 2013, along with 24 outcome performance indicators linked to three specific objectives. Sida has selected ten of the indicators for their monitoring of the performance of the program. Only those are provided in this summary. In 2018, ISP has reviewed the indicators and will omit some of them from the yearly reporting – although in some cases data will still be collected for future evaluations.

Indicator (F = female)	Average 2008-13	2014	2015	2016	2017	2018
Number of applications granted in relation to submissions. (Table 6b)	135/138 (98%)	24/27 (89%)	17/17 (100%)	20/20 (100%)	20/22 (91%)	(23/24) (96%)
ISP scientific reference group rating of applications. (“Degree of excellence”; Table 6c)	54%	59%	60%	55%	60%	54%
Proportion of PhD students that are continuing/graduating each year. (Table 7i)	81%	86%	86%	92%	95%	94%
Gender proportion of staff and students (Table 7g) (Table 7h1)	18% F staff 23% F PhD 27% F MSc	22% F staff 23% F PhD 32% F MSc	18% F staff 20% F PhD 29% F MSc	22% F staff 26% F PhD 31% F MSc	23% F staff 28% F PhD 33% F MSc	23% F staff 28% F PhD 35% F MSc
Number of publications, and proportion in “Web of Science”-indexed journals (Table 9n)	153 (45%)	231 (44%)	257 (43%)	295 (39%)	310 (46%)	344 (44%)
Number of PhD graduations per year (Tab. 9q)	27	36	53	80	90	69
Number of MSc (etc.) grad./year (Tab. 9p)	103	148	143	188	258	228
Number of outreaching activities (Table 10s)	19	43	28	34	39	54
Number of honors (Table 10t)	24	50	78	97	74	121
Number of instances when research results or skills are used by society (Table 10u)	14	19	66	52	30	25

Analysis of key results

Most results represented by the RBM performance indicators are fairly stable over the years, for reasons discussed in the Annual Report 2015. A few, however, show a development between years, that might make up emerging trends.

The number of applications granted in relation to submissions is expected to be at 100% granted applications, because of the nature of the support. In the application assessment, not only the scientific quality is considered but also assessment factors such as the development potential of the activity, and its importance in its institutional setting. Therefore, rejection may indicate that applications are incomplete and not possible to evaluate, or that the scientific quality is too low to be counterweighed by the estimated development potential.

Failure to submit invited applications and rejections are always subject to particular attention and measures. The relevance of yearly reporting this on the aggregated level is found low, and the indicator will be abandoned.

ISP scientific reference group rating of applications is based on the aggregated assessments of the yearly cohort of applicants, which may be on a wide range of levels of scientific development. It can be noted that in the current agreement period, the indicator has kept close to 60% “excellence”, meaning that individual activities are substantially exceeding this value. In these cases, the ability to

write quality scientific proposals can be expected to have been developed, and subsequently the attraction of research funding in response to open, competitive calls.

Data are available for longitudinal evaluation of the indicator values of individual research groups and networks, to assess their performance over several application events. The indicator will be kept in yearly reporting but is planned to be modified for increased stringency

The proportion of PhD students continuing or graduating each year (indicator i). The student retention results are close to those in the three latest years, being well over 90%, and seem to have increased from about 80% in the Sida agreement period 2008-2013. The indicator will be continued because it helps ISP to keep track of students in each program.

The gender proportion of the staff (indicator g) has changed slightly in the favor of women at ISP as a whole. This is mainly because IPMS and IPPS have been starting activities in Myanmar, where university staff are predominantly women. The indicator will be continued.

The gender proportion of all students (indicator h1) is biased towards the male side. On ISP level, the proportion of women PhD students has increased slightly from 2008, approaching 30%, while in recent years the proportion of women MSc students have exceeded 30%. This may partly be attributable to the mathematics and physics support in Myanmar, but to a degree also to the particular efforts by ISP to promote women students in these two sciences. The women PhD and MSc students generally constitute higher proportions in the chemistry program, than in mathematics and physics. The indicator will be continued.

The number of publications, and proportion in indexed journals (indicator n). The yearly number of publications has more than doubled since the previous Sida agreement period, while the proportion of articles in “quality” journals have remained almost constant. The number of articles in journals by “predatory publishers” has been reviewed in 2018 and amounts to close to 7% of all journal article that year. The indicator will be continued.

The number of MSc graduations per year (indicator p) and the number of PhD graduations per year (indicator q) have almost tripled in the current Sida agreement period compared with the previous one. One explanation may be the increasing establishment of local PhD programs among supported activities. It is noted that in 2018, the share of women students falls in comparison to previous years in the current agreement period. The indicator will be continued.

The number of outreaching activities performed (indicator s) has more than doubled in the current Sida agreement period in comparison with the previous one, and the number of activities reported in 2018 is still substantially higher. The increased attention to conducting such activities and reporting them in the annual activity reports may have resulted in the expanding outcome. Still, it is the nature of the outreach that is of interest. This will be recorded and annually listed, while the yearly reporting of the quantity will be discontinued.

Regarding the number and nature of honors (indicator t), many of the achievements are difficult to attribute to ISP, because they reflect the individual abilities. To a degree, however, the development of these abilities might have been facilitated by the attachment to an ISP-supported research group or scientific network. A yearly listing in an appendix to the annual report may still be of interest, but the yearly reporting of the quantity will be discontinued.

Regarding the number of instances when research results or skills are used by society (indicator u), the quantitative results are quite variable, and poorly reflect the qualitative nature of the reported “use”. A yearly listing is still of interest, whereas the yearly reporting of the quantity will be discontinued.

Expenditures by research groups and networks

In total, research groups and scientific networks spent about 25 million SEK. Groups accounted for 60% and networks for 40% of the total expenditures, together using 85% of the financial resources available (including balances brought forward from 2016, making up 15% of available funding). In total, 47% of allocations were transferred for local management and use, and ISP paid 53% to other recipients on request.

Other Activities and Events (Section 7)

Sida assignments

In 2018, ISP had Sida coordination assignments in the bilateral programs with universities in Ethiopia, Mozambique, Tanzania, and Uganda. In addition, ISP was engaged to pay subsistence allowances to Sida bilateral students from Bolivia, Ethiopia, Rwanda, Tanzania, and Uganda, while in Sweden. In November, Sida and ISP jointly organized a seminar at Sida, directed to students in bilateral and ISP programs.

Collaboration

In collaboration with:

- Al Baha University, Saudi Arabia; the first PhD student, Ms Azza Alghamdi graduated. Two male PhD students, in computer science and mathematics, continue their studies in Sweden.
- Linköping University in the support to Research Management in Sida's bilateral program with University of Rwanda (UR); ISP arranged for a laboratory audit.
- The Faculty of Science, Stockholm University (SU); the steering group met in June to discuss the activities funded by SU.
- Thailand Research Fund and Thailand International Development Cooperation Agency; Following a third call, in April, two female fellows from Myanmar were selected. One, however, declined the offer in December.

Dissemination

Ernst van Groningen co-authored a scientific article, "Development in astronomy and space science in Africa", in Nature Astronomy.

ISP published the report "Tracing ISP Graduates 2014-2017".

The ISP Annual Report 2017 was timely published on ISP's web on 3 July.

ISP staff gave presentations at three conferences, one scientific and two on development issues.

Seminars, meetings, visits

ISP arranged 35 seminars and other meetings, including workshops with partners and staff meetings. Staff members participated in about 35 additional meetings and gave three invited talks.

SECTION 2: ORGANISATION

International Science Programme

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SECTION 3: OBJECTIVES, OPERATION AND IMPACT

3.1 ISP's Objectives

To contribute to the development of active and sustainable environments for higher education and scientific research in developing countries, within chemistry, mathematics, and physics, with the ultimate goal to increase the production and use of results relevant for the fight against poverty by researchers in the basic sciences in developing countries.

*According to ISP's Strategic Plan 2013-2017:*¹

ISP contributes to the creation of new knowledge to address development challenges.

The ISP *vision* is to efficiently contribute to a significant growth of scientific knowledge in low-income countries, thereby promoting social and economic wealth in those countries, and, by developing human resources, in the world as a whole.

In support of this vision, the *overall goal* of ISP is to contribute to the strengthening of scientific research and postgraduate education within the basic sciences, and to promote its use to address development challenges.

ISP, therefore, has the *general objective* to strengthen the domestic capacity for scientific research and postgraduate education, by long-term support to research groups and scientific networks in these fields.

The *expected outcome* for supported partners in low-income countries is scientifically stronger, more resourceful research environments, better-qualified postgraduates, and the increased production and use of high quality scientific research results,

The *expected outcome* for collaborating hosts to ISP-supported partners is an expanded global perspective, an enhanced awareness and knowledge of the potentials, conditions, and relevant issues of research collaboration with low-income countries, and an increased collaboration with scientists in those countries.

To achieve its general objective, ISP defines three *specific objectives*, to be achieved on the level of the supported collaboration partners:

- 1) Better planning of, and improved conditions for carrying out, scientific research and postgraduate training.
- 2) Increased production of high quality research results.
- 3) Increased use by society of research results and of graduates in development.

These objectives constitute the basis for ISP's logical framework in the results based management (RBM) system introduced in 2013. The program logic, first published in ISP's Strategic Plan 2013-2017, was refined in November 2013 and the current version is given in the ISP Annual Report 2013. In 2014, the monitoring and evaluation system continued to be developed correspondingly, and the data sources for the performance indicators were reviewed. In the Annual Report 2015, the first comprehensive presentation of the RBM-indicators was given, and it is here completed with the data of 2016 and 2017. (See Section 5.2.2).

¹ http://www.isp.uu.se/digitalAssets/188/188888_1isp-strategic-plan-2013-2017.pdf

3.2 ISP's Method of Operation

ISP provides support for the development of active, productive, and sustainable research and higher education in the basic sciences physics, chemistry, and mathematics in low-income countries. The support is collaborative and long-term and is managed on a collegial scientist-to-scientist basis with a strong local ownership. Support is provided to institutionally based research groups, and to scientific networks to facilitate cooperation and sharing of resources. The work is carried out in close cooperation with researchers at more resourceful host institutions. The program is maintained by Uppsala University, but ISP is a truly international program. Host institutions for “sandwich” students and collaboration may be located at other Swedish universities, in other Nordic and European countries, or in the regions.

The operation of ISP is regulated in an ordinance established by the Swedish government in 1988 (UHÄ-FS 1988:18; SFS 1992:815), through the then Office of Universities and Higher Education (Universitets- och högskoleämbetet; UHÄ). The ordinance requires the University Board to give notice on additional directions needed for the operation of the program. These are established in the Instruction, latest revised and decided by the Vice Chancellor 22 March 2016 (<http://www.isp.uu.se/about-isp/board/>).

The scope of the revised instruction was reduced in relation to the earlier version, and the duties of the Executive Committee to the Board were omitted. They are from now on the responsibility of the Board to decide. Therefore, in the meeting of the ISP Board 13 June 2016, a new Rules of Procedure regulation was decided, to complement the Instruction in this respect.

3.3 Impact of ISP Support on Development

ISP has strengthened scientific capacities in countries with weak scientific infrastructure since 1961. Rapid human and societal development around the globe requires scientific research of high quality to successfully address emerging challenges, and contribute to reaching the UN Sustainable Development Goals (Figure 1).

3.3.1 Tracing ISP graduates 2014-2017

During 2014-2017, totally 259 PhD students have graduated from 29 of the research groups and 14 of the networks supported by ISP. This is 100 PhD graduates more than in the previous, longer granting period, 2008-2013. Increasing the number of PhD holders are in line with ISP's objective to build research capacity, but where do graduates go after graduation? Are they contributing to increased competence at their academic institutions or are they making use of their skills in other sectors or other countries? In the “Tracing ISP Graduates 2014-2017”² report, 250 out of the 259 PhD graduates from ISP supported groups and networks were tracked with their present whereabouts. It was found that 95% of the tracked PhD graduates are employed in their home countries (89%) and regions (6%), which is similar to the results of previous ISP tracer studies. A large majority (94%) of the 2014-2017 graduates is working at universities or research institutes, many holding positions as lecturers or assistant professors. Twelve graduates (5%) are working outside their home countries and regions, ten of them at academic institutions. Only twelve of the 250 graduates are working outside the academic sector, all but one in their home country. Workplaces include research councils, ministries and national authorities. The fact that a large majority of ISP graduates are employed at academic institutions in their home countries and regions shows that ISP is contributing to capacity building in research and higher education in its partner countries. It also shows that the need for well-educated staff at the partner universities is far from satisfied.

The follow-up question is, are the graduates actively conducting research? A bibliographic search in Web of Science (WoS) in 2018, following up ISP “indicator r” (publication activity of

² http://www.isp.uu.se/digitalAssets/504/c_504316-l_1-k_tracing-graduates-2014-2017-final.pdf

graduates) shows that 134 out of the 250 traced PhD graduates (54%) have published in WoS listed journals after graduation. This is similar to the case in the previous granting period, where approximately 60% of graduates had published in WoS listed journals after graduation.

3.3.2 ISP and the SDGs

Through the capacity building work and support to research of relevance to development challenges, ISP is contributing to several of UN Sustainable Development Goals (Figure 1). There is a general alignment of ISP's work with (SDG) 17 - Partnership for the Goals. More specifically Target 17.9 aiming to “*enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation*”.



Figure 1. United Nation Sustainable Development Goals. (Source: <https://www.un.org/sustainabledevelopment/news/communications-material/>)

ISP's work also aligns with SDG 9 – Industry, Innovation and Infrastructure through the support to domestic technology development and research and innovation in developing countries (Figure 2), which is explicitly stated in Target 9B and is well in line with ISP's general objective. Further, the research activities supported by ISP funding are well harmonized with several other Goal Targets (see examples in Section 6.1.1). For example, supporting research and development of vaccines and medicines in partner countries (SDG 3 – Good Health and Well-Being, Target 3B), expanding international collaboration in water and sanitation related activities (SDG 6- Clean Water and Sanitation, Target 6B) and to expand international collaboration to facilitate clean energy (SDG 7 – Affordable and Clean Energy, Target 7A).

An important part of ISP's overall goal is to strengthen higher education at partner institutions. Target 4B in SDG 4 – Quality Education, calls for an expansion of the enrolment in higher education and scientific programs through fellowships, which is one of ISP's main activities through supported groups and networks. Through incentives described in section 3.3.3 below, ISP is also contributing to SDG 5 – Gender Equality.

Many of the examples of research results given in Section 6.1.1 align with SDG 7 (Affordable and Clean Energy for All). The Materials Science and Solar Energy Network (MSSEESA) with research groups in six countries in Eastern Africa is one of the main contributors to this Goal, with activities and research connected to solar energy conversion, installing and maintaining photovoltaic systems for individuals, companies and local governments, and running installment trainings for

technicians. Thereby, they are enhancing the provision of affordable and clean energy in Eastern Africa. As an example, the research on polymer solar cells conducted by the Zambia node of the MSSEESA network will be scaled up by the National Science and Technology Council (NSTC) through the production of a prototype polymer solar cell. Further, the solar mini-grid set up the group in rural Zambia, have influenced the installation of other solar mini grids on the countryside.

Other ISP-supported activities are connected to SDG 12 – Responsible Consumption and Production, mainly through research and activities in both chemistry and physics on air, soil, food, cattle and water pollution. This results in creating awareness and finding solutions to heavy metal and pesticide pollution, and by contributing to national and global committees addressing environmentally sound management of chemicals, and the reduction of adverse impact, as stated in SDG 12, Target 12.4. Research in this area is also closely connected to Goal 6 – Clean Water and Sanitation, and Goal 2 – Zero Hunger, the latter though research related to food safety.

Further, there is a connection to SDG 9 – Innovation, Industry and Infrastructure through groups’ and networks’ many activities aiming to enhance scientific research and increasing the number of researchers by organizing scientific conferences, conducting quality innovative research, engaging in national committees, and collaborating with industry.

Several of the supported groups and networks are also contributing to SDG 3 – Good Health and Well-Being, through for example materials research for hyperthermia treatment of cancer, targeted drug delivery, and the development of an approach for direct rapid determination of trace biometals in soft body tissue using Energy Dispersive X-ray Fluorescence and Scattering Spectrometry for cancer diagnosis.

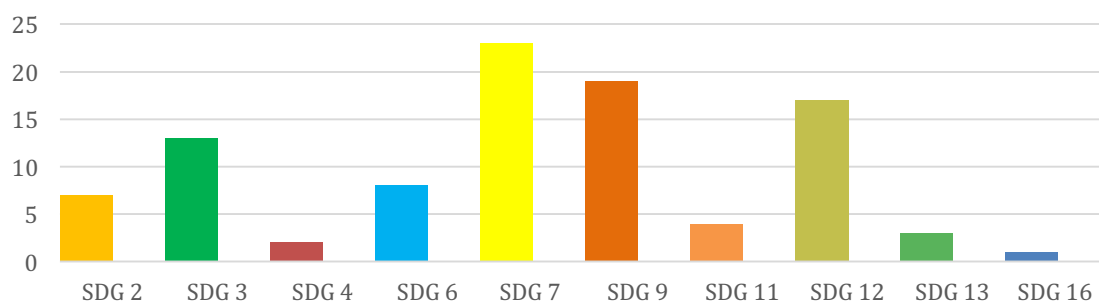


Figure 2. Summary of research results by ISP supported groups and networks that are particularly contributing to the listed SDGs. (Details in Section 6.1.1)

3.3.3 Continued work to promote gender equality

Gender Equality Grants

From 2017, ISP supported groups and networks in physics and mathematics have the possibility to apply for earmarked extra funds (max 30,000 SEK/year over a three-year period) for activities designed and run to promote increased gender equality and balance at the supported institutions. In 2018, 13 groups and networks received the grant (9 within IPPS and 4 within IPMS) having applied for it in 2017. Out of the 13 granted groups, 11 requested the funding for planned activities, while two did not make any requisition to ISP.

In 2018, four additional groups from IPPS applied and were awarded the gender grant that will be allocated for three years with start in 2019. Moreover, a gender network, established by female physicists and mathematicians (see below) were invited and granted ISP core funding for network activities focusing on a variety of activities targeting gender bias at different education levels, with start in 2019.

ISP considers the Gender Equality Grant scheme to be a successful initiative. The growing number of applicants is very positive and indicates an increasing will to work for improving gender equality. Even the chemistry partners, who cannot apply for the grant due to the statistically higher number of women students and scientists in chemistry, have caught up on the principle and used part of their allocation for targeting gender activities. Further, ISP is also impressed by the many activities that groups and networks manage to do with this relatively small amount of funding.

Examples include (partial) tuition fees for female PhD students, summer schools, training programs and workshops, abroad research visits, equipment purchases and the starting of female scientist networks. ISP appreciates the results and the variety of activities funded by the grant and will continue with this initiative. ISP is aware of the need to increase the communication of the gender activities carried out, to encourage and inspire the groups and networks that have not yet applied for earmarked funds. There is also a wish from the grantees to increase the sum of the grant to further boost the impact. ISP will take this request in consideration during the coming years.

Spin-off effects of the Gender Equality Grants – Support to regional Gender Network

An unintended spin-off effect of the Gender Equality Grant won by Dr Betty Nannyonga from Makerere University in 2016 (at that time given in competition), is the starting of a regional network named as Eastern Africa Network for Women in Basic Science (EANWoBAS) in 2018. Dr Nannyonga had, through her many targeted activities at Makerere University in Uganda and beyond, already started a national network of female mathematicians. In 2018, she started the EANWoBAS together with ISP partners in the region, thereby joining mathematics and physics researchers from Uganda, Kenya, Rwanda, Tanzania and Zambia. With the belief and slogan “basic sciences for all” the network envisions to be leading in creating gender balanced representation in the basic sciences, on all levels from primary to tertiary education in Eastern Africa. ISP attended their successful start-up workshop held in Uganda in July 2018. The network was invited to apply for financial support and ISP granted a three-year allocation starting from 2019. This is the first time for ISP to support a network that lies outside the conventional chemistry, mathematics, and physics field. Read more about the network: <http://www.isp.uu.se/isp-partners-in-close-up/regional-women-in-science-network/>

The following activities were carried out in 2018 using the Gender Equality Grants:

- Supported two female students with laptops and one three-months research visit to Senegal (IPMS BURK:01)
- Organized a two-day workshop to inspire high school, undergraduate and graduate students to choose mathematics, held 6-7 Dec. in Addis Ababa, Ethiopia. (IPMS ETH:01)
- Organization of the first Mathematics Day (Pi-Day) in Rwanda. (IPMS EAUMP)
- Launch and meeting of the association Tanzanian Women in Mathematics. (IPMS EAUMP)
- Organized seminars, workshops, a run for mathematics marathon and career days in Uganda. (IPMS EAUMP)
- Participated in the awards ceremony at a renowned Girls’ School in Lusaka, Zambia, awarding the best student in mathematics, and provided the winner with calculators and textbooks. (IPMS EAUMP)
- The female PhD student, who was awarded the ‘Marie Curie Scholarship’ scholarship (initiated in 2017), was admitted and commenced her study. (IPPS BAN:04)
- Organized a five-week training program in Ethiopia for 16 high school students (50% females) on code writing, scientific measurements, conducting simple physics experiments and writing lab reports. (IPPS ETH:01)
- Meeting of Women in Physical Sciences forum and visit to rural girl boarding school (part of activities postponed to 2019). (IPPS KEN:01/2)
- Organized a six-week holiday internship program for 10 female undergraduate students on optics/photonics related mini-projects. (IPPS KEN:04)
- Gave partial financial support (tuition fee) to two female students in the group, and bought all the research materials needed for their research work. (IPPS MSSEESA)
- Abroad research stays for three female graduate students. (IPPS MAL:01)
- Supported two female students with laptops, bags and hard drives. (IPPS RWA:01)
- Organized a 3rd Science Camp for 35 female secondary school students 1-5 October in Dar es Salaam (IPPS TAN:01/2)
(IPPS MSSEESA)

- Organized a specialized training on Photovoltaic System sizing, configuration, mounting, installation and maintenance at Makerere University on 3 March, attended by 18 female undergraduate and graduate students. (IPPS UGA:01)



Participants and guests of the 3rd Summer Camp for A-Level female students held at University of Dar es Salaam, Tanzania 1-5 October 2018. (IPPS TAN:01/2; IPPS MSSEESA)



Specialized training on Photovoltaic System sizing, configuration, mounting, installation and maintenance for female undergraduate and graduate students organized at and by Department of Physics, Makerere University, Kampala, Uganda. (IPPS UGA:01)

3.3.4 Sida Decentralized Evaluation of ISP 2014-2018

In 2018, an evaluation commissioned by Sida was carried out of ISP,³ as often done at the end of a granting period. Based on a review of ISP and its activities, and the results achieved, the evaluation aimed to provide new thinking on the future development of ISP. Besides looking at ISP as a whole, primary case studies were conducted of ISP support to Ethiopia and Cambodia, and secondary case studies of ISP support to Bangladesh, Burkina Faso and Uganda.

Overall, the evaluators find that ISP fulfils a direct, facilitating and promotive role in supporting scientific activities in its partner countries and that the reach of its capacity development interventions is justified by the public good argument to support such research. They also emphasize that: *“The modality of working that has been successful in capacity development support that is all too rare in being long term, needs based and process driven rather than short term and output oriented. It has also been appreciated by its partners”*.

The evaluators state that it is beyond doubt that ISP’s support to the development of research capacity has been broadly relevant and aligned with Swedish policies for research in development cooperation. Furthermore, they point out that all the recipients interviewed see the ISP support as being highly relevant to the development of their scientific research capacity. In many cases, they find it evident that much of the research is very relevant to local development challenges. They find that ISP’s funding for skill development, equipment provision, consumables, as well as ability to facilitate international research collaboration and exposure, has done much to bring its grantees into a wider community of research. ISP’s pragmatic approach to problems and issues has been effective. Much of the research that has been supported has clear relevance to country-specific development needs, and where the application is less clear the research has been of intrinsic merit. In this sense, ISP has contributed significantly to the public good in its domain of activities. Finally, the evaluators recognize ISP’s work in promoting gender equality.

To leverage these strengths of the ISP program in new ways, the evaluators proposed a few key recommendations to ISP. These are the starting point in ISP’s new strategic plan 2019-2024.⁴ A specific suggestion to introduce a time-bound modality (and a “time table of change”) of ISP support may be subject to particular consideration. Just like the provision of a baseline and chronology of capacity development stages of research groups and scientific networks, which could be assessed and monitored over time by ISP’s Scientific Reference Groups. The evaluators thereby also suggest changing and formalizing the procedures for the Reference Groups, including more structured review processes whereby judgements are better supported by argument and recommendations are systematically followed up.

Even though the evaluators highlight the long-term modality of ISP support as a success factor in ISP’s contribution to science capacity building, they express concern that ISP’s long-term funding and commitment to research groups and scientific networks may have trapped these into financial dependency on ISP. This may to some extent be true, although it is contradicted by the findings from a study in 2016 of 47 partners phased out of ISP support 2003-2014, where close to 80% were found active and sustaining on competitive funding.⁵ The evaluators point out that the introduction of a postdoc scheme could be valuable. Such a scheme was in fact introduced by ISP in 2011, although to a limited extent within the ISP mathematics program. The modality can in fact be practiced within the current operating procedure.

Regarding ISP’s Results Framework, the evaluators find that it needs to be revised in a Theory of Change perspective to better align with ISP’s actual contribution.

³ <https://www.sida.se/English/publications/160358/evaluation-of-the-sida-supported-programme-international-science-programme-20142018/>

⁴ http://www.isp.uu.se/digitalAssets/504/c_504322-l_1-k_isp_strategic_plan_2019-2024_final-paged.pdf

⁵ http://www.isp.uu.se/digitalAssets/504/c_504316-l_1-k_phased-out-groups-and-networksfinal.pdf

SECTION 4: STRUCTURE

The International Science Program (ISP) is a unit at the Faculty of Science and Technology at Uppsala University and consists of three subprograms:

- International Programme in the Physical Sciences (IPPS, since 1961)
- International Programme in the Chemical Sciences (IPICS, since 1970)
- International Programme in the Mathematical Sciences (IPMS, since 2002)

In 2018, ISP was operated on contributions from the following sources:

- | | |
|---|----------------|
| • Swedish International Development Cooperation Agency (Sida) | 30,000,000 SEK |
| • Uppsala University, Faculty of Science and Technology | 3,273,000 SEK |
| • Stockholm University, Faculty of Science | 1,000,000 SEK |

All contributions are imperative to the operation and development of ISP, and indispensable to the efforts of ISP's partners producing a multitude of results, and the contributions are gratefully acknowledged. Comprehensive financial reports are provided separately to each funding entity. The use of funds is subject to external audit following the terms of reference given in the agreement with Sida

Below, the governing and advisory bodies of ISP are given, and the ISP staff 2018.

4.1 The ISP Board

The Board, appointed for the period 1 April 2016 to 31 March 2018, had the following composition (31% female, 69% male, including deputies):

- Professor **Johan Tysk** (M), Vice-Rector, Uppsala University (Chairperson)
- Professor **Kersti Hermansson** (F), Dept. Chemistry-Ångström, UU (Vice Chairperson)
- Ms **Agne Ciuciulkaite** (F), representative of the student organisations, Uppsala University
- Professor **Elzbieta Glaser** (F), Dept. Biochemistry and Biophysics, Stockholm University
- Professor **Giulia di Nunno** (F), Department of Mathematics, University of Oslo, Norway.
- Dr **Hans Corell** (M), Ambassador (ret.), Former Under-Secretary-General for Legal Affairs and the Legal Counsel of the United Nations
- Mr **Kay Svensson** (M), Deputy University Director, Uppsala University
- Professor **Lars Österlund** (M), Dept. Engineering Sciences, Uppsala University
- Professor **Maciej Klimek** (M), Dept. Mathematics, Uppsala University
- Professor **Mohamed Garib Bilal** (M), The Nelson Mandela African Institution for Science & Technology, Arusha, Tanzania.
- Professor **Mohamed H.A. Hassan** (M), The Global Network of Science Academies
- Professor **Olle Inganäs** (M), Dept. Physics, Chemistry and Biology, Linköping University
- Dr **Peter Roth** (M), representative of the personnel unions, Uppsala University

Deputy Board members, Uppsala University:

- Professor **Fan Yang Wallentin** (F), Dept. Statistics, Uppsala University
- Professor **Jonas Bergquist** (M), Dept. Chemistry, Uppsala University
- Professor **Vernon Cooray** (M), Dept. Engineering Sciences, Uppsala University



The “old” Board at its meeting in December 2017. Courtesy of ISP.

A new Board was appointed for the period 5 May 2018 to 31 March 2021, and has the following composition (44% female, 56% male, including deputies):

- Professor **Johan Tysk** (M), Vice-Rector, Uppsala University (Chairperson)
- Professor **Kersti Hermansson** (F), Dept. Chemistry-Ångström, UU (Vice Chairperson)
- Ms **Agne Ciuciulkaite** (F), representative of the student organisations, Uppsala University (from 4 December)
- Dr **Barbara Brena** (F), Dept. Physics and Astronomy, Uppsala University
- Professor **Giulia di Nunno** (F), Department of Mathematics, University of Oslo, Norway.
- Dr **Hans Corell** (M), Ambassador (ret.), Former Under-Secretary-General for Legal Affairs
- and the Legal Counsel of the United Nations
- Dr **Jennifer Blanke** (F), Vice-President Agriculture, Human and Social Development, African Development Bank
- Mr **Kay Svensson** (M), Deputy University Director, Uppsala University
- Professor **Mohamed Garib Bilal** (M), The Nelson Mandela African Institution for Science & Technology, Arusha, Tanzania.
- Professor **Olle Inganäs** (M), Dept. Physics, Chemistry and Biology, Linköping University
- Professor **Peter Brzezinski** (M), Dept. Biochemistry and Biophysics, Stockholm University
- Dr **Veronica Crispin** (F), Dept. Mathematics, Uppsala University
- (vacant), representative of the personnel unions, Uppsala University

Co-Opted Board member

- Professor **Lars Österlund** (M), Dept. Engineering Sciences, Uppsala University

Deputy Board members, Uppsala University:

- Professor **Fan Yang Wallentin** (F), Dept. Statistics, Uppsala University
- Professor **Jonas Bergquist** (M), Dept. Chemistry, Uppsala University
- Professor **Vernon Cooray** (M), Dept. Engineering Sciences, Uppsala University

Leaving Board member Elzbieta Glaser, Maciej Klimek and Mohamed H.A. Hassan are cordially thanked for their valuable contributions, after serving the Board since 2007, 2004 (with a break 2013-2015), and 1998, respectively. New Board members Barbara Brena, Jennifer Blanke, Peter Brzezinski and Veronica Crispin are warmly welcomed.

In 2018, the Board had five votes *per capsulam*, in Jan., Feb., June (two votes), and Sep., and a regular meeting 14 Dec.

4.2 The ISP Executive Committee

The ISP Executive Committee (EC) is a standing working committee to the Board. It met 15 February, 15 June, 10 September, and 4 December. At the EC meeting in February it had the following composition (14% female, 86% male), all Uppsala University staff:

- Professor **Kersti Hermansson** (F), Dept. Chemistry-Ångström, Chairperson
- Professor **Lars Österlund** (M), Dept. Engineering Sciences, Vice Chairperson
- Associate Professor **Ernst van Groningen** (M), Director of IPPS
- Mr **Kay Svensson** (M), Deputy University Director
- Dr **Leif Abrahamsson** (M), Director of IPMS
- Professor **Maciej Klimek** (M), Dept. Mathematics
- Associate Professor **Peter Sundin** (M), Director of IPICS

After the appointment of the new Board in May 2018, the composition was as follows (38% female, 62% male), all Uppsala University staff:

- Professor **Kersti Hermansson** (F), Dept. Chemistry-Ångström, Chairperson
- Professor **Lars Österlund** (M), Dept. Engineering Sciences, Vice Chairperson
- Dr **Barbara Brena** (F)
- Associate Professor **Ernst van Groningen** (M), Director of IPPS
- Mr **Kay Svensson** (M), Deputy University Director
- Dr **Leif Abrahamsson** (M), Director of IPMS
- Dr **Veronica Crispin** (F), Dept. Mathematics
- Associate Professor **Peter Sundin** (M), Director of IPICS

4.3 The ISP Scientific Reference Groups

The International Programme in the Chemical Sciences (IPICS)

The IPICS scientific reference group had its annual meeting in Lund, Sweden, 8-11 Oct., followed by seminars for participants 12 Oct. It had the following composition (33% female, 67% male):

- Professor **Charlotta Turner** (F), Lund University, Lund, Sweden
- Professor **Henrik Kylin** (M), Linköping University, Linköping, Sweden
- Professor **Iqbal Parker** (M), Intl. Ctr. Genetic Engineer. Biotechnol., Cape Town, RSA
- Professor **James Darkwa** (M), University of Johannesburg, Johannesburg, RSA
- Professor **Jenny Ruales** (F), Escuela Politecnica Nacional, Quito, Ecuador
- Professor **Lars Ivar Elding** (M), Lund University, Lund, Sweden

After this meeting, Prof. Lars Ivar Elding left the group, after 18 years of service and he was cordially acknowledged for his long and devoted participation – starting the year when the IPICS Scientific Reference Group was incepted.



IPICS Reference Group meeting with applicants 2018. Courtesy of IPICS.

The International Programme in the Mathematical Sciences (IPMS)

The IPMS scientific reference group meets only once in three years and had its previous meeting in 2017. The group then had the following composition (25% female, 75% male):

- Professor **Christer Kiselman** (M), Uppsala University, Uppsala, Sweden
- Professor **Fanja Rakotondrajao** (F), Univ. Antananarivo, Antananarivo, Madagascar
- Professor **Mohamed El Tom** (M), Garden City Coll. Sci. Technol., Khartoum, Sudan
- Professor **Tom Britton** (M), Stockholm University, Stockholm, Sweden

Professor Kiselman resigned from the group after the meeting in 2017.

The International Programme in the Physical Sciences (IPPS)

The IPPS scientific reference group had its annual meeting in Dar es Salaam, 3-5 October. It had the following composition (20% female, 80% male):

- Professor **Ewa Wäckelgård** (F), Uppsala University, Uppsala, Sweden
- Professor **Krishna Garg** (M), University of Rajasthan, Jaipur, India
- Professor **Magnus Willander** (M), Linköping University, Linköping, Sweden
- Professor **Roland Roberts** (M), Uppsala University, Uppsala, Sweden
- Professor **Malik Maaza** (M), iThemba Labs, Cape Town, South Africa.
- Professor **John Nkoma** (M), University of Dar es Salaam, Tanzania



IPPS Reference Group meeting with applicants 2018. Courtesy of IPPS

4.4 The ISP Staff

In 2018, ISP had the following staff members (51% female, 49% male; Full time if not otherwise indicated, gender balance count takes into consideration part-time employment and employment duration in the year). * = in picture

Core scientific staff

- Assoc. Prof. **Peter Sundin** (M), Head of ISP, Director of IPICS*
- Dr **Leif Abrahamsson** (M), Deputy Head of ISP, Director of IPMS
- Assoc. Prof. **Ernst van Groningen** (M), Director of IPPS*
- Assoc. Prof. **Carla Puglia** (F), Assistant Director of IPPS (65%)*
- Assoc. Prof. **Cecilia Öman** (F), Assistant Director of IPICS (60%)*

Administrative staff

- **Anna Wallin** (F), Economy Administrator*
- **Archana Yadav Ganganaboina** (F), Economy Assistant*
- **Hossein Aminaey** (M), Administrator*
- Dr **Peter Roth** (M), Economist, Head of Administration
- **Pravina Gajjar** (F), Administrator (80%)*
- **Therese Rantakokko** (F), Administrator*
- **Ulrika Kolsmyr** (F), Economy Assistant*

Other staff

- Assoc. Prof. **Olle Terenius** (M), Coordinator (50%)*
- **Rebecca Andersson** (F), Project Manager, Communications Officer.



ISP personnel at the annual staff planning conference, in February 2018.

SECTION 5: PROGRAM-WIDE RESULTS

5.1 Activities

In 2018, 43 research groups and 19 scientific networks were supported (Sections 5.1.1 and 5.1.2, respectively). Support was initiated to one chemistry research group in Bolivia, support was regained the one previously supported physics research group in Tanzania, and one research group in Bangladesh was split in two. Support to a chemistry group in Ethiopia was concluded because of inactivity. One network in chemistry had its final year of support and support to one network in physics was concluded.

5.1.1 Research Groups

In 2018, totally 43 research groups were supported, 20 in chemistry, one in mathematics, and 22 in physics. In nine of the twelve Swedish focus countries⁶ totally 36 research groups were supported (Table 1). Seven research groups were supported in three non-focus countries (Table 2).

Research groups supported in Swedish focus countries

Table 1. Number of research groups supported in Swedish focus countries using Sida funding

Country	IPICS	IPMS	IPPS	Total
Bangladesh	2		4	6
Bolivia	1			1
Burkina Faso	2		1	3
Cambodia	1		1	2
Ethiopia	3	1	2	6
Kenya	2		5	7
Mali	1		1	2
Rwanda	1		1	2
Tanzania			1	1
Uganda	2		2	4
Zambia	1		1	2
Total	16	1	19	36

In **Bangladesh**, a research group at Dept. Chemistry, Univ. Dhaka (IPICS BAN:04) was supported in the field of environmental and food contamination chemistry, and one at the Daffodil International University, Dhaka, in the field of safety of herbal medicines (IPICS BAN:05).

ISP has up to 2017 supported group combining researchers at Dept. Physics, Bangladesh Univ. Engineering and Technology (BUET) and at the Materials Science Division at the Atomic Energy Centre, Dhaka (AECD), for conducting postgraduate research in materials science related to magnetism in Bangladesh (IPPS BAN:02). The group is since 2018 formally split in two. One is still working at BUET with fundamental studies of magnetic materials (IPPS BAN:02/1). The other is working at AECD, implementing the acquired knowledge in nanomaterials and magnetism into new biomedical applications, such as cancer characterization and therapy (IPPS BAN:02/2).

Support in medical physics was continued to a group at the Dept. Biomedical Physics & Technology (IPPS BAN:04), and to a group in the field of nanophysics at the Dept. Physics, both at Univ. Dhaka (IPPS BAN:05).

⁶ Swedish focus countries are defined as those given by the “government’s new development policy”, announced in 2007. See ISP’s Strategic Plan 2013-2017 for more detailed information.

In **Bolivia**, support to a new research group IPICS BOL:01 was initiated in the field of chemical ecology, at Univ. Mayor Real y Pontificia de San Francisco Xavier de Chuquisaca (USFX) in Sucre.

In **Burkina Faso**, two research groups at the Dept. Chemistry, Univ. Ouaga 1 Pr. KI Zerbo, were supported, one in the field of natural products research (IPICS BUF:01) and one in the field of clay mineralogy (IPICS BUF:02). Support to Dept. Physics was given in the area of energy effective buildings (IPPS BUF:01).



Laboratory scale studies of the removal of arsenic in water solutions percolated through columns of adsorbent materials (repeating layers of laterites and activated carbon). (Courtesy of IPICS BUF:02)

In **Cambodia**, a research group at the Dept. Physics (IPPS CAM:01) at the Royal Univ. Phnom Penh (RUPP) was supported in the field of materials science, and a research group at the RUPP Dept. Chemistry, in the field of environmental chemistry (IPICS CAB:01). The support was terminated 30 June, because of the new Sida bilateral program on scientific research cooperation planned to start at RUPP 1 July 2018. ISP will, however, continue to provide limited support in chemistry and physics to allow for the PhD students started under ISP support to conclude their training and graduate.

In **Ethiopia**, chemistry and physics support was provided to three research groups at Addis Ababa Univ. (AAU), at the Depts. Chemistry and Physics. Two were working on conducting polymers with photovoltaic applications (IPICS ETH:01 and IPPS ETH:01), and one in the field of seismology (IPPS ETH:02). The chemistry group IPICS ETH:01 is working also on electrochemical sensors, and has since 2017 joined ANEC. The group IPICS ETH:04 has been inactive in 2018, due to the impaired health of the group leader, and the lack of a functioning deputy, but funds available in 2018 were used to sustain two sandwich PhD students at Lund University, Sweden. Support was continued to the AAU Dept. Mathematics (IPMS ETH:01).

At the School of Pharmacy, AAU, support to a group working in the field of pharmacological chemistry (IPICS ETH:02) was continued.

In **Kenya**, five physics research groups were supported. Four of these are at Univ. Nairobi (UoNBI), and one is at the Univ. Eldoret. They work in the fields of X-ray fluorescence (IPPS KEN:01/2),

nanostructured solar cells (IPPS KEN:02), photovoltaics (IPPS KEN:03), applied laser physics (IPPS KEN:04), and seismology (IPPS KEN:05). Support was provided also to two research groups at the Dept. Chemistry, UoNBI, in the fields of coordination chemistry (IPICS KEN:01) and natural products chemistry (IPICS KEN:02).

In **Mali**, at Université des Sciences, des Techniques et des Technologies de Bamako (USTTB), a research group in the field of clay mineralogy was supported at Dept. Chemistry (IPICS MAL:01), and a research group in the field of spectral imaging (IPPS MAL:01) at the Dept. Physics.

In **Rwanda** support to a chemistry research group in the field of environmental chemistry (IPICS RWA:01), and a physics research group in the field of astrophysics and atmospheric physics (IPPS RWA:01), both at Univ. Rwanda, was continued.

In **Tanzania**, at University of Dar es Salaam, support to a research group at the Department of Physics, in the field of materials science (IPPS TAN:01/2), was re-introduced.

In **Uganda** support was provided to a research group in physics (IPPS UGA:01/1) at Makerere Univ., in the field of materials science, and to a research group in astronomy and space science at the Mbarara University of Science and Technology (MUST), Mbarara (IPPS UGA:02).

In chemistry, support was continued to the IPICS UGA:01 group, at Makerere Univ. Dept. Chemistry, conducting research in the field of environmental chemistry. ISP support originally started 1999 but was interrupted 2009-2014 while the group received support through the Sida bilateral program with Makerere Univ. Similarly, support to IPICS UGA:02 was continued. The group was originally supported by ISP from 2003, and then by Sida 2009-2014.

In **Zambia**, at Univ. Zambia, a research group at the Dept. Physics was supported in the field of materials science (IPPS ZAM:01), and a research group at the Dept. Chemistry, in the field of conducting polymers (IPICS ZAM:01).

Research groups supported outside of Swedish focus countries

Table 2. Number of research groups supported in Swedish non-focus countries using funding from Stockholm University (in Laos, and partly in Zimbabwe) and from Sida (in Zimbabwe and Myanmar)

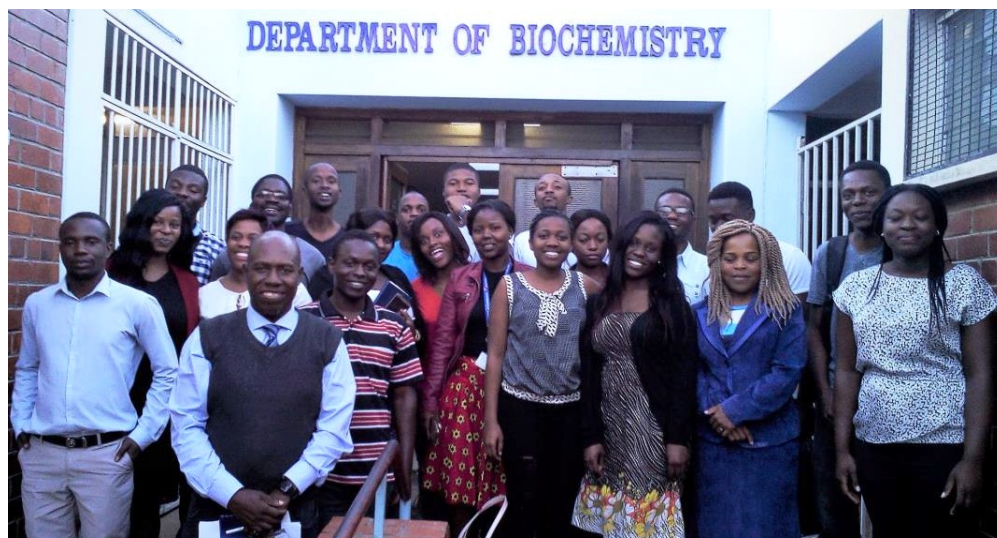
Country	IPICS	IPMS	IPPS	Total
Laos	1		1	2
Myanmar			1	1
Zimbabwe	3		1	4
Total	4		3	7

In **Laos**, two research groups were supported at the Natl. Univ. Laos (NUOL), one in environmental chemistry at the Dept. Chemistry (IPICS LAO:01), and one in geoscience at the Dept. Physics (IPPS LAO:01), both using funding provided by Stockholm University (SU).

In **Myanmar**, at Univ. Mandalay, support was provided to a physics research group, working in the fields of experimental and theoretical nuclear physics, and materials science (IPPS MYA:01).

In **Zimbabwe**, three chemistry research groups were supported. One works in the field of pharmacokinetics-pharmacodynamics, at the African Institute of Biomedical Science and Technology (IPICS ZIM: AiBST), Harare (associated with Univ. Zimbabwe). Another group is working in the field of biomolecular interactions (IPICS ZIM:01), at the Dept. Biochemistry, Univ. Zimbabwe, Harare. The third is working in the field of biochemical toxicology (IPICS ZIM:02), at the Dept. Environmental Science and Health, National Univ. Sci. Technol. (NUST) in Bulawayo.

In physics, support was provided to a research group at NUST in the field of geophysics and groundwater studies (IPPS ZIM:01).



Prof. S. Mukanganyama with the IPICS ZIM:01 group members in 2018. Courtesy of IPICS ZIM:01.

New research group support

In 2018, the physics group IPPS BAN:02 in Bangladesh was split in two, IPPS BAN:02/1 and IPPS BAN:02/2 (Table 3), based on the two teams of researchers at Dept. Physics, BUET, and at the Materials Science Division at the AECD, previously together forming the original research group.

In Bolivia, chemistry support was initiated to IPICS BOL:01 (Table 3) at USFX in Sucre. The research group is led by Dr Carlos F. Pinto, alumnus of Universidad Mayor San Simón, in Cochabamba, Bolivia, who carried out his PhD training under ISP support by LANBIO, at Univ. Chile, Santiago de Chile.

In Tanzania, physics support was re-introduced to a research group at the Dept. Physics, UDSM, in the field of materials science (IPPS TAN:01/2; Table 3), after an interruption 2009-2017. The group was originally supported from 1989. For details, see the ISP Annual Report 2008.

Table 3. New research group support, started in 2018

Country	ISP Code	Field of Science
Bangladesh	IPPS BAN:02/1	Fundamental studies of magnetic materials
Bangladesh	IPPS BAN:02/2	Applications of magnetic materials
Bolivia	IPICS BOL:01	Chemical ecology
Tanzania	IPPS TAN:01/2	Materials Science

Concluded research group support

The two research groups at Royal University of Phnom Penh, Cambodia, IPICS CAB:01 and IPPS CAM:01, had their final year of support in 2018 (Table 5), because starting 2019 they are expected to receive continued support under the Sida bilateral program with RUPP.

In 2017, IPICS ETH:04 had its final year of a three-year grant period (Table 5). The group was invited in 2018 to present an application for continued support, but no application was submitted and no new agreement could be established. To avoid interrupting the activities of two sandwich students at Lund University, Sweden, the allocation balance at ISP, together with an additional amount calculated necessary, was set aside to allow the students to finish their planned training periods in 2018 and return home. (See further Section 5.5.)

Table 5. Research group support concluded in 2018

Country	ISP Code	Field of Science
Cambodia	IPICS CAB:01	Environmental Chemistry
Cambodia	IPPS CAB:01	Materials Science
Ethiopia	IPICS ETH:04	Environmental Chemistry

5.1.2 Scientific Networks

In 2018, totally 19 scientific networks⁷ were supported (Table 6), eleven in chemistry, three in mathematics, and five in physics.

Scientific networks in the field of chemistry

ANCAP - African Network for the Chemical Analysis of Pesticides, aims to safeguard public health and the environment and ensure the safety of African agricultural and aquatic products.

ANEC - African Network of Electroanalytical Chemists, has the objective to foster research activities in the field of electroanalytical chemistry, and to promote and encourage the use of electrochemical approaches in basic science and in environmental sciences and food security.

ANFEC - Asian Network of Research on Food and Environment Contaminants builds on the progress facilitated by the ISP support to environmental chemistry in the region, and to further develop the capacity for reliable trace analysis of pollutants.

ANRAP - Asian Network of Research on Antidiabetic Plants, with the objective to develop cooperation between scientists working in the field of antidiabetic plant research.

CAB-CCS – Cambodian Chemical Society has the goal to enhance chemistry education in high schools by training provincial teachers. It is an outreach link initiated by staff at the Royal Acad. Cambodia and at the RUPP Dept. Chem.

LANBIO – Latin American Network for Research in Bioactive Natural Compounds has the objective to provide conditions for developing a sustainable research group in chemical ecology in Bolivia.

NABSA - Network for Analytical and Bioassay Services in Africa has the objective to give other African scientists access to the analytical and laboratory facilities and equipment that exist at the Dept. Chem., Univ. Botswana.

NAPRECA - Natural Products Research Network for Eastern and Central Africa, has the objective to initiate, develop and promote research in the area of natural products chemistry in Eastern and Central Africa.

NITUB - Network of Instrument Technical Personnel and User Scientists of Bangladesh has the objective to improve the capabilities in handling, maintaining, troubleshooting and repairing scientific instruments in Bangladesh.

RABiotech - West African Biotechnology Network has the objective to ensure and reinforce research training in biotechnology, and to share research on local challenges.

SEANAC - African Network for Analytical Chemists (formerly Southern and Eastern Africa Network for Analytical Chemists) has the goal to promote analytical chemistry in the region.

Scientific networks in the field of mathematics

BURK:01 - PDE Modeling and Control, aiming at applications of mathematics, and strengthening other areas of mathematics. The cooperation is between Univ. Ouaga 1 Pr. KI Zerbo (Burkina Faso),

⁷ For more details of ISP's support to scientific networks, see Kiselman, C. (2011); <http://uu.diva-portal.org/smash/record.jsf?pid=diva2:393463&rvn=1>

Gaston Berger Univ. (Senegal), Univ. Nouakchott (Mauritania), Univ. Cocody-Abidjan (Ivory Coast), and Université des Sciences, des Techniques et des Technologies de Bamako (Mali).

EAUMP - Eastern Africa Universities Mathematics Programme, with the main objectives to enhance postgraduate training in mathematics and build capacity for mathematics research in the participating universities. The network consists of the Depts. Math. at Makerere Univ. (Uganda), Univ. Rwanda (Rwanda), UDSM (Tanzania), UoNBI (Kenya), and Univ. Zambia (Zambia).

SEAMaN - South East Asian Mathematics Network, with the objective to strengthen the postgraduate education in mathematics at the three member Departments of Mathematics, at the Natl. Univ. Laos, the Royal Univ. Phnom Penh, Cambodia, and the Univ. Mandalay, Myanmar.

Scientific Networks in the field of physics

AFSIN - African Spectral Imaging Network (AFR:04), with the objective to bring the members to international standard in the field of spectroscopy and spectral imaging, with applications in medicine, environment and agriculture.

EAARN - East Africa Astronomy Research Network (AFR:05) is coordinated from Muni Univ. in Arua, Uganda. Nodes are at MUST and Busitema Univ. (Uganda), AAU (Ethiopia), and Univ. Rwanda (Rwanda). Students from the nodes participate in the MSc program at MUST.

ESARSWG - Eastern and Southern African Regional Seismological Working Group (AFR:01), with the objective to monitor seismic activities of the East Africa Rift System through the operation of seismic stations in nine countries and collectively analyse data.

MSSEESA - Materials Science and Solar Energy Network for Eastern and Southern Africa (AFR:03), with the aim to use costly equipment in a more efficient way and to harmonize and strengthen the quality of physics education in the region.

NADMICA - Nature Induced Disaster Mitigation in Central America, with the objective to enhance research in natural disaster mitigation in Central America.

Table 6. Number of scientific networks supported by ISP, by region

Region	IPICS	IPMS	IPPS	Total
Africa	6	2	4	12
Asia	4	1		5
Latin America	1		1	2
Total	11	3	5	19

Concluded scientific network support

In 2018, support was concluded to two scientific networks (Table 7). In Latin America, with the successful initiation of the group IPICS BOL:01 in Bolivia, IPICS LANBIO had its final year of ISP support in 2018, following plans communicated to the network coordinator at the IPICS Scientific Reference Group meeting in 2015.

In Africa, support was concluded to IPPS LAM, which had its final year of support in 2017 (however without any allocation). The network has gradually ceased activities until dormant, and continued support can no longer be regarded justified.

Table 7. Scientific network support concluded in 2018

Country	ISP Code	Field of Science
Chile	IPICS LANBIO	Ecological Chemistry (final year 2018)
Senegal	IPPS LAM	Laser Physics (final year 2017)

5.2 Overall results and Expenditures

In 2018, ISP supported 43 research groups and 19 scientific networks, together spending about 25 million SEK (Table 8). In total, 45% of allocations were transferred for local use, and 55% were payments to third parties. Groups and networks reported 425 PhD students (28% female), and 752 students (35% female) training for MSc, MPhil or Licentiate degrees. About 20% of the PhD students and 1% of the Master etc. students were in “sandwich” training programs. In total, 70 PhD (16% female) and 228 MSc (etc.) students (29% female) graduated. Groups and networks disseminated more than 900 scientific papers as publications or at conferences, and arranged 126 scientific events attended by more than 8,000 participants.

Table 8. Expenditures, number of ISP supported activities, numbers of registered and graduated students, and dissemination by research groups and networks in the indicated regions. (L.Am. = Latin America).

	Africa	Asia	L.Am.	Total
Expenditures by groups and networks (kSEK)				
Research groups (Detailed in Section 5.2.3)	11,962	2,986	185	15,133
• <i>Locally managed expenditures, %</i>	45	41	100	45
• <i>ISP payment, %</i>	55	59	0	55
Networks (Detailed in Section 5.2.3)	7,850	1,681	528	10,059
• <i>Locally managed expenditures, %</i>	49	45	57	49
• <i>ISP payments, %</i>	51	55	43	51
Total expenditures (Detailed in Section 5.2.3)	19,812	4,666	713	25,192
• <i>Locally managed expenditures, %</i>	47	42	68	47
• <i>ISP payments, %</i>	53	58	32	53
Number of Supported Activities				
Research Groups in Swedish Focus Countries	27	8	1	36
Research Groups in Non-Focus Countries	4	3	0	7
Regional Scientific Networks	12	5	2	19
Total number of activities (Detailed in Sect. 5.1.1 & 5.1.2)	43	16	3	62
Students (Detailed in Section 5.3.2)				
Students registered for PhD (sandwich type; F/M)*	22/ 46	7/ 8	3/1	32/ 55
Students registered for PhD (local; F/M)	50/218	37/32	1/0	88/250
<i>Percentage of PhD students that are female</i>	21	52	80	28
Students registered for MSc, MPhil, or Lic. (sandw.; F/M)	1/ 2	0/ 1	2/2	3/ 5
Students registered for MSc, MPhil or Lic. (local; F/M)	158/374	98/109	5/0	261/483
<i>Percentage of MSc students that are female</i>	30	47	78	35
Total number of postgraduate students	871	292	14	1,177
<i>Percentage of postgraduate students that are female</i>	27	49	79	33
PhD graduations (“sandwich”/local; Section 5.3.2; Appendix 1)	6 / 51	2 / 10	0 / 0	8 / 61
MSc/MPhil/ Lic. grad. (“sandwich”/local; Sect. 5.3.2, App. 1)	2 / 156	0 / 68	2 / 0	4 / 224
Publications (Detailed in Appendix 2)				
Publications in quality scientific journals	141	40	7	188
Public. in other scientific journals	117	37	2	156
Books, Chapters, Popular Publ., Technical Reports, etc.	13	10	1	24
Total number of publications	271	87	10	368
Conference contributions (Detailed in Appendix 3)				
International Conference Contributions (oral/poster)	63 / 30	94 /48	1 / 0	158 / 78
Regional Conference Contributions (oral/poster)	145 / 29	22 / 5	1 / 2	168 / 36
National Conference Contributions (oral/poster)	57 / 5	35 /11	1 / 0	93 / 17
Total number of conference contrib. (oral/poster)	265 / 64	151/ 64	3 / 2	419 / 130
Total dissemination (publications + conference contrib.)	600	302	15	917
Meetings arranged by ISP partners from each region	80	37	9	126
Number of participants reported (Detailed in App. 3)	4,979	2,886	450	8,315

*A few students are full-time with host supervisors. Those are not listed separately, but together with sandwich students to distinguish them from students trained locally.

5.2.1 RBM Logical Framework Follow-Up and Results Analysis

To monitor the outcomes required to fulfil ISP's objectives, a results-based management (RBM) logical framework was established in 2012, with the ISP Strategic Plan 2013-2017, and further refined in 2013. The current version is given in the ISP Annual Report 2013.

In the Annual Report 2015, the first comprehensive presentation of the RMB-indicators was given, with some explanation of the rationale and reasoning behind the selection, and it is here completed with data up to 2018 (Tables 9-13). Sida has selected a number of ISP's performance indicators, for their specific follow-up of ISP operation and results, that are particularly indicated.

In October 2018, ISP did an evaluation of the relevance of the originally selected 23 indicators. As a result, twelve will be **abandoned** (starting from the next Sida agreement period), ten will be **continued**, and one continued after **modification**. These planned changes are indicated below.

Specific objective 1: Better planning of and improved conditions for carrying out scientific research and postgraduate training

There are about ten more activities supported in the Sida agreement period 2014-2018, then in the previous agreement period (Table 9). In the three latest years of the previous period, ISP operation was based on agreement extensions, and little new support could be developed, while a substantial number had been phased out of support earlier in the period (ten research groups in 2008, as an example). However, a number of new support activities were planned, which could not be realized until in the present period. During 2014-2018, support has been concluded to a few activities, while a low number of new ones have been added, resulting in a modest increase this period.

Table 9. "Planning" indicators "a-f" to Specific objective 1. Average values 2008-2013 are given (with the exception given with Note 2 under the *), and yearly values for 2014-2018. Sida selected indicators are denoted in bold, with the Sida code in brackets. For indicators a, b, and d, given as percentages, the absolute values are given in brackets. (In the case of indicator d as (expenditures/[balances brought forward + allocations])

Indicator	Average 2008-2013	2014	2015	2016	2017	2018
Number of groups and networks supported each year.	49	60	59	59	60	62
a) Number of applications received in relation to invitations.	93% (138/149)	100% (27/27)	94% (17/18)	100% (20/20)	91% (20/22)	96% (24/25)
b) Number of applications granted in relation to submissions. (5.2)	98% (135/138)	89% (24/27)	100% (17/17)	100% (20/20)	95% (19/20)	96% (23/24)
c) ISP scientific reference group rating of applications.⁸ (5.1)	54%	59%	60%	55%	60%	54%
d) Expenditures (KSEK) in relation to final yearly budgets (including balances brought forward).*	85% (113,062/ 132,415)	89% (26,191/ 29,476)	85% (26,850/ 31,623)	85% (24,657/ 28,735)	87% (26,684/ 30,800)	85% (25,192/ 29,789)
e) Yearly amount (and %) of research funding granted from other sources than ISP (MSEK). ⁹ (In brackets, share from other financial sources when also institutional co-funding is included)	11,5 34%	18 38%	16,9 35% (67%)	19,2 40% (69%)	44,2 59% (74%)	47,7 62% (76%)
f) Number of activities phased out of support because sustainability has been achieved.	0	0	1¹⁰	0	0	1

* **Note 1:** The average 2008-2013 has been corrected using data from the Annual Reports 2013, 2014 and 2015.

Note 2: Expenditures includes transfers for local use, which, however, may not necessarily have been fully used locally the same year. For the period 2008-2013, the indicated amounts are the totals over the period.

⁸ The reference group assessments have been graded on a scale from 1 to 4 for each of 11 parameters, where: To be improved = 1, Good = 2, Very good = 3 and Excellent = 4. Where RG members have not assessed a parameter, 0 points have been given. Should all parameters be rated "4", the "degree of excellence" is 100%. The percentage reported is an average of all the assessments given each year. NOTE! For 2014 data only from the IPICS reference group were used. Ratings from the IPPS RG are included for 2015 and 2016. IPMS had no applications for review in 2016, nor in 2018.

⁹ Share of funding from other sources than ISP, of the groups' and networks' total funding from both ISP and other sources.

¹⁰ Corrected in relation to the Annual Report 2015, where the phase-out is accounted for but the table entry is missing.

The “**planning**” indicators a-f (Table 9) intend to reflect the ability to plan research and other scientific activities, write successful proposals, carry out research and training, attract supplementary funding, and eventually reach sustainability.

Regarding **indicator a**, because applications are invited, 100% submission is expected, and the non-responses are few. Such are usually caused by failure at various levels at the invited side, and in a few cases by the attraction of other grants to an extent that makes ISP funding less needed.

Indicator b is also expected to be at 100% granted applications, because of the nature of the support. In the application assessment, not only the scientific quality is considered but also assessment factors such as the development potential of the activity, and its importance in its institutional setting. Therefore, rejection may indicate that an application is incomplete and not possible to evaluate, or that the scientific quality is too low to be counterweighed by the estimated development potential.

Failure to submit invited applications and rejections are always subject to particular attention and measures. The relevance of yearly reporting this on the aggregated level is found to be low, and indicators a and b will be abandoned.

Indicator c is based on the aggregated assessments of the yearly cohort of applicants, which may be on a wide range of levels of scientific development. It can be noted that in the current agreement period, the indicator has kept close to the target value of 60% “excellence” (see ISP Annual Report 2015), meaning that individual activities are substantially exceeding this value. In these cases, the ability to write quality scientific proposals can be expected to have been developed, and subsequently the attraction of research funding in response to open, competitive calls. Data are available for longitudinal evaluation of the indicator values of individual research groups and networks, to assess their performance over several application events. In the Annual Report 2015, it was noted that “the measure has considerable uncertainty because it depends on which individuals are doing the assessment and how they perceive the rating parameters.” The indicator will be kept in yearly reporting, but is planned to be modified for increased stringency.

Indicator d is a rough estimate of the ability to plan the budget needs of the foreseen activities, to revise the budget, and adjust plans to the allocation granted, and to use the funding accordingly. The outcome remains consistent slightly below the estimated target value 90%. Available data allow for evaluation at the individual activity level. The indicator will be continued because on the aggregated level it shows whether totally awarded allocations are in proportion to the research and training expenditures that can actually be managed.

Indicator e was originally intended to put the ISP contribution in perspective of other research funding. The share of resources for research funding from other sources than ISP (of total research funding including the ISP contribution) available to supported activities was on average 34% yearly in the previous, 2008-2013 Sida agreement period. In the present agreement period, it has increased substantially, to about 60% in the two latest years. At least one of the activities that are most successful in attracting “other” grants is planned to be phased out of ISP support in the next few years, and such “loss” may drastically affect the aggregated indicator. Still, the indicator is relevant and will be continued. On the individual level, it may be one of the factors behind decisions of future phase-out of support.

From 2015, also institutional co-funding (other than grants for research and including “in kind”-contributions), has been estimated using a calculation model provided by ISP. This shows that ISP funding makes up 25-30% of all resources available to supported research groups and scientific networks. All data are at hand on the individual level to allow for longitudinal studies of individual activities.

There is an additional kind of contribution, that has not yet been estimated. This is “in kind”-contributions of scientific collaborators, for example supervising “sandwich” students. Although a bench fee is provided, it is probably substantially exceeded by the total value of the efforts and institutional costs of collaborators.

Indicator f is intended to show successful cases of phase out of ISP support, because “sustainability” of activities is believed to have been attained. Because the turn-over of support targets is slow in the program there are none or few each year. The indicator will be abandoned, because the phase-out of support and its causes is better accounted for in evaluation exercises.

Improved conditions may imply a better gender balance among staff and students, that the students graduate within reasonable time, that scientific collaboration is expanded, that available equipment is satisfactory, and that the negative environmental impact of activities is minimized.

The gender-focused “**condition**” indicators (Table 10) intend to reflect the conditions under which research and training are carried out with respect to gender proportions of staff, students and graduates, and the ability to retain PhD students to graduation within reasonable time.

Since 2008, **indicator g**, the gender proportion of staff has changed slightly in the favor of women at ISP as a whole. This is mainly due to the start by IPMS and IPPS of activities in Myanmar, where university staff are predominantly women. In all, the proportion of women staff is still far from balanced gender conditions, and ISP’s effort to promote the inclusion of more women staff and students in supported activities remain important. The indicator will be continued.

Table 10. “Conditions” indicators “g-i” to specific objective 1. The average values 2008-2013 are given, and the year values for 2014-2018. Percent values are followed by the numbers of females (F) in relation to the total in each category. ¹¹ Sida selected indicators are in bold, with the Sida code in brackets

Indicator	Average 2008-13	2014	2015	2016	2017	2018
g) Gender proportion of staff. ¹² (6.2)	ISP total 18% F staff (582/3173)	ISP total 22% F staff (139/637)	ISP total 18% F staff (157/852)	ISP total 22% F staff (175/810)	ISP total 23% F staff (211/896)	ISP total 23% F staff (194/857)
	IPICS 28% (352/1267)	IPICS 37% (72/194)	IPICS 25% (93/376)	IPICS 27% (88/321)	IPICS 30% (104/347)	IPICS 27% (82/305)
	IPMS 12% (110/916)	IPMS 15% (32/212)	IPMS 14% (32/226)	IPMS 20% (52/257)	IPMS 21% (68/326)	IPMS 20% (63/314)
	IPPS 12% (120/990)	IPPS 14% (35/231)	IPPS 13% (32/250)	IPPS 15% (32/181)	IPPS 18% (39/223)	IPPS 21% (49/238)
h1) Gender proportion of all students. (6.2)	All students: ISP total 23% F PhD (255/1107) 27% F MSc (515/1934)	All students: ISP total 23% F PhD (63/277) 32% F MSc (173/550)	All students: ISP total 20% F PhD (71/347) 29% F MSc (184/635)	All students: ISP total 26% F PhD (111/432) 31% F MSc (184/599)	All students: ISP total 28% F PhD (123/442) 33% F MSc (207/631)	All students: ISP total 28% F PhD (120/425) 35% F MSc (264/752)
	IPICS 34% F PhD (148/438) 36% F MSc (316/887)	IPICS 37% F PhD (36/98) 45% F MSc (98/219)	IPICS 30% F PhD (36/122) 38% F MSc (101/266)	IPICS 36% F PhD (62/173) 42% F MSc (108/258)	IPICS 36% F PhD (59/163) 44% F MSc (81/185)	IPICS 31% F PhD (41/133) 39% F MSc (121/314)
	IPMS 16% F PhD (52/328) 19% F MSc (51/273)	IPMS 14% F PhD (13/93) 19% F MSc (14/73)	IPMS 15% F PhD (16/105) 23% F MSc (21/90)	IPMS 13% F PhD (15/113) 24% F MSc (12/49)	IPMS 23% F PhD (29/124) 27% F MSc (40/146)	IPMS 28% F PhD (34/122) 39% F MSc (58/147)
	IPPS 16% F PhD (55/341) 19% F MSc (148/774)	IPPS 16% F PhD (14/86) 24% F MSc (61/258)	IPPS 16% F PhD (19/120) 22% F MSc (62/279)	IPPS 23% F PhD (34/146) 22% F MSc (64/292)	IPPS 23% F PhD (35/155) 29% F MSc (86/300)	IPPS 26% F PhD (34/170) 29% F MSc (85/291)

¹¹ The gender distribution of both *reported* and *graduated* postgraduate students are based on condensed indicators for each year (based on data from activity reports, used as base for the annual reports). For the years 2014-2016, graduated and reported PhD students have been quality assured in detail, meaning that any duplicates and other inconsistencies in the reporting of graduates and students have been removed. The number of PhD students and the gender distribution might therefore differ from numbers stated in the annual reports from these years.

¹² Source: Condensed indicators (ISP work file).

Indicator (Table 10, continued)	Average 2008-13	2014	2015	2016	2017	2018
h2) Gender proportion of graduates.	ISP total 17% F PhD (28/161) 24% F MSc (146/619) IPICS 28% F PhD (19/67) 31% F MSc (80/261) IPMS 12% F PhD (6/52) 21% F MSc (30/140) IPPS 7% F PhD (3/42) 17% F MSc (36/218)	ISP total 22% F PhD (8/36) 28% F MSc (41/148) IPICS 33% F PhD (6/18) 38% F MSc (29/76) IPMS 15% F PhD (2/13) 5% F MSc (1/21) IPPS 0% F PhD (0/5) 22% F MSc (11/51)	ISP total 15% F PhD (8/53) 25% F MSc (25/143) IPICS 23% F PhD (6/26) 27% F MSc (14/51) IPMS 0% F PhD (0/13) 27% F MSc (9/33) IPPS 14% F PhD (2/14) 22% F MSc (13/59)	ISP total 33% F PhD (26/80) 28% F MSc (53/188) IPICS 37% F PhD (12/32) 42% F MSc (32/77) IPMS 16% F PhD (5/32) 20% F MSc (8/40) IPPS 53% F PhD (8/15) 18% F MSc (13/71)	ISP total 38% F PhD (34/90) 39% F MSc (101/258) IPICS 48% F PhD (15/31) 37% F MSc (33/90) IPMS 40% F PhD (15/32) 55% F MSc (55/100) IPPS 22% F PhD (6/27) 19% F MSc (13/68)	ISP total 16% F PhD (11/69) 29% F MSc (66/228) IPICS 21% F PhD (5/24) 41% F MSc (28/68) IPMS 17% F PhD (3/18) 22% F MSc (15/67) IPPS 11% F PhD (3/27) 25% F MSc (23/93)
i) Proportion of PhD students continuing or graduating each year. (6.1)	ISP Total ¹³ 81% (394/488) F 81% (98/121) M 81% (296/367) IPICS 77% (142/185) F 83% (53/64) M 74% (89/121) IPMS 82% (144/175) F 88% (28/32) M 81% (116/143) IPPS 84% (108/128) F 68% (17/25) M 88% (91/103)	ISP Total 86% (185/215) F 96% (44/46) M 83% (141/169) IPICS 90% (54/60) F 97% (29/30) M 83% (25/30) IPMS 90% (76/84) F 100% (9/9) M 89% (67/75) IPPS 79% (55/70) F 86% (6/7) M 78% (49/63)	ISP Total 86% (189/219) F 81% (43/53) M 88% (146/166) IPICS 85% (64/75) F 79% (26/33) M 90% (38/42) IPMS 85% (74/87) F 91% (10/11) M 84% (64/76)	ISP Total 92% (265/289) F 94% (58/62) M 91% (207/227) IPICS 88% (80/91) F 93% (28/30) M 85% (52/61) IPMS 88% (81/92) F 87% (13/15) M 88% (68/77)	ISP Total 95% (345/365) F 99% (89/90) M 93% (256/75) IPICS 92% (136/148) F 98% (48/49) M 81% (88/99) IPMS 96% (79/82) F 100% (12/12) M 96% (67/70)	ISP Total 94% (296/316) F 94% (73/78) M 94% (223/238) IPICS ¹⁴ 95% (94/99) F 97% (32/33) M 94% (62/66) IPMS 96% (87/92) F 88% (14/16) M 96% (73/76)

Similarly, **indicator h1**, the gender proportions of all students, is biased towards the male side. On ISP level, the proportion of women PhD students has increased slightly from 2008, approaching 30%, while in recent years the proportion of women MSc students have exceeded 30%. This may partly be attributable to the mathematics and physics support in Myanmar, but to a degree also to the particular efforts by ISP to promote women students in these two sciences. The women PhD and MSc students

¹³ Data for the past agreement period is available only for 2011-2013.

¹⁴ Three IPICS partners failed to submit activity reports 2018 (see section 5.5) and the fate in 2018 of the 20 students reported in 2017 is therefore unknown. Similarly, IPICS ANEC failed to report data for 13 students of the Cameroonian node. Consequently, these students were not included in the calculation of the indicator.

generally constitute higher proportions in the chemistry program, than in mathematics and physics. The indicator will be continued.

Indicator h2, the gender proportions of graduates show a higher share of women among the graduates than could be expected from the proportions in the whole population of students. This is most likely explained by the trend in **indicator i**, showing that in general a slightly higher proportion of women students are among the those remaining from year to year. In general, the student retention is close to 95%, and seem to have increased from about 80% in the Sida agreement period 2008-2013. These two indicators will be continued.

The remaining three “**condition**” indicators (Table 11) address the time to graduation of PhD students, whether technical facilities are adequate, and the environmental impact of activities.

Indicator j shows the actual duration of a PhD study until graduation, from the time of admission until the time of graduation. The indicator values, also addressing local and sandwich students separately, have been steady over the years, keeping at a duration of approximately 5 years. In some cases, formal admission can be delayed by one or two years after the actual training and thesis work starts, and the latter is then regarded as the starting time. That is also usually when the students are listed in the annual activity reports. Similarly, there may be a delay between the time for thesis defense and the formal graduation that has to be taken into account when calculating the indicator values. The indicator will continue, with particular attention on a consistent approach to determining starting and conclusion time of the training.

An **indicator k**, number of external scientific collaborators per group, and the share of international, regional, national, and local partners, was abandoned already in 2015. It was concluded that cooperation partners in many cases were given as the same over many years, independent of whether the cooperation was active or not. The cooperation patterns are better suited to be studied using bibliographic data.

Indicator l, originally presented a count of functioning technical items available to the supported activity, was concluded to be too crude and was abandoned at the same time as indicator k. Instead, from 2015 it was changed to addressing the expressed satisfaction/dissatisfaction with available technical resources. This is now concluded also to be an unsatisfactory measure. A better way needs to be established to determine the technical conditions under which research and training are conducted. Therefore, the indicator is abandoned.

Indicator m is based on a number of measures to decrease negative environmental impact that was recommended in the ISP 2009 Environment Impact Assessment, and whether they are implemented or not. Although a tangible increase is seen since the previous agreement period in the number of measures that are reported as implemented, the indicator was still concluded to be too crude and it will be abandoned. Other ways to study the environmental effects of supported activities need to be developed.

Table 11. “Conditions” indicators “j-m” to specific objective 1. The average values 2008-2013 are given, and the yearly values for 2014-2018¹⁵

Indicator	Average 2008-13	2014	2015	2016	2017	2018
j) Duration of study of graduating PhDs, both total, and sandwich (SWH) and local (LOC) graduates. ¹⁶	4.9 Years SWH: 4.9 LOC 4.9	4.8 Years SWH: 4.8 LOC: 4.7	5.0 Years SWH: 5.5 LOC: 4.7	4.9 Years SWH: 5.0 LOC: 4.9	4.8 Years SWH: 5.0 LOC: 4.8	5.0 Years SWH: 5.4 LOC: 4.9
l) Share of groups and networks stating to be fully or to a large extent satisfied with the access to equipment needed to carry out research.	-	-	57% (n=47)	59% (n=56)	50% (n=54)	55% (n=51)
m) Measures recommended by ISP to reduce negative environmental impact that have been implemented.	55%	67%	76%	68%	72%	72%

¹⁵ In 2015, indicator “k” (Number of external scientific collaborators per group, and share international (I), regional (R), national (N) and local (L)) was abandoned. Furthermore, indicator “l” was re-phrased and based on an activity reporting question introduced in 2015 (hence no value for 2014)

¹⁶ The completion time is calculated as graduation year minus starting year, plus 0.5 years to compensate for potential bias in what time of the year the graduate started and graduated.

Specific objective 2: Increased production of high quality research

The “**production**” indicators (Table 12) address the scientific results in terms of scientific publication, contributions to scientific conferences, and the graduation of MSc and PhD students.

Table 12. “Production” indicators “n-r” to specific objective 2. Quality measures are included in indicators “n” and “o”, while “r” is exclusively a quality indicator. The average values 2008-2013 are given, and the yearly values for 2014-2018

Indicator	Average 2008-13	2014	2015	2016	2017	2018
n) Number of publications, and proportion in indexed journals (Web of Science). (8.1)	153 (45%) ¹⁷	231 (44%)	257 (43%)	295 (39%) ¹⁸	310 (46%) ¹⁸	344 (44%) ¹⁸
o) Total number of yearly conference contributions, and proportion international.	229 (39%)	229 (51%)	349 (36%)	323 (38%)	439 (30%)	549 (43%)
p) Number of MSc graduations per year. (7.2)	103 (24% F)	148 (28% F)	143 (25% F)	188 (28% F)	258 (39% F)	228 (29% F)
q) Number of PhD graduations per year. (7.1)	27 (17% F)	36 (22% F)	53 (15% F)	80 (33% F)	90 (38% F)	69 (16% F)
r ₁) Number and share of PhD graduates having published results before thesis defense ¹⁹	44% (71/161)	*	*	*	*	35% (116/328)
r ₂) Number and share of PhD graduates having published results three years after thesis defense ²⁰	55% (89/161)	*	*	*	*	45% (148/328)

* The values given 2018 account for 2014-2018.

Indicator n shows the yearly number of articles in scientific journals. The number has more than doubled since the previous Sida agreement period, while the proportion of articles in “quality” journals have remained almost constant, just above 40%. In 2018, the number of articles in journals by “predatory publishers” as defined by Cabell’s Black List (Section 5.4.1) has been reviewed and amount to in total 28, close to 7% of all journal articles (see Section 5.4.1). The indicator will continue.

Indicator o shows the yearly number of contributions to scientific conferences, and – as a quality measure – those at international meetings. Similar to the case with indicator n, the yearly contributions are about twice as much as in the previous agreement period, although with a more variable “quality” component. It is recognised that presenting results at regional and national conferences is also important. Other quality measures could be whether a presentation is as a poster or as an oral contribution, and whether the contribution was invited. The number of poster/oral presentations is reported in Section 5.4.2, but invited presentations are yet not accounted for (although the information is collected). The indicator will continue.

Indicators p and q account for the yearly numbers of MSc and PhD graduates, respectively, and will continue. It can be noted that in both cases the outcome has almost tripled in the current Sida agreement period compared with the previous one. One explanation may be the increasing establishment of local PhD programs among supported activities. It is noted that in 2018, the share of women students falls in comparison to previous years in the current agreement period. The indicator will continue.

Indicators r1 and r2, accounting for the scientific publication by PhD students before and after graduation, respectively, are important quality measures of the PhD training. The outcomes will continue to be followed, but these indicators will not be included in the yearly reporting.

¹⁷ Data for the past agreement period is available only for 2010-2013.

¹⁸ Note that an additional quality measure is introduced from 2016 (see Appendix 2), extending the range of “quality journals”. Considering this extended range of journals the indicator in 2016 increases to 50%, in 2017 to 54%, and in 2018 to 55%.

¹⁹ The indicator is based on Web of Science search.

²⁰ The indicator is based on WoS search of the graduating year plus two years after, e.g. for 2008 years 2008, 2009 and 2010 are included. The accumulated measure builds on number of graduates having published after thesis defense year by year.

Specific objective 3: Increased use of research results and (skills of) graduates

These performance indicators (Table 13) are intended to meet the requirement for systematically collecting “anecdotal evidence” of ISP impact, as recommended in the 2011 evaluation. However, the indicators s, t and u are essentially qualitative in nature, may differ widely in nature, and the value of quantitative data is questionable. The actual activities behind the numbers are provided in the report (Section 6), and Sida has selected particularly these indicators among those to be followed-up.

Table 13 Research and graduates “use” indicators “s-v” to Specific Objective 3

Indicator	2008-13*	2014	2015	2016	2017	2018
s) Number of outreaching activities performed (Sida indicator 9.1) and share of groups and networks reporting outreach activities (see Section 6.2).	Average no/year: 19 24% (70/292) of RG and NW reporting outreach	Total: 43 20% (12/60) of RG and NW reporting outreach	Total: 28 22% (13/59) of RG and NW reporting outreach	Total: 34 32% (19/59) of RG and NW reporting outreach	Total: 39 28% (17/60) of RG and NW reporting outreach	Total: 54 87% (54/62) of RG and NW reporting outreach
t) Number of and nature of honors (awards, promotions, etc) (Sida indicator 9.3) and share of groups and networks reporting honors (see Section 6.3.1).	Average no/year: 24 (20% F) 23% (68/292) RG and NW reporting honors	Total no: 50 (26% F) 18% (11/60) RG and NW reporting honors	Total no: 78 (21% F) 42% (25/59) RG and NW reporting honors	Total no: 97 (19% F) 42% (25/59) RG and NW Reporting honors	Total no: 74 (27% F) 43% (26/60) RG and NW Reporting honors	Total no: 121 (34% F) 56% (35/62) RG and NW Reporting honors
u) Number of instances when research results or skills is used by society (Sida indicator 9.2) , and share of partners reporting such use ²¹ (see Section 6.1).	Average no/year: 14 35% (101/292) RG and NW reporting use	Total no of use: 19 20% (12/60) RG and NW reporting use	Total no of use: 66 51% (30/59) RG and NW reporting use	Total no of use: 52 44% (26/59) RG and NW reporting use	Total no of use: 30 25% (15/60) RG and NW reporting use	Total no of use: 25 21% (13/62) RG and NW reporting use
v) Share of graduates remaining in home countries or regions.	92% (142/154)	**	**	**	95%** (238/250)	(to be calculated 2020)

* The number of research groups and networks referred to in indicators “s”, “t”, and “u” is the accumulated number for the period, that is, the sum of the number of partners supported each year.

** The figures reported 2017 are accumulated 2014-2017 (see 3.1.1).

Indicator s regards outreaching activities, which may be of many different kinds. The number of outreach instances reported to ISP has more than doubled in the current Sida agreement period in comparison with the previous one, and the number of activities reported 2018 – and share of partner reporting – is still substantially higher. The increased attention to conducting such activities and reporting them in the annual activity reports may have resulted in the expanding outcome. Still, it is the nature of the outreach that is of interest. This will still to be recorded and annually listed, while the yearly reporting of the quantity will be discontinued.

Indicator t regards the number of honors reported by ISP partners, concerning associated individuals. A yearly listing in an appendix to the annual report may still be of interest, but the yearly reporting of the quantity will be discontinued.

Indicator u, regarding the use of results and acquired skills, is also characterized by a wide range of uses, implying that a quantitative indicator has low value.

Indicator v, finally, is an important marker of ISP’s achievements in building research capacity of use to the partner institution and country. It has not, however, been implemented as a yearly indicator, but subject to – so far – two reports tracing the PhD graduates 2018-2013 and 2014-2017, respectively.

²¹ Data requirements on applications or use of research results were first introduced in the activity reporting templates for 2010.

5.2.2 Expenditures by Supported Activities

Distribution of Expenditures

In 2018, total expenditures by research groups and networks were 25,2 million SEK (Tables 14 and 15).

Table 14. Research group allocations, balances, and expenditures 2018, kSEK. (BBF = balance brought forward from 2016; BCF = balance carried forward to 2018, following ISP Board decision)

Reg.	Country	ISP Code	Start	BBF	Alloc.	Loc. use	ISP Paym.	Tot. Exp.	BCF
AFR	Burkina F.	IPICS BUF:01	2008	143 520	317 000	460 920	0	460 920	0
AFR	Burkina F.	IPICS BUF:02	2008	31 530	500 000	535 523	296 232	831 755	0
AFR	Ethiopia	IPICS ETH:01	2002	-17 269	550 000	0	274 904	274 904	0
AFR	Ethiopia	IPICS ETH:02	2012	814 792	394 000	0	67 817	67 817	1 140 000
AFR	Ethiopia	IPICS ETH:04	2013	149 412	145 000	0	203 590	203 590	0
AFR	Kenya	IPICS KEN:01	2011	482 361	550 000	125 000	339 701	464 701	403 000
AFR	Kenya	IPICS KEN:02	2011	0	450 000	150 035	299 963	449 998	0
AFR	Mali	IPICS MAL:01	2002	0	200 000	180 000	19 420	199 420	0
AFR	Rwanda	IPICS RWA:01	2014	41 793	300 000		257 802	257 802	0
AFR	Uganda	IPICS UGA:01	2015	0	400 000	137 140	297 518	434 658	-34 000
AFR	Uganda	IPICS UGA:02	2016	-10 871	400 000	50 150	345 976	396 126	-7 000
AFR	Zambia	IPICS ZAM:01	2011	0	450 000	225 000	136 323	361 323	0
AFR	Zimbabwe	IPICS ZIM:AiBST	2008	0	450 000	162 532	281 558	444 090	0
AFR	Zimbabwe	IPICS ZIM:01	2006	-54 609	350 000	123 695	171 911	295 606	0
AFR	Zimbabwe	IPICS ZIM:02	1999	-4 594	262 000	117 084	139 824	256 908	0
AFR		IPICS RG, Total		1 576 065	5 718 000	2 267 079	3 132 539	5 399 618	1 502 000
AFR	Ethiopia	IPMS ETH:01	2005	307 688	880 000	378 000	867 345	1 245 345	0
AFR		IPMS RG, Total		307 688	880 000	378 000	867 345	1 245 345	0
AFR	Burkina F.	IPPS BUF:01	2013	0	400 000	223 315	96 676	319 991	80 000
AFR	Ethiopia	IPPS ETH:01	1990	55 000	530 000	146 301	347 748	494 049	0
AFR	Ethiopia	IPPS ETH:02	2005	193 000	300 000	0	42 632	42 632	450 000
AFR	Kenya	IPPS KEN:01/2	1991	0	580 000	495 096	69 787	564 883	0
AFR	Kenya	IPPS KEN:02	1998	0	550 000	400 000	5 880	405 880	144 000
AFR	Kenya	IPPS KEN:03	1998	59 000	370 000	0	292 868	292 868	136 132
AFR	Kenya	IPPS KEN:04	2005	136 000	520 000	176 227	283 664	459 891	196 109
AFR	Kenya	IPPS KEN:05	2010	0	350 000	115 913	51 087	167 000	183 000
AFR	Mali	IPPS MAL:01	2011	0	480 000	193 000	282 503	475 503	0
AFR	Rwanda	IPPS RWA:01	2014	-14 000	525 000	99 890	412 323	512 213	0
AFR	Tanzania	IPPS TAN:01/2	1989*	0	150 000	112 623	79 133	191 756	-41 700
AFR	Uganda	IPPS UGA:01/2	1989	196 000	0	112 779	82 575	195 354	0
AFR	Uganda	IPPS UGA:02	2013	0	415 000	186 083	271 539	457 622	-42 600
AFR	Zambia	IPPS ZAM:01	1988	0	400 000	400 000	0	400 000	0
AFR	Zimbabwe	IPPS ZIM:01	2013	0	350 000	100 000	237 635	337 635	12 000
AFR		IPPS RG, Total		625 000	5 920 000	2 761 227	2 556 050	5 317 277	1 116 941
AS	Bangladesh	IPICS BAN:04	2003	0	500 000	85 356	446 076	531 432	-31 000
AS	Bangladesh	IPICS BAN:05	2013	0	100 000	89 900	10 086	99 986	0
AS	Cambodia	IPICS CAB:01	2010	-260 000	415 000	10 237	136 667	146 904	0
AS	Laos	IPICS LAO:01	2005	-115 000	250 000	44 859	109 916	154 775	0
AS		IPICS RG; Total		-375 000	1 265 000	230 352	702 745	933 097	-31 000
AS	Bangladesh	IPPS BAN:02/1	2018†	-139 000	200 000	0	63 035	63 035	-2 000
AS	Bangladesh	IPPS BAN:02/2	2018†	0	200 000	44 976	125 931	170 907	29 100
AS	Bangladesh	IPPS BAN:04	2011	0	530 000	527 442	2 558	530 000	0
AS	Bangladesh	IPPS BAN:05	2014	20 000	200 000	38 669	181 331	220 000	0
AS	Cambodia	IPPS CAM:01	2007	242 000	550 000	0	617 761	617 761	174 000
AS	Laos	IPPS LAO:01	2005	0	225 000	198 993	26 007	225 000	0
AS	Myanmar	IPPS MYA:01	2016	50 000	275 000	180 806	44 931	225 737	99 300
AS		IPPS RG, Total		173 000	2 180 000	990 886	1 061 554	2 052 440	300 400
LAm	Bolivia	IPICS BOL:01	2018	0	310 000	185 060	0	185 060	12 5000
LAm		IPICS RG; Total		0	310 000	185 060	0	185 060	12 5000
		Grand Tot., RG		2 306 753	16 273 000	6 812 604	8 320 233	15 132 837	3 013 341

* The support was interrupted 2009-2017, see Section 5.1.1

† Support to the combined IPPS BAN:02 group was initiated in 1980, see Section 5.1.1

Table 15. Scientific network allocations, balances, and expenditures 2018, kSEK. Country refers to that from which the network is coordinated. (BBF = balance brought forward from 2017; BCF = balance carried forward to 2019, following ISP Board decision)

Reg.	ISP Code	Country	Start	BBF	Alloc.	Loc use	ISP Paym.	Tot. Exp.	BCF
Africa	IPICS ANCAP	Tanzania	2001	0	250 000	222 000	27 947	249 947	0
Africa	IPICS ANEC	Burkina F.	2013	0	300 000	35 000	240 408	275 408	0
Africa	IPICS NABSA	Botswana	1995	0	0	10 424	0	10 424	-10 000
Africa	IPICS NAPRECA	Kenya	1988	542 740	280 000	287 000	338 174	625 174	0
Africa	IPICS RABioTech	Burkina F.	2008	0	450 000	429 797	20 203	450 000	0
Africa	IPICS SEANAC	Botswana	2005	0	450 000	0	42 267	42 267	0
<i>Africa</i>	IPICS NW, Total			542 740	1 730 000	984 221	668 999	1 653 220	-10 000
Africa	IPMS BURK:01	Burkina F.	2003	0	1 030 000	1 001 280	7 548	1 008 828	0
Africa	IPMS EAUMP	Uganda	2002	0	2 900 000	1 021 156	1 986 995	3 008 151	0
<i>Africa</i>	IPMS NW, Total			0	3 930 000	2 022 436	1 994 543	4 016 979	0
Africa	IPPS AFSIN	Ivory Coast	2011	55 000	830 000	93 924	785 150	879 074	5 900
Africa	IPPS EAARN	Uganda	2014	-27 000	550 000	386 748	153 267	540 015	-17 000
Africa	IPPS ESARSWG	Zimbabwe	1997	132 000	320 000	292 143	101 004	393 147	58 800
Africa	IPPS MSSEESA	Zambia	2009	60 000	310 000	98 000	269 795	367 795	0
<i>Africa</i>	IPPS NW, Total			220 000	2 010 000	870 815	1 309 216	2 180 031	47 700
Asia	IPICS ANFEC	Laos	2013	0	280 000	80 183	180 821	261 004	0
Asia	IPICS ANRAP	Bangladesh	1994	0	300 000	210 000	91 254	301 254	-1000
Asia	IPICS CAB-CCS	Cambodia		0	73 000	55 003	0	55 003	0
Asia	IPICS NITUB	Bangladesh	1995	0	320 000	320 000	0	320 000	0
<i>Asia</i>	IPICS NW; Total			0	900 000	610 183	272 075	882 258	-1000
Asia	IPMS SEAMaN	Cambodia	2015	0	950 000	148 157	650 466	798 623	0
<i>Asia</i>	IPMS NW, Total			0	950 000	148 157	650 466	798 623	0
LAm	IPICS LANBIO	Chile	1986	300 000	300 000	0	300 000	0	300 000
<i>LAm</i>	IPICS NW, Total			300 000	300 000	0	300 000	0	300 000
LAm	IPPS NADMICA	Guatemala	2012	627 000	0	0	228 000	228 000	214 000
	IPPS NW, Total			0	0	0	0	0	0
	Grand Tot., NW			1 389 740	9 820 000	4 935 812	5 123 299	10 059 111	250 700

Research groups (Table 14) accounted for 60% and scientific networks (Table 15) for 40% of the total expenditures, together using 85% of the financial resources available (including balances brought forward from 2017).

Nominally, 15% of the funding available to groups and networks was carried forward to 2018, but only 11% was carried forward to groups' and networks' accounts, following a notification procedure and decision by the ISP board.

IPICS partners accounted for 37% of the total expenditures, 70% of that by research groups and 30% by networks; IPMS partners accounted for 24% of the total expenditures, 21% of that by research groups and 79% by networks; and IPPS partners accounted for 39% of the total expenditures, 75% of that by research groups and 25% by networks (Figure 3).

In all, the supported activities in Africa accounted for 79% of the expenditures, those in Asia for 18%, and those in Latin America for 3% (Figure 4). The research groups in Africa accounted for 79% of the total research group expenditures, those in Asia for 20%. and the single group in Latin America (Bolivia) for 1% (Figure 5). The scientific networks in Africa accounted for 78% of the total network expenditures, those in Asia for 17% and the two in Latin America for 5% (Figure 6).

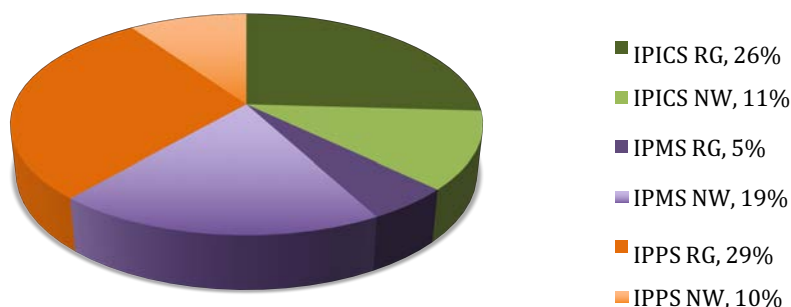


Figure 3. Distribution by program of total expenditures (%) of research groups and scientific network.

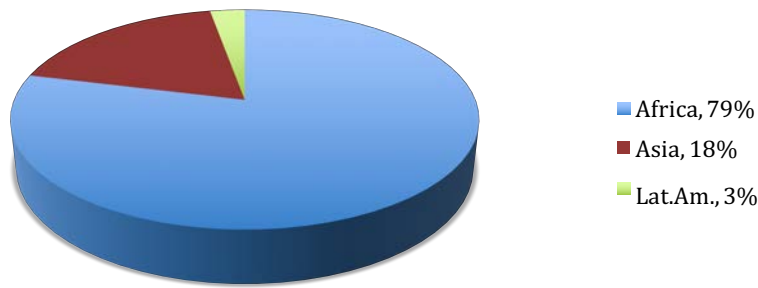


Figure 4. Distribution by region of the total expenditures (%) of research groups and scientific networks.

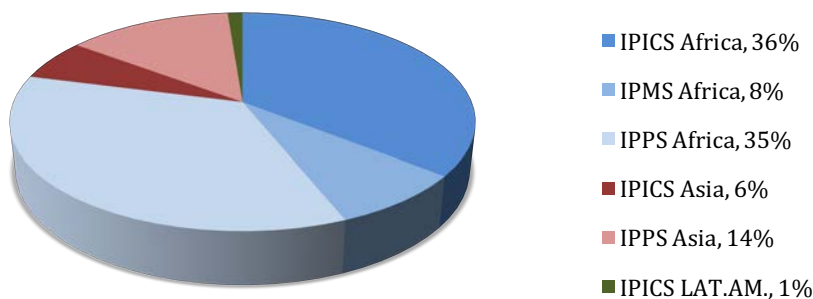


Figure 5. Distribution by program and region of research groups' expenditures (%).

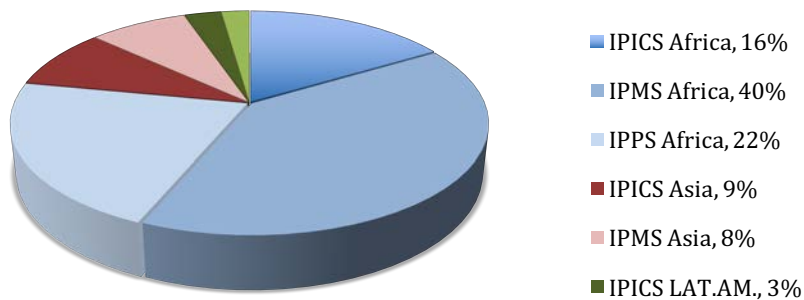


Figure 6. Distribution by program and region of scientific networks' expenditures (%).

Management of Expenditures

Each group and network has a yearly allocation, decided by the ISP board after an application and assessment procedure involving the programs' scientific reference groups. In this report, it is distinguished between expenditures carried out locally, after the transfer of funds to a local account, and expenditures by payments to third parties carried out by ISP. In both cases, the transactions are formally requested by the accountable group leader or network coordinator, and should follow the budget for the use of funding for the year in question.

Funds transferred for local use may not always be spent directly, and are to be accounted for each year. The degree of feasibility to manage funds locally depends on the local financial management system and the administrative competence of the local staff. Payments to third parties by ISP may, for example, be to companies, from which instruments were purchased, and to sandwich

students' subsistence in their host country, as well as to reimburse costs at the corresponding host institutions. In total, 47% of the expenditures by research groups and networks were managed locally.

The IPICS research groups managed 41% of expenditures locally, while 59% of expenditures were executed by ISP payments (Figure 7). The single IPMS research group managed 30% of expenditures locally, while 70% of expenditures were executed by ISP payments. IPPS research groups managed 51% of their expenditures locally and 49% by ISP payments.

In networks, those supported by IPICS managed in total 67% of their expenditures locally, and 33% by requesting ISP to carry out payments; those supported by IPMS managed 45% locally, and 55% by requesting ISP to carry out payments; and those supported by IPPS managed 36% locally, and 64% by requesting ISP to carry out payments (Figure 8).

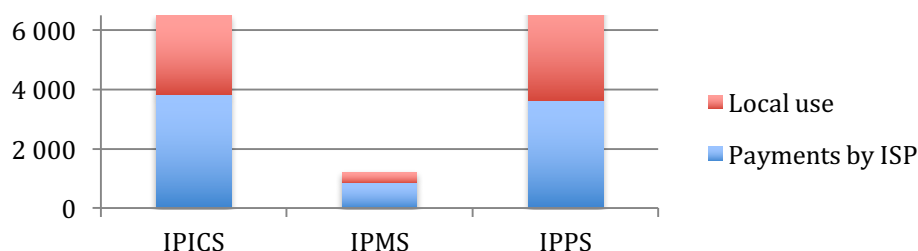


Figure 7. Distribution of expenditures (kSEK) of research groups between local use and payments by ISP.

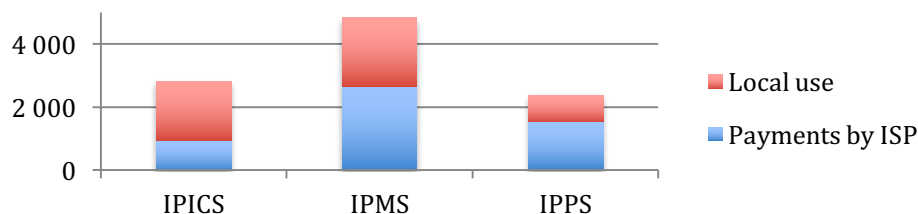


Figure 8. Distribution of expenditures (kSEK) of networks between local use and payments by ISP.

Considering regions, African research groups managed 47% of expenditures locally, and 53% were managed by ISP (Figure 9). African networks managed 49% locally, and 51% were managed by ISP. In Asia, research groups and networks managed 42% of expenditures locally, and 58% were managed by ISP. In Latin America, IPICS-supported LANBIO and BOL:01 managed all of their ISP funds locally, while ISP managed all expenditures of the IPPS-supported NADMICA. The latter is explained by the fact that all NADMICA expenditures regarded students being trained in Sweden.

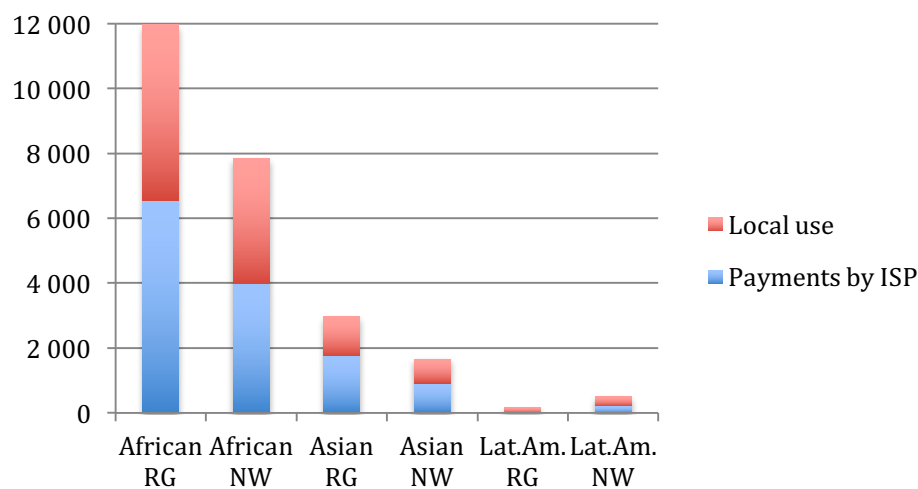


Figure 9. Distribution by region of expenditures (kSEK) of research groups and networks between local use and payments by ISP.

Expenditures in relation to Swedish Focus Countries

Research groups in Swedish focus countries (see Section 5.1.1) spent 87% of the total research group expenditures, while research groups in those Swedish focus countries that do not yet have a Sida bilateral agreement on research development cooperation spent 54% (Table 16). Research groups in non-focus countries (Laos, Myanmar and Zimbabwe) accounted for 13% of the total research group expenditures. Those in Laos were financed by Stockholm University funding, making up 20% of the expenditures in non-focus countries.

Table 16. Distribution of research group total expenditures (kSEK and %) in 2018 in Swedish focus countries (FC) with or without Sida bilateral research development programs (Bil.Prg.), and to other countries, for IPICS, IPMS and IPPS

Country Category	IPICS		IPMS		IPPS		Total	
	kSEK	%	kSEK	%	kSEK	%	kSEK	%
FC with Sida Bil.Prg.	1 820	28	1 245	100	1 894	26	4 959	33
FC, without Sida Bil.Prg.	3 546	54	0	0	4 688	64	8 234	54
Other Countries	1 151	18	0	0	788	11	1 940	13
TOTAL	6 518	100	1 245	100	7 370	100	14 974	100

The expenditures of chemistry research group in focus countries amounted to 82% of the total chemistry research group expenditures, and 54% was spent by groups in countries not having a Sida bilateral program (Figure 10). The expenditures of mathematics research groups in focus countries amounted to 100%, all spent by the one group at AAU in Ethiopia, where a Sida bilateral program is in place. The expenditures of physics research groups in focus countries amounted to 89% of the total physics research group expenditures, and 54% was spent by groups in countries not having a Sida bilateral program.

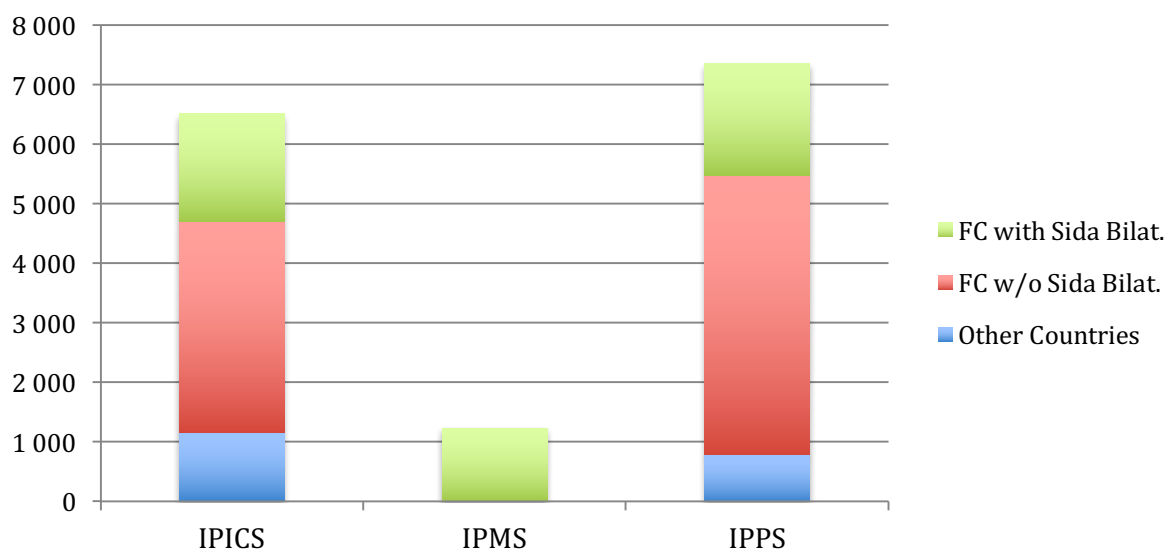


Figure 10. Distribution by program of expenditures (kSEK) by research groups in Swedish focus countries with Sida bilateral support (FC with Sida Bilat.), focus countries without Sida bilateral support (FC w/o Sida Bilat.), and other countries. (RG – research groups, NW – scientific networks)

External Audits

According to the current agreement with Sida, ISP shall subject grants to third parties exceeding SEK 284,000 to external audits. ISP interprets this to apply to grant allocations transferred for local management, because allocations managed by ISP on requests of research groups and networks are subject to separate audit as a part of yearly external audit of ISP's financial management, following Annex IV to the agreement. In consultation with the Executive Committee to the Board of ISP, this has been further interpreted to apply to allocations transferred in excess of the limit amount during a year or a granting period (EC decision §7, 9 March 2015).

Audits of local funds used in 2018 (and any preceding years, if applicable) were requested from 35 research groups and networks (and, in some cases, from network nodes; Table 17).

Twentyone of the requested reports were received timely. The reasons for late and absent reports were in most cases difficulties in procuring an auditing service, in particular at a reasonable cost in relation to the amount to be audited. One report was postponed to next year.

Only one of the received reports was approved in full, after review at ISP, whereas 18 reports were accepted with comments regarding the needs of corrective measures. Two audit statements were disapproved. As a consequence, no transfers of funds for local use can be carried out until new statements are submitted and approved. The same applies to the statements absent.

Table 17. Overview, per program, of the number of audit requests of 2018 (in some cases including 1 or 2 preceding years), regarding funds transferred for local use, and the number of cases where statements from the auditors were approved in full, accepted with comments/ corrections or disapproved. In some cases, statements were not received at all (absent) or the audit was postponed in agreement with the accountable group leader or network/node coordinator

Program	Requested	Received	Approved in full	Accepted with comm./corrections	Disapproved	Absent	Postponed
IPICS	18	8	0	7	1	10	0
IPMS	6	5	0	5	0	0	1
IPPS	11	8	1	6	1	3	0
Total	35	21	1	18	2	14	1

ISP is strengthening the financial control, hence the many cases of comments and corrections. Partners failing to submit an audited financial report are subject to particular attention.

5.3 Staff, Students and Theses

5.3.1 Staff in Supported Activities

In total, 857 staff members were reported to be involved in ISP-supported activities, 23% of them female (Table 10g). In all, 25% of the group leaders and network coordinators²² were female. IPICS groups and network reported 27% female staff members, and 33% female leaders, IPMS 21% female staff members and 33% female leaders, and IPPS 18% female staff members and 13% female leaders. Only 16 deputy leaders were reported, 6 of them female (38%).

5.3.2 Students in Supported Activities

In 2018, totally 1,177 postgraduate students were reported to be active in research groups and networks, benefitting directly or indirectly from ISP support (Table 8). Students may to various degrees enjoy ISP-funded support, or may be supported from other sources. Still, the ISP groups and networks make up the platform for the students' training, and all reported students are accounted for here. Female students made up 33% of all reported students; 27% of those in Africa, 49% of those in Asia, and 79% of those in Latin America).

There were 425 PhD students (28% of them female), including graduates (Table 8, Table 10h1). Of all PhD students, 87 (20%) were trained on a "sandwich" basis (37% of them female). IPICS groups and networks reported 133 PhD students (of which 31% female), 31 on sandwich programs (45% female), and 102 on local programs (26% female) (Figure 11). IPICS groups and networks reported 133 PhD students (of which 31% female), 31 on sandwich programs (45% female), and 102 on local programs (26% female). IPMS groups and networks reported 122 PhD students (of which 28% female), 32 on sandwich programs (31% female), and 90 on local programs (27% female). IPPS groups and networks reported 170 PhD students (of which 26% female), 24 on sandwich

²² For IPMS, all node coordinators of EAUMP and SEAMaN are included.

programs (33% female), and 146 on local programs (25% female). Groups and networks in Africa reported 21% female PhD students, those in Asia 47%, and those in Latin America 80% (Table 18).

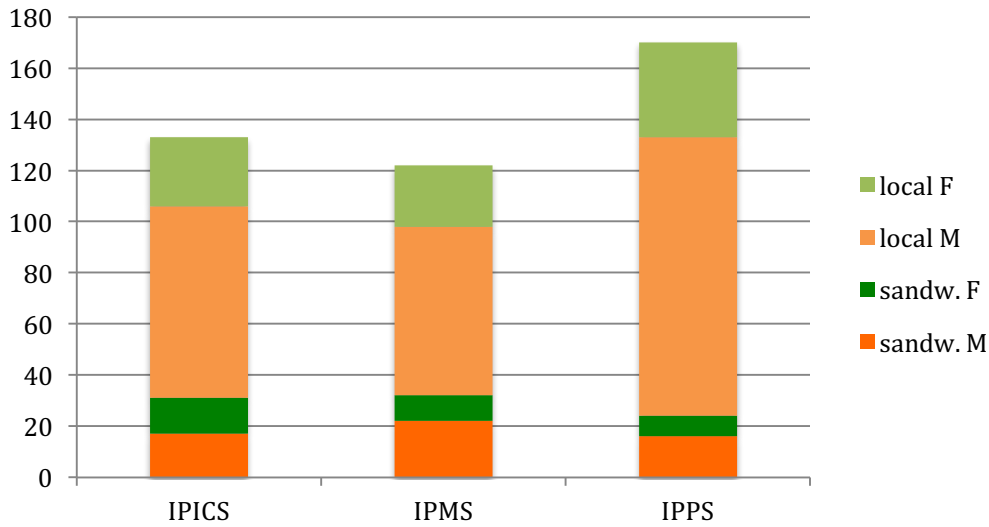


Figure 11. Female and male sandwich (sandw.) and local PhD students, by program.

The total number of students and graduates on the Master level (including MPhil and Licentiate) was 752 (35% of them female; Table 8, Table 10h1). In all, only 8 (1%) of them were trained on a “sandwich” basis (three of them female), and 744 were on local programs (35% female). IPICS groups and networks reported 314 Master students (of which 39% female), five on sandwich programs (two of them female), and 309 on local programs (39% female) (Figure 12). IPMS groups and networks reported 147 Master students (of which 39% female), two on sandwich programs (one of them female), and 145 on local programs (39% female). IPPS groups and networks reported 291 Master students (of which 29% female), one male on a sandwich program, and 290 on local programs 29% female). Groups and networks in Africa reported 30% female MSc (etc.) students, those in Asia 47%, and those in Latin America 78% (Table 18).

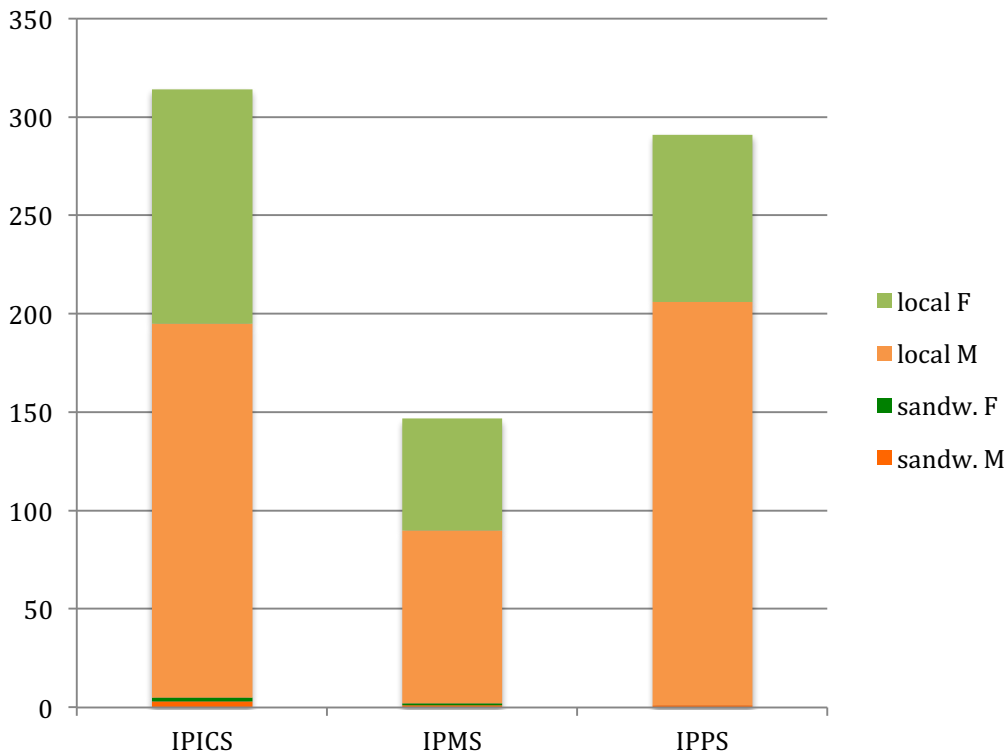


Figure 12. Female and male sandwich (sandw.) and local MSc (etc.) students, by program.

Table 18. Proportion of female (F) students (%) of all postgraduate students in activities supported by IPICS, IPMS and IPPS 2018, respectively, by region.

Students and region		IPICS, %F	IPMS, %F	IPPS, %F	Total, %F
PhD students	Africa	27	18	18	21
PhD students	Asia	50	67	46	47
PhD students	Latin America	100	N/A	0	80
All PhD students		31	28	26	28
Master students	Africa	36	21	26	30
Master students	Asia	43	86	34	47
Master students	Latin America	78	N/A	N/A	78
All MSc etc. students		39	39	29	35

In the year, 69 PhD students graduated (Table 8, Table 10h2, Table 19). Of these, 8 were on sandwich programs (1 of them female), and 61 were on local programs (10 of them female; 16%). IPICS groups and networks reported 24 graduating PhD students (of which 21% female), one male on a sandwich program, and 23 on local programs (22% female). IPMS groups and networks reported 18 graduating PhD students (of which 17% female), six males on sandwich programs, and 12 on local programs (25% female). IPPS groups and networks reported 27 graduating PhD students (of which 11% female), on females on a sandwich program, and 26 on local programs (8% female). In all, 88% of the PhD graduates were on local programs, and 16% were female. On average, the students needed 5.0 years to graduation, 4.9 years on local and 5.4 years on sandwich programs (Table 11j).

In the year, 228 MSc (etc.) students graduated, 29% of them female (Table 8, Table 10h2, Table 19). The majority, 224 (98%), was on local programs (63 of them female; 28%). IPICS groups and networks reported 68 graduating Master students (of which 41% female), two females on sandwich programs, and 66 MSc (etc.) graduates on local programs (39% female). IPMS groups and networks reported 67 graduating Master students (of which 22% female). One female and one male were on sandwich programs, and the remaining 65 MSc (etc.) graduates on local programs (22% female). IPPS groups and networks reported 93 graduating Master students (of which 25% female), all on local programs.

Table 19. Summary of chemistry (IPICS), mathematics (IPMS) and physics (IPPS) graduates 2018. Sandwich type training (Sandw.) or Local training is indicated, and gender of graduates. MSc, Phil and Licentiate graduations are denoted "Other". (L. Am. = Latin America; F = female; M = male; - = Not applicable, no IPMS support in L.Am.)

	Africa				Asia				L.Am.				Total				
	Sandw.		Local		Sandw.		Local		Sandw.		Local		Sandw.		Local		
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	
PhD																	
IPICS			5	18		1									1	5	18
IPMS		5	3	9		1									6	3	9
IPPS	1			16			2	8							1		24
Total	1	5	8	43		2	2	8						1	7	10	51
Other																	
IPICS			20	28			6	12	2					2		26	40
IPMS	1	1	12	48			2	3						1	1	14	51
IPPS			8	40			15	30								23	70
Total	1	1	40	116			23	45	2					3	1	63	161

All graduates and theses are specified in Appendix 1.

5.4 Dissemination by Supported Activities

5.4.1 Publications

In 2018, 44% of the 344 publications in scientific journals were in journals listed on Web of Science, with Thomson Reuter impact factors. Another 11% were in journals listed only in the Norwegian Register for Scientific Journals, Series and Publishers (NCDR), indicating that, in all, 55% of the journal articles were in quality journals. There were 156 articles in journals not listed in these databases (45%), and 23 of them (16%; 7% of the total number of articles) were in journals by “predatory publishers” as defined in Cabell’s blacklist (see Appendix 2), most of them (78%) by IPICS partners.²³ In addition, 24 publications were book chapters, popular publications, etc. (Table 8, Table 21; App. 2).

Table 21.

Summary of publication data for 2018, by category and program. The number of publications (Publ.) in scientific journals is specified to those with and without Thomson Reuters (TR) impact factors (IF) or NCDR ranking, and whether ISP funding was acknowledged (Y) or not (N). (See further App. 2)

Publication category	IPICS Y / N	IPMS Y / N	IPPS Y / N	Total Y / N
Publ. in Scientif. Quality J. (TR or TR+NCRD ranked)	28 / 43	9 / 28	29 / 51	66 / 122
Publ. in Scientific Quality Journals (NCRD ranked only)	5 / 7	4 / 16	3 / 2	12 / 25
Publ. in Other Scientific Journals (unranked)	8 / 46	3 / 32	28 / 16	39 / 94
Publ. in Journals by “predatory publishers”	5 / 13	0 / 1	4 / 0	9 / 14
Books, Chapters, Popular Publ., Technical Reports, etc.	16	4	4	24
Total number of publications	159	77	132	368

In Appendix 2, publications are detailed for each program, chemistry, mathematics and physics, and summarized in program-wise tables.

Acknowledgement of ISP

ISP was acknowledged in 33% of the 344 articles in all journals; in 36% of the 151 articles in TR-listed “quality journals”, in 32% of the 37 articles in NCDR-ranked journals, and in 31% of the 156 publications in “other journals”. The acknowledgement rate in the 23 articles in journals by “predatory publishers” was 39%.

ISP was acknowledged in 29% of the 143 chemistry papers reported (in 35% of the 71 “quality” ones and 18% of the 72 “other” ones); in 16% of the 73 mathematics papers (in 24% of the 37 “quality” ones and in 8% of the 36 “other” ones); and in about 45% of the 128 physics papers (in 36% of the 80 “quality” ones and in 58% of the 48 “other” ones). (Figure 13).



Figure 13. Number of articles in scientific journals by program, listed with Thomson Reuter impact factors or unlisted²⁴, and with (w) and without (no) acknowledgement of ISP support.

²³ In all cases of articles in journals by “predatory publishers”, ISP partners have been notified and advised on avoidance.

²⁴ Here including also the “quality” articles listed only in the Norwegian Register.

5.4.2 Contributions to Conferences, Workshops and Meetings

In 2018, ISP partners gave 549 contributions to scientific conferences, most of them oral (73%), 213 by IPICS (81% oral), 56 by IPMS (88% oral), and 280 by IPPS partners (70% oral) (Figure 14).

There were 236 contributions at the international level (43% of all, and 67% oral), 204 at the regional level (37% of all, and 82% oral), and 109 at the national level (20% of all, and 85% oral)

Regional origin of contributing groups and networks

Altogether, 24 of the groups and networks in Africa gave 93 presentations at international conferences (68% oral), 26 gave 174 presentations regionally (83% oral), and 15 gave 62 presentations nationally (71% oral). (Figure 15)

Fourteen groups and networks in Asia gave 142 presentations at international conferences (66% oral), Six gave 27 presentations regionally (81% oral), and nine gave 46 presentations nationally (76% oral).

From South America, IPICS BOL:01 gave two oral presentations, one at an international and one at a national conference. IPICS LANBIO gave one oral and two poster presentations at a regional conference.



Figure 14. Number of oral (O) and poster (P) presentations at international (INT), regional (REG), and national/local (NAT) conferences, by program, IPICS, IPMS and IPPS.

Figure 15. Number of oral (O) and poster (P) presentations at international (INT), regional (REG), and national/local (NAT) conferences, by region of origin of ISP partner. (AFR – Africa, AS – Asia, LAM – Latin America).

Where contributions were given

Totally 43 contributions of the 236 ones at international meetings were given in Africa (18%, in eight countries), 144 in Asia (61%, in eleven countries), 35 in Europe (15%, in 13 countries), nine in North America (4%, all in USA), and 6 in South America (2%, in four countries). (Figure 16, Appendix 3 Table 25)

Totally 131 contributions of the 204 ones at regional meetings were given in Africa (84%, in 15 countries), 27 in Asia (13%, in eight countries), three in North America (1,5%, all in USA), and three in South America (1,5%, all in Chile). (Figure 16, Appendix 3 Table 26)

Totally 61 contributions of the 109 ones at national/local meetings were given in Africa (56%, in nine countries), 46 in Asia (42%, in five countries), one in Europe (1%, in Sweden), and one in South America (1%, in Chile). (Figure 16, Appendix 3 Table 27)

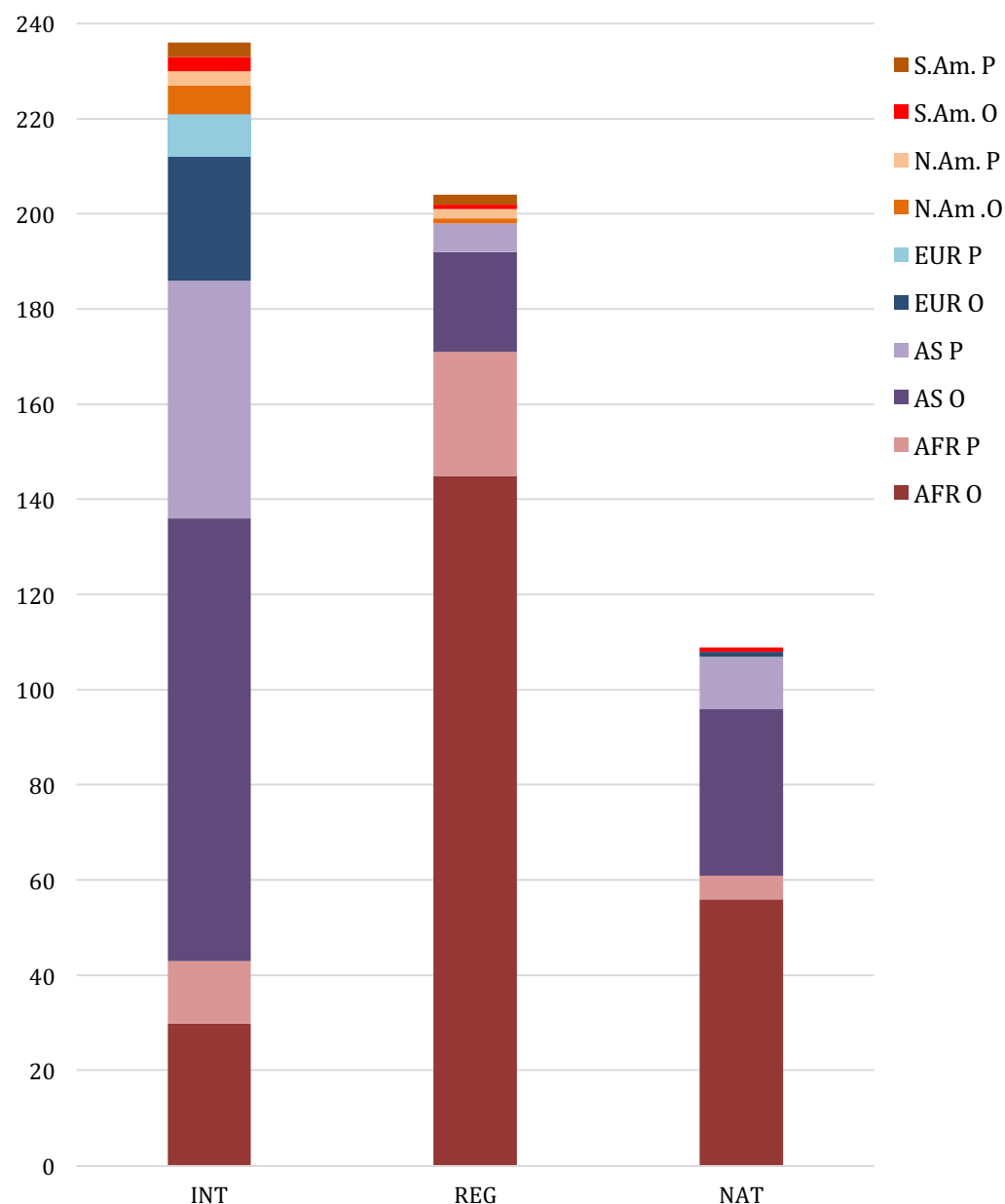


Figure 16. Number of oral (O) and poster (P) presentations at international (INT), regional (REG), and national/local (NAT) conferences, by region where the contribution is given (AFR – Africa, AS – Asia, EUR – Europe, N.Am. – North America, S.Am. – South America).

5.4.3 Arranged Conferences, Workshops, Training Courses, etc.

In 2018, 126 scientific meetings were arranged (Table 8, Figure 17, Appendix 3 Table 28). In Africa, 80 meetings were arranged in 15 countries, 39 by IPICS partners, 14 by IPMS partners, and 27 by IPPS partners. In Asia, 36 meetings were arranged in five countries, 27 by IPICS partners 3 by IPMS partners, and 6 by IPPS partners. In Europe, one meeting was arranged, in Germany by IPPS CAM:01. In Latin America, 9 meetings were arranged, all in Bolivia, by IPICS BOL:01.

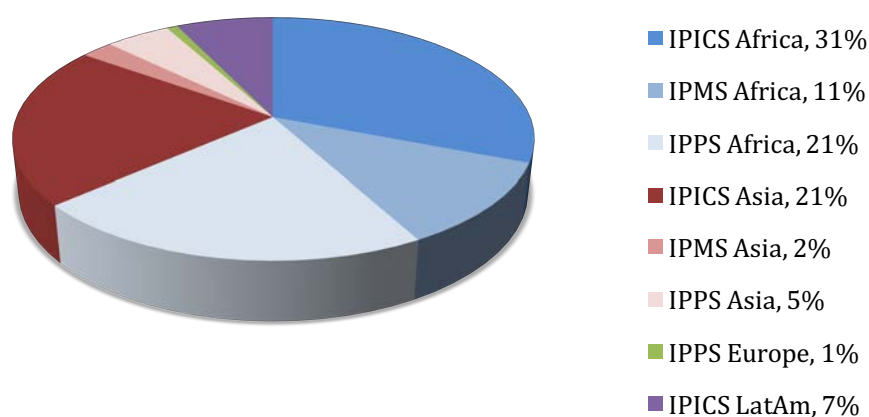


Figure 17. Share of 126 meetings (%) arranged in Africa, Asia, Europe (Eur), and Latin America (LatAm) by IPICS, IPMS, and IPPS partners. (The one meeting in Europe was arranged by IPPS CAM:01).

The 126 meetings gathered totally about 8,300 participants (Figure 18). The 80 meetings arranged by ISP partners in Africa gathered close to 5,000 participants (60% of all), about 1,800 participants (37%) to those arranged by IPICS partners, about 2,300 participants (46%) to those arranged by IPMS partners, and 850 participants (17%) to those arranged by IPPS partners

The 37 meetings arranged by ISP partners in Asia gathered close to 2,900 participants (35% of all), about 1,800 participants (62%) to those arranged by IPICS partners, 330 participants (12%) to those arranged by IPMS partners, and 760 participants (26%) to those arranged by IPPS partners.

The 9 meetings arranged by IPICS BOL:01 in Latin America gathered 450 participants (5% of all participants)

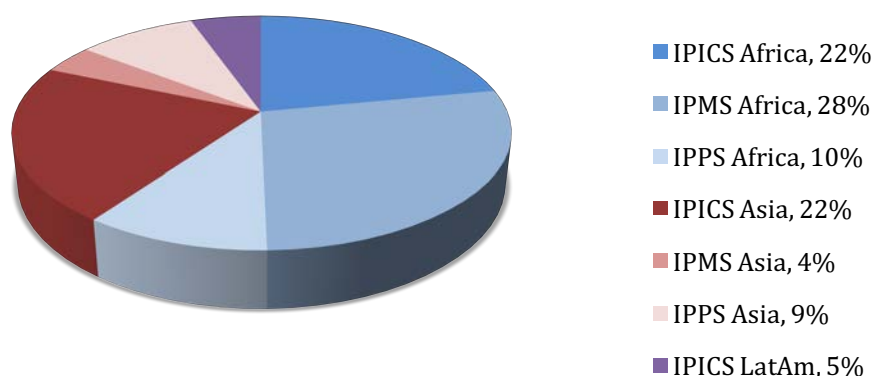


Figure 18. Share of 8,315 participants (%) at 126 meetings arranged by IPICS, IPMS, and IPPS partners from Africa, Asia, and Latin America (LatAm).

5.5 Outputs and Outcomes that were not achieved

On ISP level, the chemistry program failed to obtain activity reports from two networks, NABSA and SEANAC, the activities of which have faded for various reasons. Regarding NABSA, the instrumental facilities at the Department of Chemistry at University of Botswana, Gaborone, Botswana, have deteriorated, and since the ISP-supported activities aim to offer these facilities to less well-equipped researchers in the region, allocations have been postponed until the university restores the resources.

Another chemistry network wasn't able to report the progress of PhD students from all of its country nodes, which affected the accounts of the continuity of ISP student.

An Ethiopian chemistry group failed to submit the annual activity report for 2018 (and previously 2017), and did not submit any application in 2018 (nor in 2017). The reason is the impaired health of the group leader, and lack of commitment of the deputy group leader. Since the PhD students couldn't be accounted for, they have been omitted from ISP student records. The funds reserved in 2017 for two sandwich students to complete their work in Sweden in 2018, however, resulted in the return of the students to successfully defend their theses at AAU later in the year, but details have not been provided and the theses have not been registered in ISP records.

On the supported activities level, the physics partners report that the procurement systems for foreign purchase and the customs regulations still are the most noticeable hindrances to capability building. In the activity reports, many physics groups explicitly express a wish of improvements of the working conditions by e.g. government facilitation of foreign procurement. Furthermore, many of the physics research groups express the need to develop better equipment maintenance capacity at their institutions. According to many of the group leaders, the reasons that have caused delay of the research work and outcomes include frequent power fluctuations, lack of scholarships for students, lack of equipment for advanced sample characterization and instrument malfunction, and delays in getting spare parts and repairs. The main limiting factors for delayed students' graduations is that most of the students need to work in addition to postgraduate training, in order to cover their living expenses.

These obstacles are essentially the same in the chemistry and (as applicable) in the mathematics programs, and subject to continuous concern. ISP works on mitigating the situation with respect to equipment maintenance, and allowing for student fellowships, but has little influence over processes for procurement and customs clearance.

SECTION 6: APPLICATIONS AND IMPACT

6.1 Research Results and Implementation

In this section, examples of research findings and the use of research results are listed, as reported to ISP. The relation of the findings to the UN Sustainable Development Goals (see Section 3.2.2) are indicated. The reported use may be in patents and products, in other applications including training, in using skills to influence policy, e.g. in government committees, and through technical development and services. These entries are used in RBM indicator “u”. They are listed country wise and then according to ISP research/network code. Abbreviations not explained here are found in Section 8.

6.1.1 Examples of Research Findings and Relation to SDGs

Bangladesh



At present food safety is in focus in Bangladesh. The majority of the consumers of certain food are children, and the safety of for example fruit juices are of great importance. A study of 22 local and imported fruit juice samples collected from different markets of Dhaka city showed that four were ‘amended’ with acesulfame-K (6-13 mg/L), two with aspartame (12 and 35 mg/L, respectively), but none with saccharin. (IPICS BAN:04)

(Food Safety)



The antibiotic chloramphenicol was analyzed in 16 shrimp and prawn samples collected from different places of Bangladesh. In one case only the antibiotic was found in a concentration exceeding the EU regulatory standards. (IPICS BAN:04)

(Food safety)



The results of a study of inorganic parameters, including heavy metals, and BOD in thirty water samples from three districts in southern Bangladesh indicated that the water is of good quality with regard to these parameters. (IPICS BAN:04)

(Water chemistry)



The group has worked on the synthesis and characterization of semi-soft ferri-magnetic CoFe_2O_4 nanoparticles formed using the “sol–gel method.” High resolution transmission electron microscopy shows that the nanoparticles are highly crystalline. The magnetic properties reveal that the particles are ferrimagnetically ordered soft magnetic materials. The nanoparticles possess low values of the dielectric constant which decreases with increasing frequency, which makes the nanoparticles promising candidates for use in high frequency magnetic devices. (IPPS BAN:02/1)

(Magnetic materials)



Non-toxic metal halide perovskites have come in the forefront for commercialization of the perovskite solar cells and optoelectronic devices. The group in Dhaka has for the first time shown that particular metal doping in CsGeCl_3 halides can considerably enhance the absorbance both in the visible and ultraviolet light energy range. DFT-based first principles calculations have been carried out on Mn-doped and Ni-doped CsGeCl_3 halides. The detailed structural, optical, electronic and mechanical properties of all the doped compositions could be investigated theoretically. A combinational analysis indicates that $\text{CsGe}_{(1-x)}\text{Mn}_x\text{Cl}_3$ is the best lead-free candidate among the inorganic perovskite materials for solar cell and optoelectronic applications. (IPPS BAN:02/1)

(Solar energy conversion)



(Nanobiomaterials)

The group at AECD has studied *in vivo* and *in vitro* toxicity of biomaterials, with a purpose to use these materials for hyperthermia treatment of cancer, MRI contrast dye, and targeted drug delivery. In one such study, chitosan coated cobalt ferrite nanoparticles were injected into Albino Wister rats. Cobalt ferrite nanoparticles are extraordinarily efficient because their magnetic anisotropy can be controlled by controlling particle size, but free cobalt is known for its toxicity in biological systems. After the administration of chitosan-coated CoFe_2O_4 nanoparticles, key parameters for potential toxicity were carefully examined and were all found to be in reasonable ranges. (IPPS BAN:02/2)



(Human health)

The group has previously developed a human trunk model in COMSOL, which includes subcutaneous fat, lungs and heart. The reliability of such a model was tested by a localised lung ventilation study at different regions of the thorax. The Focused Impedance Method (FIM) usually performs measurements from one side of the thorax giving a limited 3D sensitivity, which is a limitation considering that lung studies require deep probing of human thorax. Based on a new idea involving special positioning of electrodes working on COMSOL simulations and experimental measurements the group succeeded in obtaining improved sensitivity in the deep regions of the human thorax. This will be useful for the study of the whole or part of the lungs as well as of deep organs such as liver and kidney. (IPPS BAN:04)



(Water/liquid purification)

The group has recently started to work on a project on nano-filters for purification of water and bio-fluids, in collaboration between the Depts. Biophysics, Microbiology and Botany at Dhaka Univ., and Dept. Engineering Sci., Uppsala Univ., Sweden. Paper filters were produced from a particular variety of the algae *Pithophora*. It was shown that the filters could block bacteria, and seemingly common viruses, as well. This work is funded by the *Swedish Research Council*. (IPPS BAN:04)



(Materials science: silk)

The aggregation behavior of regenerated silk fibroin obtained from the cocoon of *Bombyx mori* silk-worms was investigated by Atomic Force Microscope (AFM) and Scanning Electron Microscope (SEM). The glue-like sericin protein, which encapsulates fibroin from outside, was removed (“degum-ming”) and FTIR and SEM measurements showed its successful isolation from fibroin. Previous Dynamic Light Scattering and Rheology data suggests that regenerated silk fibroin is present in the solution as a single molecule and its aggregates, which now was confirmed by AFM. (IPPS BAN:05)



(Materials science: silk)

Effects of metallic ions on the aggregation behavior of regenerated silk fibroin solutions were investigated. Degummed silk fiber was dissolved in 10 M LiBr aqueous solution, which was dialyzed against nano-pure water in order to remove metallic ions. Regenerated silk fibroin solutions with salt concentrations of 0.01 M KCl and CaCl_2 were prepared in order to investigate the effect of metallic ions on the aggregation behavior of regenerated silk fibroin. AFM measurement reveals the formation of microfibers and globules of fibroin depending on the ionic environment of the sample. The XRD data of the silk fibroin films suggests that a particular metallic ion facilitate the formation of a crystalline β -sheet structure from α helix structure of silk fibroin. The formation of the β -sheet structure of fibroin from α helix structure is an indication of nano and microfiber formation, supporting the results of the AFM study. (IPPS BAN:05)



(Solar energy conversion)

Generation and characterization of p-n junctions, necessary for the electron movement driving e.g. solar cells, has been conducted for a large area silicon solar cell. In this study, p-n junctions were generated at three different temperatures 8500°C, 8750°C, and 9000°C by diffusion after chemical polishing of a large-area of p-type raw silicon wafer. The samples were subjected to optical, electrical, and morphological characterizations after each step of processing. It has been found that the reflectance as well as the morphology of the samples not only changes with chemical processing but also with doping temperature. Moreover, Hall-effect measurements for carrier type and concentration, as well as I-V characterization of the doped samples confirms the formation of p-n junctions. (IPPS BAN:05)



(Solar energy conversion)

Zinc oxide (ZnO) is an efficient photonic material and also shows piezoelectric and pyroelectric properties. ZnO nanorods exhibit unique properties, such as better electro-optical properties and surface morphology than its bulk counterpart. Due to these properties, ZnO nanorod has a wide range of applications in the fields of for example gas sensor, biosensor, UV detector, LED, FET and solar cells. The work aims to utilize ZnO nanorods for improving the performance of solar cells by surface modification. For this purpose, it is necessary to control the growth of nanorods in an ordered way rather than random growth, for example by growing the nanorods on a porous and water-soluble biopolymer film. Before accomplishing that, in this study random growth of ZnO nanorods. Was characterized Thin-film samples of ZnO nanorods were prepared and subjected to optical and morphological characterization. Characteristic peaks of XRD and UV-Vis Spectroscopy confirm the formation of ZnO nanorods. Moreover, SEM images verify the presence of hexagonal structure of nanorods with different lengths and diameters under different conditions. With longer preparation time, nanorods get larger, thicker and denser. These results are important for control growth of ZnO nanorods and to find an optimum condition, which would be best suitable for better solar cell application. (IPPS BAN:05)



(Solar energy conversion)

Fe₂O₃ thin films have been deposited on glass and FTO coated conducting substrates with the aim to find a suitable material to be used as a buffer layer in CIGS (Copper Indium Gallium Selenide) solar cells. Spray Pyrolysis (SP) Chemical Bath Deposition (CBD) techniques were used to deposit the thin film on plain glass and FTO glass at substrate temperatures, 350°C, 400°C and 450°C. X-ray diffraction, AFM and UV-Vis spectroscopy results suggest that Fe₂O₃ thin films so deposited on FTO glass shows a maximum transmittance of about 90% in the visible range. The high degree of transmittance indicates that Fe₂O₃ thin films can be considered as a cost-effective and non-toxic buffer layer for solar cells. (IPPS BAN:05)

Cambodia



(Water chemistry)

The result of a study of metals in waters samples from the Tonle Sap river in Phnom Penh showed the highest concentrations of Fe in relation to other metals (ppm): Fe (0.95 ± 0.75) > Zn (0.070 ± 0.013) > Pb (0.056 ± 0.009) > Cd (0.014 ± 0.002) > Cu (0.010 ± 0.002). Compared with a previous year's study, the levels of Cd, Fe and Zn are about 2-4.5 time-higher, while Cu and Pb levels are lower. In accessing the safety level, the result indicated the Cd, Fe and Pb concentrations exceeded those permitted by FAO for irrigation water, and the Cambodian NDWQS, while Cu and Zn concentrations were below these limits. The results indicate that in Phnom Penh City, Tonle Sap river water is not safe for human consumption, with respect to Cd, Fe and Pb. (IPICS CAB:01)



(Water chemistry)

The result of a study of metals in waters samples from the Mekong River in the Kandal province also indicated that Fe had the highest concentrations: Fe (0.31 ± 0.19) > Zn (0.060 ± 0.012) > Pb (0.036 ± 0.014) > Cu (0.014 ± 0.002) > Cd (0.011 ± 0.002). The metal levels in present study are lower than the permitted level for irrigated water by WHO, with exception for Cd. Compared to the Cambodian NDWQS, Cd and Pb were twice as high as the limit values. (IPICS CAB:01)



Water sampling along Mekong River. Courtesy of IPICS CAB:01.

Chile



(Archeological chemistry)

Consumption of psychoactive substances is a long-standing tradition among indigenous peoples of the Americas. Analysis of the hair of a perinate recovered from a rock shelter in Northern Chile and dated ca. 2400 yrs BP showed the presence of nicotine and its main metabolic product, cotinine. Quantitative segmental hair analysis showed that nicotine was taken up from the mother via the placenta and not through breast milk and that the death of the perinate occurred soon before or at the time of delivery. The analysis also indicated that the mother consumed high quantities of tobacco, suggesting she was a “tobacco shamaness” who might have experienced a miscarriage, since tobacco consumption by pregnant women is strongly associated to spontaneous abortions and perinatal death. This is the first evidence of simultaneous presence of nicotine and cotinine in pre-Hispanic bioanthropological remains from the Americas, thus constituting unequivocal direct evidence of tobacco consumption, and it refers to the currently earliest and youngest passive tobacco consumer in the Americas. (IPICS LANBIO)

Ethiopia



(Solar energy conversion)

Two postgraduate students prepared a wide variety of conjugated polymer donors for possible application in solar energy conversion. The solar energy conversion efficiencies of the polymers were studied and the highest efficiency registered was 12.2% in bulk heterojunction solar cells, which is among the highest performances recorded for all-polymer solar cell systems. (IPICS ETH:01)



(Electrochemistry)

The charge storage properties of lignins were studied, and a correlation between the chemical composition of the different functional groups in the lignin and the charge storage properties was found. The charge storage properties of the polymer/biopolymer composites were improved by introducing additional redox active materials. A working storage device capable of replacing two 1.5 V batteries was produced.
(IPICS ETH:01)



(Environmental and contamination chemistry)

Two postgraduate students worked on developing electrochemical methods for determination of heavy metals using conducting polymer/lignin-based composite materials. A simple and cheap electrochemical method for quantifying toxic metals in cooking utensils and vegetable samples was developed.
(IPICS ETH:01)



(Seismology)

On March 24, 2018, an earthquake of magnitude 5.2 occurred in northern Ethiopia, which was the only activity in the entire year. The activity was localized to the Fentanal volcano that latest had activity in 2015. There was an indication of magma movement beneath. This tells us that it is an active volcano. It is located close to the major road that connects Addis Ababa to the coast via Djibouti, where most of the Ethiopian import and export is handled. This has major implications on earthquake and volcano management in the country.
(IPPS ETH:02)



(Seismology)

In a study of the seismic noise tomography of the western plateau, in collaboration with ICTP, Trieste, Italy, results were obtained that indicate that the western plateau has an unexpected low velocity at different depths. This implies the presence of magma which causes active tectonics and explains for instance the existence of hot springs in the area.
(IPPS ETH:02)

Kenya



(Air pollution)

Studying the traffic impacts on particulate matter (PM_{2.5}) and heavy metals along Thika Road, Kenya, it was concluded that the 8-h measured PM_{2.5} and deposited trace elements indicated traffic emissions causing concentration levels higher than the WHO guidelines.
(IPPS KEN:01/2)



(Food safety)

Assessing essential micronutrient levels in common beans (*Phaseolus vulgaris*) in Muguga and Kyevaluki, Kenya, it was found that bean leaves from Muguga area had Fe concentrations at a toxic level.
(IPPS KEN:01/2)



(Radiation hazard)

Following an assessment of the environmental radiation dose rate in the gold mining region of Lolgorian in Narok County, Kenya, it was concluded that the values of the determined radiation hazard indices, although higher than the global averages, implied no significant radiation risk and were normal in the study area.
(IPPS KEN:01/2)



(Radiation hazard)

The assessment of the natural radioactivity and heavy metals levels in soils around the Niobium Mining Site in Kwale County has indicated that the area has high deposits on rare-earths and the radioactivity exposure to the population in the area is risky.
(IPPS KEN:01/2)



(Water-vapor condensation)

It has been found that the operation of a heat exchanger can be simulated using Matlab-Simulink software to predict the performance of a condenser. This is of importance for the design and fabrication of a water-vapor condenser.

(IPPS KEN:01/2)



(Astronomy)

The optimization of the African Very Long Baseline Interferometry Network (AVN) for Astronomy, Geodesy and Astrometry (a Case Study for Kenya) was addressed. Through simulation, the impact of the AVN on Global VLBI networks was shown. The study in fact proved that an upgraded Kenyan AVN will improve the astronomical, geodetic and astrometric VLBI experiments due to an improved source position estimate and contributing to most coverage of UV radiation in the Southern hemisphere.

(IPPS KEN:01/2)



(Environmental Pollution)

In the development of exotic composite filter membranes for water purification and treatment it has been observed that by the use of diatomaceous earth (DE) wastes mixed with plant-derived binders, the pore size of the membranes was in the range of 2.0 nm – 150 nm. The biological analysis showed that filters were effective in pathogen filtration with 80% of the samples passing the E-Coli test, and 50% of the membranes that passed the E-Coli test also passed the Rotavirus test. This work has proven that DE waste is a viable material in the fabrication of ceramic water membranes.

(IPPS KEN:02)

(IPPS MSSEESA)



(Solar energy conversion)

The bandgap of thin films of Ni-doped CdS decreased from 2.4 eV to 2.0 eV as the annealing temperature increased to 250°C and then increased to 4.0 eV when annealed at 450°C. Decrease in bandgap due to annealing of the samples could be a result of increased grain size of the films owing to quantum confinement effects. Annealing the samples at temperatures 250 °C, encourages recrystallization and the crystallinity of the films is improved as was evidenced by the increase in the transmission of light. Thus, this heat treatment improves the performance of the material for its implementation in solar energy conversion through the improved electron mobility.

(IPPS KEN:02)

(IPPS MSSEESA)



(Solar energy conversion)

In a two-stage combinatorial process, a Cu-Zn-Sn-S (CZTS) thin film was obtained using SILAR technique followed by a sulphurization process in a S₂/N₂ atmosphere. An optical study revealed a direct transition with a band gap energy decreasing from 1.54 to 1.49 eV with an increase in the number of dipping cycles. The results indicate that CZTS is a promising material that can be used as absorber material in solar cell application. This method of preparation is simple to carry out and makes use of readily available materials. It can be accomplished by just setting up beakers with the right cation and anion solutions and do the dipping manually.

(IPPS KEN:02)

(IPPS MSSEESA)



(Environmental Pollution)

Water pollution due to the release of chemicals from industries has led to a scarcity of clean surface water. Among major pollutants are heavy metals, pesticides, dyes, volatile organics and chlorophenols. Photocatalytic degradation using semiconductors

has been shown to be effective for the destruction of the organic pollutants. For heavy metals, their ionic species get converted into their metallic solid form and are deposited on the semiconductor surfaces. They can also be converted into less toxic soluble forms. Titanium dioxide (TiO_2) is a good semiconductor photocatalyst due to its non-toxicity and availability. Titanium dioxide thin films were prepared on titanium plate substrates using a simple and inexpensive anodization technique. The photocatalytic activity of pure and Cu-doped TiO_2 films prepared with different anodization voltages was studied with respect to the degradation of 10 ppm methylene blue. It was found that the Cu-doped anodized TiO_2 exhibited enhanced photocatalytic activity compared to anodized (pure) TiO_2 , and the sample anodized at 100V showed the best photocatalytic performance. (IPPS KEN:03)

(Solar energy conversion)



The work on the enhancement of charge transport in mesoscopic antimony sulphide solar cells with a TiO_2 compact layer doped with niobium, shows an improved fill factor and power conversion efficiency of 1.7% in comparison with 1.3% for devices using a pristine TiO_2 compact layer. The enhancement of the device performance is attributed to charge compensation achieved by the formation of Ti vacancies leading to a decrease in selective contact resistance and an increase in charge recombination resistance. (IPPS KEN:03)

(IPPS MSSEESA)

(Solar energy conversion)



In a study of porous $\text{TiO}_2/\text{Nb}_2\text{O}_5$ composite thin films, with a deposited TiO_2 compact layer (as a blocking layer), it was found that the blocking layer had a transparency of 72% at a wavelength of 600 nm. In contrast, at the same wavelength, the porous $\text{TiO}_2/\text{Nb}_2\text{O}_5$ composite thin films had lower transmittance values (55% - 70%) that depended on the content on Nb_2O_5 in the composite, with the lowest value corresponding to 60 wt% Nb_2O_5 and the highest value to 20 wt% Nb_2O_5 in the $\text{TiO}_2/\text{Nb}_2\text{O}_5$ composite. This implies that the compact layer did not inhibit much the transmission of light from the backside of the solar cell. (IPPS KEN:03)

(IPPS MSSEESA)

(Cancer diagnosis)



A hybridized robust chemometrics approach for direct rapid determination of trace biometals in soft body tissue was developed, utilizing Energy Dispersive X-ray Fluorescence and Scattering (EDXRFS) Spectrometry. Direct rapid determination of biometals in soft tissue is important in cancer diagnosis. The results show that robust chemometrics enabled EDXRFS spectrometry not only determine directly and rapidly but also accurately in a diagnostics manner cancer biomarker trace metals in soft body tissue. (IPPS KEN:04)

(IPPS KEN:04)

Rwanda

(Food safety)



In a study of mycotoxins in some foodstuffs consumed in Rwanda it was found that preservation using the essential oil of *Cymbopogon citratus* may inhibit aflatoxin formation. (IPICS RWA:01)

(IPICS RWA:01)

Tanzania

(Solar energy conversion)



Natural dye solutions extracted from different locally available plants were used to sensitize sodium and boron doped TiO_2 films. The band gap energies of all doped samples were larger than those of undoped ones and were in the range of 3.0 eV - 3.5 eV. The absorption spectra for all extracted dyes showed broad and significant

absorption band in the visible region of the solar spectrum. The best conversion efficiency of the fabricated solar cells sensitized with natural dyes was 0.184% for dyes extracted from the pearl of plum fruits while the efficiency of the solar cell fabricated with industrial dye as sensitizer was 1.06%. (IPPS TAN:01/2)

(Solar energy conversion)



In a study of effects of selenized DC sputtered precursor stacking orders on the properties of $\text{Cu}_2\text{ZnSnSe}_4$ absorber layers for thin film solar cells, it was observed that of the three different stacking orders with configuration Mo/Cu/Zn/Sn (stack A), Mo/Cu/Sn/Zn (stack B) and Mo/Zn/Sn/Cu (stack C), stack C has a single kesterite structure with improved crystal quality and better optical and electronic properties, compared to the other stacking orders, for its implementation as absorber layer for thin film solar cells.

(IPPS MSSEESA)
(IPPS TAN:01/2)

(Solar energy conversion)



The effect of Rapid Thermal Annealing (RTA) of the kesterite back contact sheet resistance on the performance of kesterite absorber and solar cells was investigated. It was observed, based on measurements of sheet resistance, that ITO conductive glass subjected to RTA at various temperature (typical for kesterite solar cells manufacturing) and time with ramping rate of $20^\circ\text{C}/\text{sec}$, that RTA at 550°C (typical crystallization temperature for CZTS) for 5 minutes preserves the back-contact sheet resistance, implying that RTA should be a suitable approach for bifacial kesterite absorber annealing on ITO back contact sheets.

(IPPS MSSEESA)
(IPPS TAN:01/2)

Uganda

(Solar energy conversion)



On the performance of two polycrystalline silicon photovoltaic modules, samples A and B, in the Ugandan market it was found that the ratings of the manufacturer of sample A were consistent with experimental ratings, while for sample B, manufacturer's ratings were in most cases overstated by between up to 30% for some parameters.

(IPPS MSSEESA)
(IPPS UGA:01)

Zambia

(Solar energy conversion)



It was found that the conductivity of PEDOT:PSS films were significantly enhanced from $0.4\text{ S}/\text{cm}$ to $3770\text{ S}/\text{cm}$ by treatment with sodium dodecyl sulfate and doping using copper nanoparticles. AFM images showed segregated PEDOT and PSS regions at lower doping levels. The morphology evolved into a 'honeycomb' structure consisting of inter-connected PEDOT regions which improved the charge transport, hence the higher conductivity attained.

(IPPS MSSEESA)
(IPPS ZAM:01)

Zimbabwe

(Ecotoxicology and Environmental Chemistry)



Aquatic bodies in the Matabeleland North region are contaminated with agro-based pollutants. Water samples obtained from Umguza and Hwange in Matabeleland North contained the herbicides glyphosate and atrazine. The insecticides chlorpyrifos and carbaryl were also recorded in water and sediments obtained from Umguza and Hwange districts. Snails (*Lymnaea natalensis* and *Helisoma duryi*) exposed to water collected from Umguza and Hwange showed enhancement of antioxidant enzyme systems an indication of pesticide induced oxidative stress.

(IPICS ZIM:02)



(*Ecotoxicology and Environmental Chemistry*)
Terrestrial ecosystems in the Matabeleland region are contaminated by various organic pollutants, including polycyclic aromatic hydrocarbons. Soil and plant samples obtained from the Hwange and Insiza mining regions had high levels of benzo[a]pyrene and anthracene. Antioxidant enzyme activities in samples of snails exposed to soil from Hwange and Insiza mining areas were significantly enhanced when compared to samples of snails from reference areas. (IPICS ZIM:02)



(*Ecotoxicology and Environmental Chemistry*)
In a study of metals in liver, muscle and kidney tissue samples in cattle from Insiza, Nkayi and Tsholotsho districts. Where mining activities are rampant, high levels of zinc, cadmium, copper, mercury and chromium were indicated and the metals identified included. Generally, cadmium levels were the highest. (IPICS ZIM:02)



(*Pharmacology*)
The results of a study of the inhibitory effects of herbal extracts from plants with claimed anticancer properties, including *Pterocarpus angolensis*, on four major cytochrome P450 drug metabolising enzymes point to a potential risk in the co-administration of *Pterocarpus angolensis*, together with conventional drugs, such as theophylline, which depends on the same enzymes for elimination. (IPICS ZIM:AiBST)

6.1.2 Use of Research Results and Skills

Bangladesh

Begum Rokeya participated as both coordinator and resource person of the 70th training workshop of NITUB, on common medical instruments, 14-19 July, BUHS, Dhaka. She delivered a talk on "Safety in a clinical laboratory". (IPICS ANRAP)
(IPICS NITUB)

Begum Rokeya participated as both coordinator and resource person in the 8th ANRAP Workshop on Chemical Studies and Bioassay of Antidiabetic Plant Materials, BUHS, Dhaka, 18-20 Sep. She lectured on i) Animal models of diabetes mellitus, ii) Experimental design for the screening of antidiabetic extracts for hypoglycemic/ antihyperglycemic properties (*in vivo* & *in vitro* & techniques), and iii) Design for toxicity testing of antidiabetic plant extracts. (IPICS ANRAP)
(IPICS NITUB)

Shamshad B. Quraishi delivered three lectures on "Sample preparation & standard operating procedure in AAS"; on "Determination of trace metals in environmental and biological samples by AAS"; and on "Quality control practices in analyzing environmental samples" in the 68th training programme of NITUB on AAS at AECD, Dhaka, 21-26 July. (IPICS NITUB)

Shahinul Haque Khan lectured on "Use & maintenance of small lab instruments: Digital Balance, Ph Meter, Desiccator, Sonicator, etc" at the 70th training programme of NITUB on common medical instruments, 14 -19 July, BUHS, Dhaka. (IPICS NITUB)

Dr Khandker Saadat Hossain (M) visited Chittagong to organize Bangladesh Physics Olympiad on Feb. The visit was funded by the Bangladesh Physics Olympiad Committee. (IPPS BAN:05)

Ethiopia

A first PhD program in Pharmacognosy at AAU was approved. (IPICS ETH:02)

Kenya

J. Katende and J. Ongaro (as team leader and deputy, respectively) lead the Kenyan teams to the 26th Pan African Mathematical Olympiad and the 4th Pan African Mathematical Olympiad for Girls, (PAMO2018 and PAMOG 2018), held in Nairobi, 23-30 June. (IPMS EAUMP)

Dr Bernard Nzimbi served as external examiner, at Dept. Math., Maasai Mara Univ. (IPMS EAUMP)

Prof. Jairus Khalagai served as external examiner at Dept. Math. & Computer Science, Kabarak Univ. (IPMS EAUMP)

Prof. Jairus Khalagai served as external examiner at Dept. Math., Maseno Univ. (IPMS EAUMP)

Dr John Muriuki served as external examiner at Dept. Math., Karatina Univ. (IPMS EAUMP)

Dr Nelson Owuor served as external examiner at JKUAT. (IPMS EAUMP)

Prof. Patrick Weke served as external examiner at JKUAT. (IPMS EAUMP)

Prof. Patrick Weke served as external examiner at Dept. Math. & Computer Science, Univ. Eldoret. (IPMS EAUMP)

Staff members John Birir (M) and Lindah Kiriinya (F) were in 2018 enrolled as members of two committees of KEBS. (IPPS KEN:01/2)

Group members participated in a number of consultancies on matters related to PV systems. (IPPS KEN:02)

Rwanda

C. Sekomo served as a panellist at Session 6: Global Policy and Regulations for E-waste management, at the EACO Regional Workshop on Sustainable E-Waste Management in the East African Region, 14 May, Kigali. (IPICS RWA:01)

Tanzania

J.A.M. Mahugija served as instructor in the training on environmental sampling and analysis for National Environment Management Council (NEMC) staff members, held at the Dept. Chem., Univ. Dar es Salaam, 26 Feb. - 15 Mar. (IPICS ANCAP)

Combinatorial Optimization was introduced and is used in Master Time Tables for UDSM, Sokoine University of Agriculture and some high schools. (IPMS EAUMP)

In 2018, the group rendered service in maintenance of PV systems at UDSM and outside. (IPPS TAN:01/2)

Thailand

Sounthone Singsoupho (NUOL) was part of the organizing committee of the 8th Int. Conf. on Applied Geophysics, 8-10 Nov, Hat Yai, organized by Prince of Songkla Univ. (150 part.)(IPPS LAO:01)

Zambia

The results on polymer solar cells have been taken up by the National Science and Technology Council (NSTC) for scaling up in view of producing a prototype polymer solar cell. The consultancy work done in 2016 and 2017 on the Mpanta solar mini-grid have influenced the installation in 2018 of other solar mini grids, such as the Sinda solar mini-grid, using some of the recommendations sited during the consultancy work at Mpanta solar mini-grid. (IPPS ZAM:01)

Zimbabwe

Prof. Mark Zaranyika spearheaded the establishment of the Zimbabwe Chemical Society (ZCS), which was inaugurated on 16-17 Aug., where he was elected the 1st President. (IPICS ANCAP)

The Institute partnered with Chinhoyi University of Technology, Zimbabwe, through a Memorandum of Agreement to offer MSc programs and a postgraduate biomedical technology training certificate course. (IPICS ZIM:AiBST)

An investigation into the possible effects on the structural integrity of the Mutare Masasa steel pipeline from small scale mining activities was done at the instigation of PetroZim line Private Limited. The group is working on the final report to the Ministry of Mines which will recommend ground vibration thresholds in the vicinity of the pipeline. (IPPS ZIM:01)

6.1.3 Policy Influence and Opportunities

The impact and potential influence by members of ISP-supported groups and networks on policy and legislation is given.

Bangladesh

Mohammad Mahfuzul Hoque (M), Chairman, Bangladesh Food Safety Authority visited BAN:04, Dept. Chemistry, Univ. Dhaka on 28 Feb., to see the laboratory facility and discuss future collaboration. (IPICS BAN:04)

Mohammad Shoeb attended as invited guest the closing Ceremony of the Regional Basic Course on Assistance and Protection Against Chemical Weapons and Emergency Response to Chemical Incidents, arranged by Bangladesh National Authority for Chemical Weapons Convention, 8 Mar, Le Meridien, Dhaka. (IPICS BAN:04)

Mohammad Shoeb participated at Stakeholders Consultation Workshop towards Finalizing Project document "Pesticide Risk Reduction in Bangladesh organized financially supported by Global Environmental Facility (GEF) through FAO, in the Department of Environment, Dhaka, 18 March 2018. (IPICS BAN:04)

Burkina Faso

Participation of CRSBAN to the elaboration of strategic Plan of Nutrition in Burkina Faso at the request of the government. (IPICS RABiotech)

Prof. Hamidou TOURE attended the Third Africa Forum on Science Technology and Innovation, 10-12 Feb, as an expert in the team of the Regional Economic Union (UEMOA). (IPMS BURK:01)

Ethiopia

The results of the Fentale volcanic activity in 2018 indicates that there is a need for an alternative road for access to the sea. If a volcanic eruption occurs and blocks the access to the sea, it will be

catastrophic for land transports. This result is being communicated to the governmental National Disaster Risk Management Commission. (IPPS ETH:02)

Italy

Christian Sekomo participated in the 14th meeting of the Chemical Review Committee (CRC 14), of the Rotterdam Convention, 11-14 Sep., Rome. (IPICS RWA:01)

Kenya

Gatari M. J served as panelist at Inception Workshop for the Nairobi City Air Quality Policy and Action Plan. 4 Sep., Nairobi. (IPPS KEN:01/2)

Several members of the group have participated in curriculum development and review in solar PV for the government. (IPPS KEN:02)

Justus Simiyu participated in the *East African Renewable Energy Workshop*, (21 Sep., Nairobi), a round table discussion that brought together stakeholders in renewable energy in East Africa to discuss opportunities, challenges and barriers that the renewable energy value chain is facing and their mitigation. Justus' contribution was on the institutions of higher education challenges in capacity building. (IPPS KEN:02)

Laos

Kesiny Phomkeona (F) attended a Project Steering Committee Meeting on Polychlorinated Biphenyl (PCB) Management and Disposal, 5 Sep., at the Energy Sector at Ministry of Natural Resources and Environment. (IPICS LAO:01)

Kesiny Phomkeona (F) attended a National Action Plan Formulation Workshop, 19-20 Sep., Vientiane; Project: Development of Minamata Initial Assessment (MIA) and Updating of National Action Plan (NAP) for Artisanal and Small-Scale Gold Mining in Lao PDR. (IPICS LAO:01)

Rwanda

Christian Sekomo (M) became member of the intersessional drafting group (2018–2019) on perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds within the frame of the Rotterdam Convention. (IPICS RWA:01)

Emmanuel Ngendahayo (M) participated in the Conference on Integrated Water Resources Management (IWRM) with the theme “Nature for water”, organized jointly by the Ministry of Environment and the University of Rwanda, 21-22 Mar., Kigali. (IPICS RWA:01)

Theoneste Muhizi (M), Christian Sekomo (M) and Valentine Uwamariya (F) participated in the Next Einstein Forum Global Gathering, 26-28 Mar., Kigali. (IPICS RWA:01)

Kalisa Nyilimbibi (M) and Adrien Rutikanga (M) participated in the workshop on the revision of REMA law, 27-29 Mar., Huye. (IPICS RWA:01)

Janvier Habinshuti (M) participated in the National Consultative meeting to formulate the National position on ten (10) Draft African Standards developed by the ARSO/THC 05 on Chemistry and Chemical Engineering related to Chemicals and Consumers Products (RSB/TC 024), 20 Sep., RSB, Kigali. (IPICS RWA:01)

Christian Sekomo (M) participated in the Africa Green Growth Forum, 26-30 Nov. Kigali. (IPICS RWA:01)

South Africa

Prof. Hamidou Toure gave a communication on "Curricula harmonization in Science and Technology in West Africa" at the Regional Consultation Meeting on Quality Assurance in Higher Education in Anglophone and Lusophone Africa with a Focus on Recognition (Implementation of the Addis Convention), 21 Nov., Johannesburg. (IPMS BURK:01)

Prof. Hamidou Toure, as a member of AAS, participated in the AAS General Assembly, Pretoria, 10-11 Dec., and Sciences Forum South Africa, Pretoria, 12-14 Dec. (IPMS BURK:01)

Tanzania

J.A.M. Mahugija participated in the national workshop to raise awareness of the National Environmental Research Agenda (NERA) 2017-2022 organized by the National Environment Management Council (NEMC) held at Sokoine Univ. Agric., 10-12 July. (IPICS ANCAP)

Uganda

Dr Emmanuel Tebandeke was elected to co-chair the Committee on Sound Chemicals and Waste Management in Uganda. The committee was set up by the National Environment Management Authority (NEMA). It is mandated to oversee activities for streamlining the management of the supply chain of chemicals; from import, utilization and disposal. In addition, the committee oversees waste management and disposal. (IPICS UGA:01)

Zimbabwe

The Environmental Management Agency (EMA) established a partnership whereby they obtain advice on ecotoxicological issues and the research group can partner with EMA on workshops that focus on raising awareness on environmental issues. (IPICS ZIM:02)

Partly due to the work of the Institute, WHO has recommended the use of a lower dose of efavirenz to reduce incidences of Adverse Drug Reactions, and Zimbabwe was one of the first countries to adopt the revised dose. (IPICS ZIM:AiBST)

The Institute signed a MOU with the Medicines Control Authority of Zimbabwe (MCAZ) for a joint research effort to improve the quality of herbal medicines through development and deployment of quality assurance analytical methodologies. The MOU also covered plans for joint efforts to train bioanalysts in various analytical methods as part of MCAZ's fulfilment of its role as a WHO Center of Regulatory Excellence. (IPICS ZIM:AiBST)

The government of Zimbabwe approved at cabinet level to pursue genomic technologies for enhanced health and justice delivery as a strategic area to invest in. (IPICS ZIM:AiBST)

6.1.4 Technical Development and Services

Bangladesh

NITUB has in 2018 repaired 128 non-functioning scientific instruments of different educational and research institutes of Bangladesh. The reported book value of these instruments is approximately 564,000 USD. NITUB spent approximately 560 USD to repair the instruments. (IPICS NITUB)

Prof.r Rabbani's team won a challenge fund from a2i (access to Information, it is a special programme of the Government of Bangladesh that catalyzes citizen-friendly public service innovations) of the Bangladesh Government to provide irrigation in the hilly areas. They have installed three Hydraulic Ram pumps in an area in the Chittagong Hill Tracts lifting water up to about 165 feet. The pump only

uses the power from the water flowing downhill, no other sources. Therefore, it can provide water for 24 hours a day as long as a water head of about 3 to 4 feet is available. (IPPS BAN:04)

Burkina Faso

CRSBAN participated to the creation of a National Order of Nutritionists of Burkina Faso. (IPICS RABiotech)

Kenya

Thirty PV systems technicians and stakeholders were trained. (IPPS KEN:02)

A number of group members have undertaken consultancy or community service activities that enhance the uptake of PV systems as an alternative clean energy source. For example, Dr S. Waita:

- 1) Designed, sized, supplied, installed and commissioned Solar Home Systems of total Peak power of 1.2 KW;
- 2) Designed, sized, supplied, installed and commissioned street lights and garden lights of total 226 Peak Power;
- 3) Designed, sized, supplied, installed and commissioned institutional solar systems with a total peak power of 600 W;
- 4) Troubleshoot three solar systems and revived them. Thus Dr Waita had, in 2018, installed a total capacity of about 2Kw Peak Power. (IPPS KEN:02)

Dr Simiyu offered consultancy services to the County of Marsabit jointly with GIZ for capacity building in solar PV as well as the development of solar PV training programme for the county's vocational training institutions, Sep. 2018. (IPPS KEN:02)

The group's results have been used especially when we had heavy rains that caused crevasses in the Suswa area bringing fear to the country. The group was consulted to inform whether the country had experienced any major earth movement in the form of earthquakes. The group advised the government on what exactly was happening in the region. (IPPS KEN:05)

Laos

The chemistry group provided consultation and assistance to the Department of Hygiene and Health Promotion, and analyzed arsenic in samples of groundwater from the disaster area of Sanamxay District that was damaged from the dam collapse on Aug. 2018. (IPICS LAO:01)

The chemistry group collaborates with Water Management Institute Lao PDR (IWMI), National Agriculture and Forestry Research Institute (NAFRI), and Ministry of Agriculture and Forestry to survey contamination of organochlorine pesticides in a banana farm (North of Laos). Results of analyses were reported to the Lao government for further management. (IPICS LAO:01)

The chemistry group collaborates with Ministry of Health (MoH) by providing analysis data of organochlorine pesticide and some heavy metals (As, Pb, Hg and Cd) contaminants in medicinal plants sample from Institute of Traditional Medicine. In addition, a training course was provided, on the extraction method and how to analyze the sample by using AAS at their institute. (IPICS LAO:01)

The chemistry group collaborates with the Department of Pollution Control, Ministry of Natural Resources and Environment, to provide a consultation on their project about POPs and PCB. From the first discussion, the Ministry has requested the group to analyze the contamination of PCB in transformer oil in Vientiane Capital and to write a textbook of Persistent Organic Pollutant (in Lao language) to use for environmental curriculum program of NOUL undergraduate students. (IPICS LAO:01)

Rwanda

Delocalization of different industries from Gikondo Marchland to Gasabo Free zone was due to analysis conducted to water of Nyabugogo marshland, which showed that the location of industries in the marshland is highly contributing to water pollution. (IPICS RWA:01)

Uganda

The team leader was selected to offer a special service by the International Atomic Energy Agency (IAEA) of an expert mission to assess analytical laboratory needs and provide technical guidance on the analysis of organic contaminants in food and environmental samples within testing laboratories in Niger. The offer was through a competitive process. (IPICS UGA:01)

Zambia

Quaternary polymer solar cell based on P3HT:PCBM:SQ:CuNP materials: Following previous results in optimizing the photoactive and hole transport layers of the polymer solar cells, a non-conventional patent was registered with the Patents and Companies Registration Agency (PACRA) in Zambia. Furthermore, the group submitted an invited proposal for scaling up the research, to a fund made available by the National Science and Technology Council (Zambia) and National Research Foundation (South Africa), and the grant was awarded. (IPICS ZAM:01)

The microelectronic biosensor detection of *Pseudomonas aeruginosa* is developed in collaboration with Dept. Computer Science, based on a recognition platform previously developed by a master student in the Dept. Chemistry. In a prototype device, the recognition platform has been interfaced to a computer, and tested on simulated media. A software called the Pseudomonas Aeruginosa Finder, a web based application running a laptop is connected to the hardware. (IPICS ZAM:01)



MSc student Mr Aaron Ngoma in the UNZA Dept. Computer Science demonstrating the prototype device.

Zimbabwe

The Institute entered an agreement with Thermofisher Company for them to manufacture an open array pharmacogenetic test called GenoPharm, designed by AiBST. (IPICS ZIM:AiBST)

6.2 Outreach

Here, outreaching activities directed primarily to the general public, undergraduate students, schools, industry and other similar stakeholders are listed. For activities aiming to influence national and international policy, see Section 6.1.2. The entries here are used in RBM indicator “s”. Abbreviations not explained here are found in Section 8.

Bangladesh

The Strategy to Improve Food Safety Seminar, 21 Apr., Dept. Chemistry, Univ. Dhaka, was covered in the press by The News Today (Dhaka, Bangladesh) and the United News of Bangladesh.
(IPICS BAN:04)

Mohammad Shoeb (M) gave interview to a TV channel about plastic pollution and possible remedies from the environment.
(IPICS BAN:04)

Contact was established with the NGO “Environment and Social Development Organization (ESDO)”, to spread research outcomes and contribute to public awareness about the need to improve legislation on herbal drugs.
(IPICS BAN:05)



Bilateral meeting between BAN:05 members and ESDO. (Courtesy of IPICS BAN:05).

A stakeholders meeting with 60 participants was organized 21 June, with different industrial organization in the country and different universities, regarding nanotechnology research, Atomic Energy Centre, Dhaka.
(IPPS BAN:02/2)

K S Rabbani continued writing Electronics Pathsala (Electronics School, in Bangla), a serial article published in Biggan Chinta, a monthly magazine on popular science by Prothom Alo, the leading Bangla daily in Bangladesh. (IPPS BAN:04)

Under the leadership of Professor K S Rabbani, Dhaka University Telemedicine Programme (DUTP) launched in 2013 is gaining momentum. At the end of 2015, there were only 5 rural telemedicine centres, and at the end of 2018, it was more than 40. So far more than 18,000 medical consultations with prescriptions were provided to rural patients through these centres. About 75% of these patients were women, children and the elderly, who would have possibly gone without proper treatment had our telemedicine centres not been there. Since April 2018, BRAC, the largest NGO in the world of Bangladesh origin has experimentally opened several rural telemedicine centres under DUTP. (IPPS BAN:04)

In 2018, the group organized a summer camp on the “Measurement of Bioelectrical signals from the human body”, in collaboration with Dhaka University Science Society (DUSS) and Relevant Science & Technology Society-Bangladesh (RSTS). Twelve undergraduate students were selected who had both theoretical classes and hands-on practice on the design and development of circuitry to record and display ECG and EMG signals. The participants were given a certificate at the end of the camp. The idea is to create interest in young science students for taking up research activities. (IPPS BAN:04)

The group in collaboration with Edward M Kennedy Center, Dhaka initiated a research award for undergraduate students in 2018 entitled, “মানুষের জন্য বিজ্ঞান (in Bangla, meaning ‘Science for Mankind’). DUSS and RSTS were Joint Organisers. Monthly Biggan Chinta, Channel-I TV and Radio 71 were the media partners, while daily Prothom Alo was a media associate. With 40 initial applications, participants were eliminated through 2 stages of scrutiny and finally seven (7) were selected for the exhibition. Among them five 5 were given the award (Top category: 2, Middle category: 1, Satisfactory: 2). The exhibition was inaugurated by the Vice Chancellor of the Dhaka University, Professor Md Akhtaruzzaman, and followed by a Prize distribution ceremony and a programme of music, the latter organized by the Dept. Music of Univ. Dhaka. Prof. Rabbani also sang a song for raising social consciousness for the common people at the event. (IPPS BAN:04)

July 1 is the foundation day of Dhaka University. On this day, the Nanophysics laboratory was kept open for general people and students of the schools, colleges and other university students. Like the previous year, the students of Nanophysics group stay in the lab on that day and explain the research activities to the public. (IPPS BAN:05)

Bolivia

The Regional Health Service (SEDES) has had as main policy the use of synthetic chemical insecticides as the sole way to control Chagas disease vector in the countryside. In fact, they used to forbid people to use other control methods to avoid any possible disruption in the effect of the insecticide. They now realize that they need more alternatives to work effectively, since almost 80% of people are already infected in rural areas. Lately, SEDES has shown an interest to include alternative ways to control Chagas disease vector in mostly rural communities. In particular, they have shown interest in our work on the use of essential oils and smoke of native plants; hence, it is possible that in the short term, these alternatives studied in our laboratory may become part of new control policies at SEDES. (IPICS BOL:01)

Burkina Faso

Film production on five women role models in Burkina Faso, 8 July, followed by broadcast on national TV. (IPICS BUF:01)

Internet coverage of the meeting "Biotechnologies for the valorization of local products and the Control of Intellectual Property for Industrial Applications in West Africa", 25-26 Feb., Ouagadougou: <http://netafrique.net/biotechnologie-le-renforcement-des-capacites-a-travers-un-atelier/>; <http://netafrique.net/biotechnologie-le-renforcement-des-capacites-a-travers-un-atelier/>; <http://www.fasozine.com/component/content/article.html?id=6085:burkina-les-biotechnologies-pour-valoriser-les-produits-locaux-et-la-maitrise-des-proprietes-intellectuelles> (IPICS RABiotech)

Cambodia

Dr Chan Oeurn Chey continued actively working as supervisor to three different talented students from grade 2 to grade 12, doing basic research for three regional and global science competitions, including “*the congress of Search for SEAMEO Young Scientist 2018, ASEAN Plus Three* (including Sweden), *The ASEAN Plus Three Junior Science Odyssey (APTJSO 2018)* and *Global Natural History Day (GNHD 2018)*. As a result, the Cambodian team brought home more than 20 medals from the competitions. All activities reached the public through media in Cambodia and international media. (IPPS CAM:01)

Members of the group have provided a training workshop on improving teaching and learning on STEM, especially in physics, for general education level to high school teachers in Tbong Khmum Province. (IPPS CAM:01)

Ethiopia

Mariamawit Y. Yeshak was subject to a live interview 25 April at the national TV (Ethiopian Broadcasting Corporation) health program, on the medicinal effects of garlic, and the work of the group, and on the importance not to label all natural product “safe” for human health. <https://www.youtube.com/watch?v=1Gp3tmnZpFo> (in Amharic). (IPICS ETH:02)

A national conference, “Mathematics for the Advancement of Science and Technology” was organized in Addis Ababa, 24-25 May, in collaboration with Addis Ababa Science and Technology University, and there were more than 110 participants. One of the main objectives of the conference was to reach out to society and to industry. (IPMS ETH:01)

An international workshop, “Inviting girls to appreciate Mathematics; Mathematics, the indispensable tool for science and technology” was organized 6-7 Dec., in collaboration with African Woman in Mathematics Association (AWMA), attracting more than 100 participants from Ethiopia and other African countries. (IPMS ETH:01)

The group has organized a five-week (3 hours per day) training program for sixteen (half of which females) grade 11 preparatory high school students. The objective of the program is to familiarize the students with the scientific research environment in general and to physics in particular. During the training, the students learned how to write codes for computer programs and take scientific measurements, and then write laboratory reports. Then they were given to work on simple physics problems. The students did the problems and presented their results before an audience, which included the students' parents and teachers. (IPPS ETH:01)

Ivory Coast

The AFSIN node organized the International Day of Light, 31 July at the Natl. Polytechnic Inst. of Yamoussoukro. It was an occasion to bring together students from primary school and college to learn about light in research and introduce optical instrument. (IPPS AFSIN)

Kenya

Professor Michael Gatari's research group, in partnership with colleagues from universities around the world, have used high-quality equipment to show that vehicle emissions are a major source of pollution in the city centre, as reported by media. www.theelephant.info/features/2018/07/05/every-breath-you-take-who-is-monitoring-air-quality-in-kenya/ (IPPS KEN:01/2)

Dr Simiyu represented the Department of Physics in University outreach activities namely, University Open Day 2018, University Exhibition 2018, where awareness on utilization of solar as well as innovative ways of utilization was exhibited. (IPPS KEN:02)

Mgendi Mwanburi and Justus Simiyu participated to the *2nd Annual Solar Energy Workshop and Exhibition*, 22-26 Oct., organized and held at Kabarak Univ., Nakuru, and targeting about 1,500 students from the Technical Training Institutes, business and university communities and residents (IPPS KEN:02)
(IPPS KEN:03)

Group members (including students) were involved in the following three outreach activities: University of Nairobi open day; Schools' visits to the department; and Nairobi International Trade Fair. (IPPS KEN:04)

Alix Dehayem-Massop mentored students at Compuera Mangu Girls High School on 23 Feb. She gave a speech entitled 'Girls, how does it feel studying physics?' (IPPS KEN:04)

A team from the group conducted a reconnaissance survey to find a site for the relocation of Asumbi station in order to obtain improved data quality. The new site was Keiyan farm, 70 km southeast of Rongo in Kilgoris, Narok County. It was selected after conducting a seismic noise level test within the region. During the GPS installation, the team gave seminars in Nanyuki high School, Sebit and Nakuru school on geodynamics, on seismology and GPS to final class students. (IPPS KEN:05)

Mali

LOSSA and HREL participated in the 6-8 Dec. week of the Science organized by the Ministry of Education and Hosted by USTT-B FST. The main objective was to do demonstrations for young scholars to attract them toward scientific studies at the university. (IPPS MAL:01)

Rwanda

The first celebration of Mathematics Day (Pi-Day) in Rwanda took place in Kigali on 14 March, with the aim to:

- detect talented high school students through Rwanda Mathematics Competition,
- popularize mathematics and its applications,
- encourage young high school students to study mathematics,
- interact with stakeholders and industries to enhance STEM areas for the future development of Science and Technology. (IPMS EAUMP)

Tanzania

Aviti Mmochi contributed at Climate Change in Africa: Impacts Challenges and Opportunities. Media Briefing and Release of Second Special Africa Issue of Down To Earth, 30-31 May, Zanzibar. (IPICS ANCAP)

Aviti Mmochi participated in developing a special TV program on the annual Zanzibar Seaweed Day Commemorated 23rd July for Tanzania Broadcasting Corporation (National TV). The day had stake

holders such as farmers, government officials, and United Nations officials, discussing the farming economics, benefits and problems where Aviti Mmochi explained the effect of nutrient pollution and climate change on the seaweed production. The producer was awarded the 1st excellence in Goal 5 in Tanzania; Television journalism in the Gender and News Summit of the UN Women, 2018.

(IPICS ANCAP)

Clarence Mgina, vice chairman of the Tanzania Chemical Society (TCS) and the coordinator of the 2nd Chemistry Festival in Tanzania by TSC, attended a TV interview on the importance of chemistry to the young generation and the application of green chemistry for sustainable industrial and community development. He was interviewed live by Azam TV <https://youtu.be/FpKDKG5zLHE> and on Mlimani TV and radio of the UDSM in popularizing the event.

(IPICS ANCAP)

The Dept. Math., UDSM, is a patron of Tanzanian Women in Mathematics (TWM) association. EAUMP supported TWM to hold a meeting on March 2018, in which TWM was launched.

(IPMS EAUMP)

The National Pi Day Celebration was organized by the Mathematical Association of Tanzania (MAT) in corporation with Dept. Math., UDSM, 17-22 Sep., at Marian Univ.College, Bagamoyo. Over 120 school teachers and university staff attended. The main objective of the seminar is to share teaching and learning experience of mathematics, especially on difficult topics to teach and learn.

(IPMS EAUMP)

The 3rd one-week science camp for high school girls was organized 1-5 Oct. at UDSM, by the Depts. Math. and Phys; Prof. Mureithi (Mathematics), and Dr Najat Mohamed and Dr Margaret Samiji (Physics). The aim of the science camps is to try to increase the number of girls joining higher institutions of learning to do STEM-related subjects or professions. A total of 25 high school girls from local government schools and their teachers benefitted from the camp.

(IPMS EAUMP)

MAT has organized for some lecturers from Dept. Math., UDSM, to act as volunteer teachers to support in teaching mathematics in some local schools having few or no mathematics teachers. They taught in some schools that had recorded very low performance in the national exams and where none of the students in the schools had passed mathematics. In the results that came out in December, there was a significant increase in performance.

(IPMS EAUMP)

The group participated in gender sensitization meetings in secondary schools for the preparation of a Science Camp for female A-level students.

(IPPS TAN:01/2)

Uganda

The team leader facilitated a science exhibition event in a rural school as a way of encouraging rural students, especially the girl child in embracing science.

(IPICS UGA:01)

The Dept. Math., Makerere Univ., continues to carry out outreach activities via Uganda Mathematical Society, including:

- The Annual National Mathematics contest for Primary schools, Secondary schools, National Teachers' Colleges (NTCs) and Primary Teachers' Colleges (PTCs) and Universities,
- Participation in PAMO,
- Annual National teachers conference, and
- Public lectures.

At the annual general meetings, the society hosts guests from the government to officiate at the prize-giving ceremony of the best candidates in the contest.

(IPMS EAUMP)

The network leader visited six schools in the West Nile region and gave talks on astronomy and its benefits to students and society. The aim was to make the recipients inspired and interested in science subjects and learn more on the importance of astrophysics. (IPPS EAARN)

Outreach activities have been directed to secondary schools. The main purpose is to motivate and encourage secondary school students to take science-related university courses. (IPPS UGA:02)

Zambia

The research group was part of the Univ. Zambia team that exhibited at the Zambia International Trade Fair and Zambia Agricultural and Commercial Show. The presence of the research group showcased the organic solar cell which fitted well with the themes at the two events. Participation in the trade fair and agricultural show enable the group to interact and disseminate its research outputs. The exhibit generated interest from the members of the general public as well as potential investors. The activities of the research group received wide coverage on the Zambia National Broadcasting Corporation TV programmes. The group contributed to the Univ. Zambia winning second prize and first prize at the trade fair and agricultural show respectively. (IPICS ZAM:01)

The 4th Natl. Symposium on Chemistry, Materials and Energy, arranged by the group 8-9 Nov., was covered by UNZA News Express, Issue 019, p. 2. (IPICS ZAM:01)



Left: Dr Munyati and undergraduate student Isabel Chisulo at the Zambia International Trade Fair. Right: Drs. Munyati and Mudenda in front of the organic solar cell exhibit at the Zambia Agricultural and Commercial Show UNZA stand. Courtesy of IPICS ZAM:01.

The staff made a field trip to Maamba Collieries Limited (Thermal Power Plant) and to the Victoria Hydropower, providing an opportunity for participating students to compare hydroelectricity and coal-fired thermal power. (IPPS ZAM:01)

Zimbabwe

Norah Basopo gave a lecture to Form Two students (56 part.) from Eunor Guti Academy, Bulawayo, 17 Oct., on the “Importance of STEM and career Paths in Applied Biology & Biochemistry, Biotechnology and Applied Chemistry”. (IPICS ZIM:02)

Donald Tapfuma gave a lecture to second-year undergraduates in the Environmental Science and Health Department, NUST, in Apr., on effects and distribution of selected heavy metals in gold panning activity. (IPICS ZIM:02)

Donald Tapufma produced a promotional video about the Ecotoxicology Research Group at NUST (http://youtu.be/4CYaI5_HTF0). (IPICS ZIM:02)

The Institute is now registered as a AiBST-SPARK center. (IPCS ZIM: AiBST)

The Next Generation Biomedical Scientists (NGBS) program, in collaboration with the Ministry of Higher and Tertiary Education, Ministry of Health and Child Care, and Ministry of Primary and Secondary Education (MoPSE), entered in its 2nd phase on 25 Apr., and in Sep.-Oct. 350 students from 350 high schools were trained in an intensive program involving two days on the importance of biomedical research, on how to conduct biomedical research, and hands-on exercise on the amplification and detection of DNA using mini-PCR machines bought for this purpose. The 2nd phase of the program was also for the schools to put together a research team of students of different age groups and 50:50 gender representation in mixed schools. Each research team was to establish an Advisory Committee of parents' representatives, church, traditional leaders, political and business leaders, thus collectively identify what represents a community challenge that could be addressed by the application of biomedical research. Fifteen schools submitted proposals and six were selected for funding to conduct a small research project addressing a community problem. (IPICS ZIM: AiBST)

6.3 Strengths and Benefits to Researchers and Partners

This section lists benefits to members of groups and networks and their partners, and to other stakeholders including the public, through awards, honors and promotions (the entries are used in RBM indicator “t”). Benefits and strengths through scientific visits, training events, postdoc research visits and networking opportunities besides those listed in Appendix 3, are given in Appendix 4. Abbreviations not explained here are found in Appendix 5.

6.3.1 Awards, Honors and Promotions

Several members of ISP-supported activities have been promoted, commissioned, or received awards during the year. The entries are given essentially as reported, and listed country wise and then according to ISP research/network code.

Bangladesh

Md Asrafuzzaman (M; Research Fellow, ANRAP) joined as a Teaching Assistant in Dept. Pharmacol., BUHS. (IPICS ANRAP)

Ivan Lawag (M; ANRAP Fellow, 2010 & 2014) has been enrolled in the PhD program in the School of Allied Health, Australia. He has been awarded an Australian Government International Research Training Programme (RTP) Fees Offset Scholarship and a University Postgraduate Award to support his research from the University of Western Australia (UWA), commences from 30 June, 2019. (IPICS ANRAP)

Dr Mohammad Shoeb (M) was reappointed for a second year as Head of the Sweden Alumni Network in Bangladesh. (IPICS BAN:04)

Dr Mohammad Shoeb (M) became a member from Bangladesh in the committee of Asia Pacific Network for Food Analysis (APFAN). (IPICS BAN:04)

Md Mazharul Islam (M), a former student of the group, joined the Dept. Chemistry, Univ. Dhaka, as Lecturer. (IPICS BAN:04)

Best poster award was given to the poster “Quantification and health safety assessment of major heavy metals in anti-diabetic herbal preparations available in Bangladesh” at the Bangladesh Chemical Congress 2018. (IPICS BAN:05)

Shamshad B. Quraishi (F), a life member of NITUB and Head of the Chem. Div., AECD), was selected by the Ministry of Food, Govt. Bangladesh as one the Technical Committee members, to grant accreditation to a CAB formed by Bangladesh Accreditation Board, the Ministry of Industry, and the Government of Bangladesh. (IPICS NITUB)

Dr Engr. Sheikh Manjura Hoque (F) was awarded the Dr Innas Ali Gold Medal Award by the Bangladesh Academy of Science. (IPPS BAN:02/2)

Dr M. Nazrul Islam Khan (M) was awarded the Young Scientist Award by the Bangladesh Academy of Science. (IPPS BAN:02/2)

Dr M Abdul Kadir (M) was appointed as Assoc. Professor of the Department. (IPPS BAN:04)

The telemedicine project, ‘Dhaka University Telemedicine Programme (DUTP)’, under the leadership of Professor Rabbani (M), was the WINNER at the ‘3rd Commonwealth Digital Health Award 2018’, held in Colombo, Sri Lanka. (IPPS BAN:04)

Tanisha Mehreen (F) received full funding to do PhD in the Department of Physics, University of Alberta, Canada and will be joining there in August 2019. (IPPS BAN:05)

Afsana Mimi Raka (F) stood 3rd in order of merit in the MS examination of Dept. Physics, Univ. Dhaka. (IPPS BAN:05)

Two master students of the group, Md Mostafa (M) and Abdullah Al Hasan (M), won research grants for their academic excellence, awarded by Ministry of Science and Technology, Bangladesh. (IPPS BAN:05)

MSc graduates Afsana Mimi Raka (F) and Zannatul Ferdous (F) received Best Poster Award for their research and presentation in the International Conference on Physics, 8-10 Mar., Dhaka, arranged by Bangladesh Physical Society. (IPPS BAN:05)

A student of a collaborator at North South University, Mr Rafaeal Islam Rakin (M), working in our lab as a research student, received a full funding studentship in the Univ. British Columbia, Canada, and has started his MSc training there. (IPPS BAN:05)

Burkina Faso

Yvonne L. Bonzi Coulibaly (F) became Member of Commission chargée de la Formulation du programme de cooperation (Belgium Cooperation) 2018-2020. (IPICS BUF:01)

Yvonne L. Bonzi Coulibaly (F) became Focal Point of the ARES CCD program (Belgium Coop.), 2018-2020. (IPICS BUF:01)

Yvonne L. Bonzi Coulibaly (F) was appointed as Director General of the Science Institute, affiliated to the Ministry of Education. (IPICS BUF:01)

Yvonne L. Bonzi Coulibaly (F) was member of the scientific and then the national Committee for FRSIT, Apr. - Oct. (IPICS BUF:01)

Yvonne L. Bonzi Coulibaly (F) became a laureate of the Next Einstein forum, 6 Oct., Ouaga Lab, Ouagadougou. (IPICS BUF:01)

Geneviève Zabré (F) won 1st prize at the MT180 competition in Lausanne, 27 Sep., presenting her thesis “Utilisation des plantes médicinales dans la lutte contre le méthane émis par les ruminants: cas des ovins“. She was coached by Yvonne L. Bonzi Coulibaly. (IPICS BUF:01)

Yvonne L. Bonzi Coulibaly (F) was appointed as co-godmother for excellence in Science celebration Night, 14 Dec., Ouagadougou. (IPICS BUF:01)

Jules André ILBOUDO (M) has been nominated technical adviser of the ministry of higher education of Burkina Faso. (IPICS RABiotech)

Mamoudou H. DICKO (M), got a national decoration in the field of academy (*Chevalier de l'Ordre des Palmes Académiques*) as outstanding researcher at Univ. Ouaga-JKZ. (IPICS RABiotech)

Mamoudou H. DICKO (M) has in Oct. been elected President of Scaling Up Nutrition (SUN), in the area of Academic and research sector of Burkina Faso. SUN is a UN network which aims to be a global push for action and investment to improve maternal and child nutrition. SUN is a collaborative process that began in 2009 with the development of the Scale Up Nutrition Framework, has evolved into a movement that is both stimulated and reinforced by political interest in nutrition among leaders of governments and development. (IPICS RABiotech)

RAMATOU SIDIKOU (F) has been nominated general director of the Niger research institute. (IPICS RABiotech)

Prof. Stanislas Ouaro (M) was appointed Minister of Education in Jan. (IPMS BURK:01)

From the July 2018 session of the African Council for Tertiary Education (CAMES), which evaluate the lecturers of most African Francophone Countries, the members of the network obtained the following qualifications: 13 Assistant Professors, 3 Professors, 1 Full Professor. (IPMS BURK:01)



Geneviève Zabré won 1st prize at the MT108 competition in Lausanne, 27 Sep. (Courtesy of IPICS BUF:01)

Staff members ZERBO Issa (M), ZOUNGRANA Martial (M) and KAM Sié (M) were promoted to the rank of professor by CAMES. (IPPS BUF:01)

Cambodia

Proum Sorya (F) and Sreng Soknet (F) were awarded Erasmus+ K107 International Credit Mobilities to visit the Dept. Chem., BMC, Uppsala University, 17-28 Sep., and 29 Sep. - 14 Oct., respectively. (IPICS CAB:01)

Ethiopia

Shimelis Admassie (M) was promoted to professor by the AAU Board in July. (IPICS ETH:01)

S. Admassie (M) was elected fellow of the Ethiopian Academy of Sciences. (IPICS ETH:01)

Kaleab Asres (M) was promoted to full professor; and also awarded the AAU Best Researcher Award. (IPICS ETH:02)

Staff member Laike Mariam Asfaw (M) was promoted to Full Professor. (IPPS ETH:02)

Kenya

Prof. David Kariuki (M) was appointed external examiner for University of Malawi and University of Zambia. (IPICS KEN:01)

Prof. David Kariuki (M) received a staff exchange fellowship to University of Malawi from CARTA. (IPICS KEN:01)

Prof. Lydia Njenga (F) was appointed external examiner for a PhD thesis from Makerere University. (IPICS KEN:01)

Mr Mangala (M) was appointed member of the drafting Committee for Kenya Nuclear Electricity Board. (IPPS KEN:01/2)

Mr Mangala (M) was appointed to the UoN senate as an INST representative. (IPPS KEN:01/2)

Susan Karuga (F) received the best poster price at the European Aerosol Technology Conference (AT2018) in Bilbao, Spain. (IPPS KEN:01/2)

John Birir (M) and Lindah Kiriinya (F) were appointed members of two Standards Committees at Kenya Bureau of Standards (KEBS). (IPPS KEN:01/2)

Daniel Njoroge (M) and Lindah Kiriinya (F) were identified as resource consultants by Kenya Accreditation Service (KENAS). (IPPS KEN:01/2)

Collins Mito (M) was appointed external examiner at Meru Univ. Sci.Technol. for 2018/2019. Hudson Angeyo Kalambuka (M) and Kenneth Kaduki (M) were re-appointed serving as external examiners for 2018/2019 at North West Univ. (South Africa) and Technical Univ. of Kenya, respectively. (IPPS KEN:04)

Prof. Justus Barongo (M), the leader for the KEN:05 project, was seconded Kenya Outer Continental Shelf Team where he is an expert in seismic interpretation. The Team is a committee in the office of the president of the Republic of Kenya. They advise the president on the claim of extending Kenya outer continental shelf. (IPPS KEN:05)

Laos

Dr Santi Kongmany (M) was promoted to Director of the Center of Excellence in Environment at NUOL. (IPICS LAO:01)

Dr Vanseng Chounlamany (F) was awarded an Erasmus+ K107 International Credit Mobility to visit the Dept. Chem., BMC, Uppsala University. (IPICS LAO:01)

All four geophysics staff members received the academic position as lecturers. One has received the administration position of Deputy Head of Department (IPPS LAO:01)

Mali

Pr. Abdramane BA (M) participated as member of the jury for the thesis defense of Agnero Akpa Marcel, 24- 27 Jan: "Optimization of optical tools. Application to microscopic specimen refractive index and optical thickness extraction", Félix Houphouët Boigny Univ., Abidjan. (IPPS AFSIN)
(IPPS MAL:01)

Bouréma S. Traoré (M) and Hamidou D. Sagara (M) were hired as assistant and assistant teacher, respectively, at the Inst. Applied Sciences (ISA) of USTTB. Cheick Diarra (M) and Issiaka Traoré (M) were promoted to senior lecturers and I. Traoré (M) was elected Head of Department.
(IPPS MAL:01)

Myanmar

San Win (M) from sub-group 2 (Industrial and Agricultural Impact on State of the Water Pollution in Ayeyarwaddy River) got the first prize for an outstanding presentation at the poster session in ICPM2018 and Kyaw Thu Min (M) from sub-group 3 (Theoretical Investigation into Exotic Nuclei) was awarded the third prize. (IPPS MYA:01)

Nigeria

Dr Ishaq S. Eneji (M) was appointed Director of the Centre for Agrochemical Technology, Federal Univ. Agriculture, Makurdi. (IPICS ANCAP)

Prof. Rufus Sha'ato (M) was appointed Dean of the Postgraduate School, Federal Univ. Agriculture, Makurdi. (IPICS ANCAP)

Rwanda

Dr Valentine Uwamariya (F) former staff of UR Dept. Chem. and Dean of School of Sciences was appointed Deputy Vice Chancellor in charge of Training, Institutional Development and Research of Rwanda Polytechnic. (IPICS RWA:01)

Dr Jean Pierre Nkurunziza (M) visited the Université des Sciences et Techniques de Masuku to evaluate a PhD thesis. The visit was paid by the Government of Gabon. (IPICS RWA:01)

Dr Marcel Ndengo (M) was appointed HoD of UR Mathematics. (IPMS EAUMP)

Dr Banzi Wellars (M) was appointed the Dean of the UR School of Science. (IPMS EAUMP)

Dr Denis Ndanguza (M) and Dr Joseph Nzabanita (M) were promoted to Senior Lecturer. (IPMS EAUMP)

Sudan

As a member of the Sudanese National Academy of Sciences (SNAS), Prof. Sami Khalid (M) was involved in the establishment of the Sudanese-Swiss Science Forum in the beginning of 2018. (IPICS NAPRECA)

Tanzania

Aviti John Mmochi (M) was appointed Head of Marine Technology and Innovation Section of the Institute of Marine Sciences, Zanzibar. (IPICS ANCAP)

John Marco Mahugija (M) was appointed Chief Editor, and Clarence Mgina (M) Technical Editor, of the Tanzania Journal of Science of UDSM. (IPICS ANCAP)

John Marco Mahugija (M) was appointed Chairperson of the Publications Committee, and Member of the Research, Innovation, Publications and Knowledge Exchange (RIPKE) Committee, at CoNAS, UDSM for the 2018/2019 –2020/2021 triennium. (IPICS ANCAP)

Innocent Maduhu (M) was promoted to Assistant Lecturer. (IPMS EAUMP)

Salvatory Kessy (M) was promoted to Assistant Lecturer. (IPMS EAUMP)

Elizabeth Mrema (F) was promoted to Assistant Lecturer. (IPMS EAUMP)

Dr Egbert (M) was appointed as the Undergraduate coordinator. (IPMS EAUMP)

Dr Koloseni (M) was appointed Postgraduate Studies Coordinator at CoNAS. (IPMS EAUMP)

Dr Mkandawile (M) was appointed University Time Table Master. (IPMS EAUMP)

Margaret Samiji (F) won the Elsevier Award for the poster "Intervention Measures To Increase Number of Female Students Taking Science Subjects In High Learning Institutions In Tanzania", at the Gender Summit 14 - Africa, 19-20 Mar. in Kigali. (IPPS TAN:01/2)

Margaret Samiji (F), won the 2nd prize for the poster "Development of Kesterite (CZTSe, Cu₂ZnSnS₄) Solar Cells from DC Magnetron Sputter Precursors" at the 4th College Research week (11-13 April), CoNAS, UDSM. (IPPS MSSEESA)
(IPPS TAN:01/2)

Uganda

Prof. Robert Byamukama (M), Dept. Chem., Makerere Univ., was elected new NAPRECA Executive Secretary on 2nd Sep., during the 18th NAPRECA Board Meeting, Cairo, Egypt. He will be assisted by Dr Jane Namukobe Dept. Chem., Makerere Univ., in her capacity of NAPRECA Assistant Secretary/Treasurer and Dr Hannington Twinomuhwezi, Dept. Chem., Kyambogo Univ., in his capacity as a Program Officer. (IPICS NAPRECA)

Dr Edward Mubiru (M) was promoted to Lecturer at Dept. Chem., Makerere Univ., and is now eligible to supervise graduate students. (IPICS UGA:01)

PhD student Ruth Mbabazi (F) was appointed Assistant Lecturer at Dept. Chem., Makerere Univ. (IPICS UGA:02)

Two staff members were promoted to assistant lecturers, and three of the PhD students were appointed part-time lecturers. (IPPS UGA:02)

Zimbabwe

Mark Zaranyika (M) was elected the 1st President of the Zimbabwe Chemical Society. (IPICS ANCAP)

Stanley Mukanganyama (M) was promoted to full professor, Univ. Zimbabwe. (IPICS ZIM:01)

Norah Basopo (F) was promoted to senior lecturer at the Dept. Applied and Biochemistry, NUST. (IPICS ZIM:02)

Norah Basopo (F) served as acting chairman of the Dept. Applied and Biochemistry, NUST, 1 June - 31 Dec. (IPICS ZIM:02)

Norah Basopo (F) submitted a collaborative research proposal that involves researchers from the Depts. Applied Biology and Biochemistry, Applied Chemistry, and Chemical Engineering. A review process was carried out by external reviewers, and on 15 Dec. the proposal was awarded 60,000 USD, which will be spread over three years 2019-2021. The research activities will be expected to foster collaboration amongst researchers from the three different departments. (IPICS ZIM:02)

Norah Basopo (F) was awarded an Erasmus+ International Credit Mobility (ICM) scholarship in June, for a two-week visit to Uppsala University in Mar. 2019. (IPICS ZIM:02)

Donald Tapfuma (M) was awarded an Erasmus+ International Credit Mobility (ICM) scholarship in Nov., which will give him an opportunity study Biochemistry and Analytical Chemistry courses at Uppsala University for six months starting Jan. 2019. (IPICS ZIM:02)

Collen Masimirembwa (M) was appointed Distinguished Professor of Clinical Pharmacology at the Wits University in South Africa. (IPICS ZIM:AiBST)

Collen Masimirembwa (M) won the prestigious Human Genome Organization (HUGO) International Award for Africa for outstanding research in genomics for Africa. (IPICS ZIM:AiBST)



Professor S. Mukanganyama with the Vice Chancellor and other staff promoted to full professors at Univ. Zimbabwe. Courtesy of IPICS ZIM:01.



Collen Masimirembwa won the HUGO (Human Genome Organization) award from Africa for 2018 for ground breaking research in pharmacogenomics in HIV treatment. Courtesy of IPICS ZIM:AiBST.

SECTION 7: OTHER PROGRAMS AND EVENTS

Besides the operating core program, reported in the previous sections, ISP carries out assignments by Sida, engages in collaboration with other bodies, disseminates results, creates opportunities for students, arranges and attends to seminars and meetings, and receives or participates in the reception of visitors and delegations.

7.1 Sida Assignments

By assignment by Sida, ISP is managing a number of activities related to the Sida bilateral programs for research cooperation. In 2018, these assignments comprised the coordination on the Swedish side of the programs with Ethiopia, Mozambique, Tanzania, and Uganda, and administrating the payments of subsistence allowance to participants in the bilateral programs with Bolivia, Ethiopia, Rwanda, Tanzania, and Uganda, while in Sweden.

7.1.1 Ethiopia

ISP was in 2018 coordinating the Swedish side of the bilateral programme for research cooperation with Armauer Hansen Research Institute (AHRI) in Addis Ababa, Ethiopia.

This agreement includes four Swedish Universities: Uppsala University, Lund University, Karolinska Institute and Örebro University. (www.isp.uu.se/what-we-do/bilateral-coordination/ethiopia/)

7.1.2 Mozambique

ISP has been assigned to manage the Swedish coordination of the bilateral agreement with Eduardo Mondlane University, Maputo, for the period 1 November 2017 - 31 December 2022.

The Swedish institutions involved are: Karolinska Institutet (KI), Uppsala University (UU), Umeå University (UmU), Örebro University (OrU), Gothenburg University (GU), Lund University (LU), Swedish University of Agricultural Sciences (SLU), Luleå University of Technology (LTU), Chalmers University of Technology (CTH), Linköping University (LiU), Royal Institute of Technology (KTH), Jönköping University (JU), Blekinge Institute of Technology (BTH), University of Borås (HB), Stockholm University (SU), Mälardalen University (MdH), University of Gävle (HiG).

A number of universities in South Africa are also part of this collaboration, namely: North West University (NWU), Stellenbosch University (SUN), University of the Witwatersrand (Wits), University of Cape Town (UCT), University of Pretoria (UP), University of Western Cape (UWC), University of the Free State (UFS), University of South Africa (UNISA).

The program consists of 21 subprograms, grouped in six thematic areas: Population, Health and Well-Being of the Society, Agriculture, Nutrition and Food Security, Natural Resources, Environment and Climate Change, Technology and Innovation, Education, Culture, Good Governance, Ethics and Human Rights, and Key Supporting Elements. (www.isp.uu.se/what-we-do/bilateral-coordination/mozambique/)

7.1.3 Tanzania

In 2015, Tanzania entered into a new bilateral phase with Sida, covering support to three universities and one agency in Dar es Salaam; Univ. of Dar es Salaam (UDSM), Ardhi Univ. (ARU), and Muhambili Univ. Health and Allied Sciences (MUHAS), as well as the Tanzania Commission for Science and Technology (COSTECH). The agreement period is from 1 July 2015 to 30 June 2020. Sida has entrusted ISP the coordination on the Swedish side.

The Swedish partners involved in 2018 were Gothenburg Univ., Karolinska Institute, Linköping Univ., Lund Univ., the Royal Institute of Technology, Södertörn Univ., Stockholm Univ., the Swedish Research Council, the Swedish Univ. of Agricultural Sciences, Umeå Univ., and Uppsala Univ. The emphasis for this program phase is on the development of local PhD programs in Tanzania.

The number of PhD students to be trained in the framework of the program amounts to 126, including 14 students from the previous program phase. In addition, there are 55 MSc students to be trained locally in Tanzania, and 27 post-docs. (www.isp.uu.se/what-we-do/bilateral-coordination/tanzania/)

7.1.4 Uganda

ISP is coordinating the Swedish side of the bilateral programme for research cooperation with Uganda. The agreement includes five Ugandan universities (Makerere Univ., Busitema Univ., Kyambogo Univ., Gulu Univ., and Mbarara Univ. Sci. Technol.).

The Swedish institutions involved in 2018 were Chalmers Inst. Technol., Gothenburg Univ., Karolinska Inst., Linköping Univ., Lund Univ., Mälardalen Univ., Royal Inst. Technol. (KTH), Stockholm Univ., the Swed. Univ. Agric. Sci. (SLU), Univ. Borås, and Uppsala Univ. The program consists of 17 subprograms in various fields. (www.isp.uu.se/what-we-do/bilateral-coordination/uganda/)

7.1.5 Payment of Subsistence Allowances to Sida Bilateral Students

ISP continued the Sida assignment to administer the payment of PhD student allowances and insurance costs for PhD students and postdocs who receive support from Sida in Swedish bilateral agreements on research cooperation with Bolivia, Ethiopia, Rwanda, Tanzania, and Uganda. This includes the administration of payments of family/child allowances agreed in Sida's program with Rwanda.

7.1.6 Student Activities

On 23 November, Sida and ISP jointly organized a seminar "Building future networks", at Sida in Stockholm, attended by 110 ISP- and Sida funded PhD students and postdocs from eleven countries, at Sida HQ, Sweden.



The annual Building Future Network Meeting for ISP and Sida funded PhD students and Postdocs at Sida HQ held 23 November, 2018. Courtesy of ISP.

7.2 Other activities

7.2.1 Collaboration

Al Baha University

In 2018, on 21 Sep., the first PhD student in the collaboration program, Ms Azza Alghamdi, successfully defended her thesis “Approximation of pluricomplex Green functions. A probabilistic approach.”, and passed for graduation. Dr Mohammed Shanify, new Head of the International Cooperation Office at ABU, attended the defense, and also had meetings with ISP and other UU staff on the possible extension of the collaboration. Two male PhD students, one in computer science and one in mathematics, at Uppsala and Mälardalen University, respectively, are still in the program.

Linköping University (LiU) and University of Rwanda (UR)

ISP is engaged in the Research Management Program, with LiU, Sweden, and the Directorate for Planning and Development at UR, in the current phase of the Sida bilateral program, started 1 July 2013. In 2018, ISP arranged for a laboratory audit at UR, 7-18 May.

Stockholm University

The annual steering committee meeting of the cooperation of ISP with the Faculty of Science at Stockholm University was held in Stockholm 4 June.

Thailand Research Fund and Thailand International Development Cooperation Agency

In 2018, the admitted students continued, and as a result of a new call in April, two more students were granted fellowships, Ms Su Yee Win, and Ms Zar Zar Myint, both from Myanmar. In December, however, Ms, Myint withdrew from the program.

7.2.2 Honors

Leif Abrahamsson served as chairperson of the Committee for Developing Countries of the European Mathematical Society, for the period 1 Jan. to 31 Dec. 2018.

7.2.3 Dissemination

Publications

Rebecca Andersson. Tracing ISP Graduates 2014-2017. ISP Report, December 2018.

M. Pović, M. Backes, P. Baki, D. Baratoux, S.B. Tessema, Z. Benkhaldoun, M. Bode, N.A.B. Klutse, P.A. Charles, K. Govender, E. van Groningen, E. Jurua, A. Mamo, S. Manxoyi, V. McBride, J. Mimouni, T. Nemaungani, P. Nkundabakura, B. Okere, S. Saad, P. C. Simpemba, T. Walwa & A. Yilma (2018). Development in astronomy and space science in Africa. *Nature Astronomy*, 2:507-510. DOI: 10.1038/s41550-018-0525-x

The ISP Annual Report 2017, published on ISP's web 3 Juli.

Contributions to scientific conferences

Carla Puglia. Electronic structure characterization of Triphenylamine (TPA) and its Thiophene – analog (DPTA). Joint MSSEESA and DAAD International Conference on Materials Science research for sustainable Energy, 26-27 Sep., Nairobi, Kenya.

Peter Sundin. Sustainability of academic partnerships: ISP's experiences and proposed improvements. SANORD Conference "Academic Citizenship Recognition, Resilience or Resistance?" 15-17 Aug., University of Jyväskylä, Finland.

Rebecca Andersson. Measuring results in research cooperation. The Development Research Conference 2018, 22-23 Aug., Gothenburg, Sweden.



Peter Sundin to the left together with Prof. Felix Moyo and Prof. Yogheshkumar Naik (former IPICS research Nairobi, group research and network leader), both at NUST, Bulawayo, Zimbabwe.



Rebecca Andersson (to the right) together with ISP partner Prof Michael Gatari from University of Kenya and his research collaborators from University of Gothenburg, Sweden.

7.2.5 Seminars, Meetings and Visits

Arranged seminars and meetings

180116: ISP held the yearly planning meeting, Uppsala, Sweden.

180115: ISP meeting on coordination of Sida bilateral programs, Uppsala, Sweden.

180118: ISP administration meeting, Uppsala, Sweden.

180123: ISP internal meeting on a staff survey, Uppsala, Sweden.

180201: ISP administration meeting, Uppsala, Sweden.

180205: ISP had a final meeting with fundraising consultant Brakeley, collecting the concluding recommendations from the consultant, Stockholm, Sweden.

180205: A member from Sida's "anti-corruption unit" visited ISP to review ISP's anti-korruption work, and discuss future development, Uppsala, Sweden.

180214: ISP arranged a Book Release Seminar where Rebecca Andersson and Marta Zdravkovic presented the ISP book "ISP in Sri Lanka and Thailand - Three decades of research cooperation" at Biomedical Center, Uppsala University, Sweden.

180226-180227: ISP arranged the 2nd Network Meeting for Sida and ISP Funded PhD Students and Postdocs in Mathematics in collaboration with Linköping University at Sida HQ, Stockholm, Sweden.



2nd Network Meeting for Sida and ISP Funded PhD Students and Postdocs in Mathematics at Sida HQ, Sweden.

180228: ISP had its annual staff planning conference, Knivsta, Sweden.

180312: ISP fundraising meeting, Uppsala, Sweden.

180315: ISP administration meeting, Uppsala, Sweden.

180330: ISP fundraising meeting with UU fundraisers Agneta Stålhandske and Thomas Fredengren, Uppsala, Sweden.

180405: Cecilia Öman gave a Workshop on Research management – Ambitions and Activity plan, at University of Ouagadougou, Burkina Faso.

180406-180407: ISP arranged the annual meeting of the Committee for Developing Countries of the European Mathematical Society, Sigtuna, Sweden.

180409-11: Cecilia Öman gave a Workshop on Research management – Ambitions and Activity plan, at USTTB, Mali.

180410: ISP administration meeting, Uppsala, Sweden.

180416-17: Cecilia Öman gave a Workshop on Research management – Ambitions and Activity plan, at University of Lomé, Togo.

180417: Together with Karolinska Institutet, ISP organized a networking meeting for Sida- and ISP-supported PhD students with a focus on the Sustainable Development Goals. This meeting was a pre-meeting to the KI conference: Swedish Global Health Research Conference 2018: How can Sweden contribute to the Sustainable Development Goals? From research to action.

180621: ISP administration meeting, Uppsala, Sweden.

180627: Sida's Unit for Research Cooperation and ISP held the annual review meeting, at ISP premises, BMC, Uppsala.



PhD Student Networking & SDG Meeting at Karolinska 17 April, Solna, Sweden.

180820-180823: ISP arranged the 3rd Network Meeting for Sida and ISP Funded PhD Students and Postdocs in Mathematics in collaboration with Linköping University and Makerere University, Entebbe, Uganda.

180904: ISP administration meeting, Uppsala, Sweden.

180911-180912: ISP arranged a meeting for Swedish partners in the Uganda bilateral programme, Stockholm, Sweden.

180918: ISP administration meeting, Uppsala, Sweden.

181012: Cecilia Öman gave a Workshop on Research management – Transparency and accountability, to the applicants participating in the IPICS Scientific Reference Group meeting in Lund, Sweden.

181015: ISP internal follow-up meeting on a staff survey, Uppsala, Sweden.

181016: ISP held an internal meeting, together with the Sida Desk Officer for ISP (invited), to evaluate the RBM logical framework performance indicators, Uppsala, Sweden.

181022: Olle Terenius and Hossein Aminaey held a meeting at KTH targeting Swedish participants in Sidas bilateral cooperation with AAU, Ethiopia.

181126: ISP administration meeting, Uppsala, Sweden.

181128-30: Cecilia Öman gave a Workshop on Research management – Ambitions and Activity plan, at University of Zambia, Lusaka, Zambia.

181030: ISP had a preparatory meeting for the next strategic plan, 2019-2024, Uppsala, Sweden.

181119: ISP had a meeting with Stockholm centre for organizational research (SCORE), Uppsala, Sweden.

181120-22: Cecilia Öman gave a Workshop on Research management – Ambitions and Activity plan, at NUST, Bulawayo, Zimbabwe.

181218: ISP administration meeting, Uppsala, Sweden.

Participation in other meetings by ISP staff

180108-180109: Leif Abrahamsson attended the EAUMP coordinators' meeting, Dar es Salaam, Tanzania.

180123: Leif Abrahamsson participated in the Conclusions of the North-South Dialogue Scoping meeting, with The Guild of European Research-Intensive Universities, Oslo, Norway.

180124-30: Peter Sundin visited RUPP concomitantly with Sida staff for the planning of the introduction of Sida support.

180211-16: Ernst van Groningen and Carla Puglia visited the IPPS supported group (BUF:01) in Ouagadougou. During this visit, the IPPS staff met also the leaders of the mathematics and chemistry supported groups and networks.



Group photo with prof. Dieudonné Joseph Bathievo and the students of IPPS BUF:01 at the Department of Physics, University of Ouagadougou.

180221-180222: Leif Abrahamsson participated in the Team Leader Meeting of the bilateral programme in Rwanda, Linköping, Sweden.

180226-180227: Leif Abrahamsson and Rebecca Andersson participated in the 2nd Network Meeting for Sida and ISP Funded PhD Students and Postdocs in Mathematics in collaboration with Linköping University at Sida HQ, Stockholm, Sweden.

180307: Peter Sundin presented ISP to the diplomat community in Stockholm, at “Sida’s Diplomatic Forum”, Sida HQ, Stockholm.

180307: Cecilia Öman, Rebecca Andersson and Peter Sundin had a meeting with EBA, Stockholm, on possible collaboration.

180406-180407: Leif Abrahamsson participated in the annual meeting of the Committee for Developing Countries of the European Mathematical Society, Sigtuna, Sweden.

180416-160420: Leif Abrahamsson and Therese Rantakokko participated in the Annual Review Meeting of the bilateral programme in Mozambique, Maputo, Mozambique.

180423-180427: Leif Abrahamsson and Therese Rantakokko participated in the Annual Planning Meeting of the bilateral programme in Uganda, Kampala, Uganda.

180523: ISP participated in a meeting on ERASMUS+ in Uppsala, sharing experiences.

180623-180624: Leif Abrahamsson participated in the European Mathematical Society Council Meeting, Prague, Czech Republic.

180628-0701: Rebecca Andersson participated in a workshop initiated by ISP graduate and gender grantee Betty Nannyonga, associated with EAUMP, and organized by the Ugandan Women in Mathematics, in Kalanga, Uganda. At the meeting, the “Eastern African Network for Women in Basic Sciences” was initiated.



Group Photo from the initiation workshop of the “Eastern African Network for Women in Basic Sciences” (EANWoBAS), in Kalanga, Uganda. Courtesy of ISP.

180801-180808: Leif Abrahamsson participated in the International Congress of Mathematics, and had a poster exhibition, Rio de Janeiro, Brazil.

180820-180823: Leif Abrahamsson participated in the 3rd Network Meeting for Sida and ISP Funded PhD Students and Postdocs in Mathematics, Entebbe, Uganda.

180823: Peter Sundin participated in a breakfast meeting of the Sweden-Bangladesh Business Council, Stockholm, Sweden, and met the new Swedish Ambassador to Bangladesh, Ms Charlotta Schlyter.

180828: Cecilia Öman participated in an information meeting about the EU General Data Protection Regulation at the Swedish Association of Graduate Engineers, Stockholm, Sweden.

180901-02: Peter Sundin participated in the NAPRECA meetings in Cairo, Egypt.

MSSEESA and DAAD International Conference on Materials Science research for Sustainable Energy in Africa, in Nairobi, Kenya.



Group Photo Joint MSSEESA and DAAD International Conference on Materials Science research for Sustainable Energy in Africa, on 26-27 Sept. in Nairobi, Kenya. Courtesy of IPPS.

180926-27: Ernst van Groningen, Carla Puglia and Rebecca Andersson participated in the Joint MSSEESA and DAAD International Conference on Materials Science research for Sustainable Energy in Africa, in Nairobi, Kenya.

180928: Ernst, Rebecca and Carla took part in the briefing of the evaluation report of MSSEESA, at the network board meeting held at UoNBI, Nairobi, Kenya.

181001-181005: Leif Abrahamsson and Therese Rantakokko participated in the Annual Review Meeting of the bilateral programme in Uganda, Kampala, Uganda.

181015: Cecilia Öman participated in the EBA meeting on “Budget Support”, Stockholm, Sweden.

181022-181026: Leif Abrahamsson and Therese Rantakokko participated in the Annual Planning Meeting of the bilateral programme in Mozambique, Maputo, Mozambique.

181026: Peter Sundin participated in a meeting with The Guild of European Research-Intensive Universities, Brussels, Belgium.

181028: Leif Abrahamsson met with the Department of Mathematics at AAU, Ethiopia.

181030-31: Leif Abrahamsson met with leaders and members of basic sciences departments at Mandalay University, Myanmar

181102-181104: Leif Abrahamsson and Pravina Gajjar participated in the 11th International Conference on Mathematics and Mathematics Education in Developing Countries, Vientiane, Laos.

181105: Leif Abrahamsson and colleagues from France and Italy met with Department of Mathematics and Faculty of Natural Sciences at National University of Laos, Vientiane.

181106-07: Rebecca Andersson participated in the Internationalisation Days arranged by the Swedish Council for Higher Education, in Uppsala, Sweden.

181007-09: Hossein Aminaey and Peter Sundin participated in the first annual planning meeting of the new phase of Sida's bilateral program with AAU, Ethiopia.

181113: Leif Abrahamsson, Peter Sundin and Therese Rantakokko participated in the 40th Anniversary of the collaboration between Mozambique and Sweden, Maputo, Mozambique. Peter Gave an invited talk.

181116: Peter gave an invited presentation about ISP at University of Konstanz, Germany.

181127: Leif Abrahamsson participated in the meeting "Supporting mathematics research in Africa", Oxford, United Kingdom.

Other staff travel

180913-28: Anna Wallin and Pravina Gajjar visited RUPP, Cambodia, within the frame of the ERASMUS+ mobility program.

Visiting delegations

180418: Peter Sundin participated in the reception in a Sri Lankan delegation to Uppsala University, consisting of three Vice Chancellors, Prof. Kapila Perera, Univ. Moratuwa, Prof. Lakshman Dissanayake, Univ. Colombo, and Prof. Sampath Amarathunga, University of Sri Jayewardenapura, and Prof. Sirimali Fernando, Chairperson of the National Science Foundation, Sri Lanka.

181207-12: Bounphan Tonpheng, Lemthong Lathdavong and Sackmon Sirisackhree, three staff members of the Dept. Physics and Dept. Mathematics of NUOL, Vientiane, Laos were visiting Uppsala Univ. under the Erasmus+ exchange program.



Sackmon Sirisack, Lemthong Lathdavong and Bounphan Tonpheng with Robert Stephanuik at the HELIOS lab, Dept. Physics and Astronomy, UU. Courtesy of IPPS.

They had meetings with physics and mathematics researchers, with ISP staff about management and financial reporting, and they could also visit the training laboratories at the Dept. Physics and Astronomy, UU, and discussed the development of experimental physics laboratories for

undergraduate students at NUOL. They and their wives attended the Nobel laureates' lectures held at Uppsala university Hall on 13 December.



Mrs Soukdalay Xaysombath and Mr Sackmone Sirisack, Dr Lemthong Lathdavong and Mrs Boupavanh Nilavanh, and Mrs Vilaysane Kenchanh and Dr Tonpheng Bounphani at the Nobel Laureates' lectures at Uppsala University Hall, in December. Courtesy of IPPS.

7.3 Obituary

Professor Rune Liminga in Memoriam

Uppsala, 24 September 2018

It is with great sadness we have received information that our predecessor, Professor Rune Liminga, on 14 September 2018 has passed away, at an age of 85.

In the early 1960's, Rune became engaged in the support in X-ray crystallography provided by the Department of Chemistry, Uppsala University, to Chulalongkorn University in Bangkok, Thailand, given within the framework of the recently started "International Seminar for Research and Education in Physics." To facilitate support in chemistry in a wider sense, Uppsala University 1966 proposed SIDA to launch also a seminar in chemistry. Rune was entrusted the task to plan the activities, and was later assigned to lead the "International Seminar in Chemistry", from its start 1970. He stayed in that position until he left the program in 1997.

The aim of the Seminars was to *"initiate the creation of research groups or to provide assistance to already existing research groups at universities or national laboratories in developing countries"*. Rune was one of those who realized that long-term support was needed to fulfil this. Furthermore, he realized that fellowships for research training in Sweden needed complementary contributions for equipment, support for MSc and PhD program, etc. He was pushing for such discussions, which finally, in 1978/79, resulted in a five-year agreement with the Swedish Agency for Research Cooperation with Developing Countries (SAREC). Now, the realization of the visions could commence, with "project support" tailored to needs and starting conditions.

An important component was the cooperation with strong research teams predominantly in Sweden, but also in the regions, and postgraduate education was an essential feature. At an early stage, Rune realized that PhD students spending all their training in the North faced difficulties in returning to their home countries, regarding both their professional and social life. He was therefore among the pioneers to promote "sandwich" training programs, where periods with a host institution in the North were layered with periods at the home institution. This contributed to a continuous transfer of knowledge, and profoundly reduced "brain drain". Sandwich programs are operated still today, by ISP and Sida, and by other organisations.

Rune worked energetically to develop the program, and his vision stretched far beyond the "seminar" concept. To mirror the development of activities, he initiated the organization in 1987 of the two seminars under the common name "The International Science Programme" (ISP), and the Chemistry Seminar became "The International Programme in the Chemical Sciences" (IPICS).

Besides the support to viable research teams, Rune realized the importance of forming connections between scientists in the South in thematic, scientific networks. He was personally engaged in the initiating of several such networks, many of which are still active today.

In many respects, Rune's visions, philosophy, and hard, persistent work to develop IPICS became a model for what ISP still is today, and many hundreds of researchers and graduates in Africa, Asia, and Latin America have benefited from the implementation of his visions. After retirement, Rune still followed the development of the program with great interest.

Rune, for us it has been a great honour, challenge, and pleasure to continue operating IPICS – and ISP – along the path you did lay out.

Rest in peace.

Peter Sundin
IPICS Director since 2006, and Head of ISP since 2007

Malin Åkerblom
IPICS Director 1997-2006

Lennart Hasselgren
Director for the Physics program 1982-2007
Head of ISP 1998-2007

On behalf of current and previous ISP co-workers and Board member

APPENDIX 1. ACADEMIC THESES

The graduations listed below are given countrywise. For each county, students reported by chemistry groups and networks ara given first, followed by those reported for mathematics and physics. The entries are given essentially as submitted to ISP. “Sandwich” (Sandw.) theses are written by students with intermittent visits to a collaborating supervisor in another country. “Local“ theses are by students being trained at the home university. (F = female; M= male). A few students conduct full-time training (FT) with foreign hosts abroad. In ISP statistics, they are categorized as sandwich students.

PhD graduations



Some of the mathematics PhD theses defended in 2018. Courtesy of IPMS.

Bangladesh



Convocation 6 Oct. with the IPICS BAN:04 fresh PhDs (in red) having defended their theses in 2017. Courtesy of IPICS BAN:04.

Md Kamrujjaman (M). Synthesis and Characterization of Hydroxyapatite Nanoparticle.
(IPPS BAN:02/2, Local)

Abdullah Al, Amin (M). Development of Electrical Control System through Human Brain Signal Analysis.
(IPPS BAN:04, Local)

Muhammad Abdul, Kadir (M). Development of a multi-frequency system for medical applications of Focused Impedance Method (FIM).
(IPPS BAN:04, Local)

Zihad, Tarafdar (M). Software development for a secure telemedicine system for slow internet connectivity. (IPPS BAN:04, Local)

Burkina Faso

Abel Tankouano (M). Caractérisation biochimique, microbiologique du Gappal et caractérisation moléculaire de ses bactéries lactiques d'intérêt technologique en vue de leur utilisation comme starters. (IPICS RABiotech, Local)

Ali KONATÉ (M). Prévalence, facteurs génétiques de virulence et d'antibiorésistance de *Escherichia coli* et *Salmonella* sp. isolées au cours de gastroentérites infantiles à Ouagadougou (Burkina Faso). (IPICS RABiotech, Local)

Alio MAHAMADOU FODY (M). Caractérisation phénotypique et moléculaire des betalactamases à spectre étendu et les supports génétiques de résistance chez les souches cliniques de *E. Coli* au Niger. (IPICS RABiotech, Local)

Charles Windépagndé YAMEOGO (M). Etude de l'activité physique, du statut en acides gras polyinsaturés et leurs facteurs corrélés chez les enfants malnutris aigüés modérés âgés de 6-23 mois dans la province du Passoré, Burkina Faso. (IPICS RABiotech, Local)

Désiré TRAORE (M). Assainissement et dépollution de l'environnement par la voie de la méthanisation: Biodégradation des déchets agroressources au Burkina Faso. (IPICS RABiotech, Local)

Djélika KONATE (F). Etude de la prévalence et de l'incidence du VIH chez les femmes enceintes à l'aide du «HIV-1 limiting-antigen avidity eia» au Burkina Faso de 2005 à 2016. (IPICS RABiotech, Local)

Lamoussa Paul OUATTARA (M). Etude phytochimique bio guidée pour l'identification de molécules à activité antiplasmodiale in vitro à partir de plantes médicinales de la région des cascades au Burkina Faso. (IPICS RABiotech, Local)

Mahamadi NIKIEMA (M). Valorisation des déchets organiques solides municipaux par la voie de la méthanisation au Burkina Faso. (IPICS RABiotech, Local)

Moustapha KOALA (M). Le virus de la panachure jaune du chien: caractérisation pathogénique, moléculaire et aspects épidémiologiques au Burkina Faso. (IPICS RABiotech, Local)

Namwin Siourimé Somda (M). Antibiorésistance et typage moléculaire des souches de *Salmonella typhi*, *paratyphi* et les pathovars de *Escherichia coli* d'origines humaine et alimentaire responsables des diarrhées au Burkina Faso. (IPICS RABiotech, Local)

Oubayyou ABDOULAYE MAMOUDOU (M). Epidémiologie parasitaire, fongique et bactérienne non tuberculeuse des affections pulmonaires dans les structures sanitaires à Niamey. (IPICS RABiotech, Local)

Pane Bernadette Sourabie-Ouattara (F). Inhibition de la croissance et de la production d'aflatoxines chez *Aspergillus* spp. par des extraits de plantes (*Cymbopogon citratus*, *Cymbopogon giganteus* et *Hyptis spicigera*). (IPICS RABiotech, Local)

TAPSOBA Fidèle Wend-Bénédo (M). Boisson fermentée "zoom-koom" à base de mil ou sorgho: physico-chimie et caractérisation de bactéries lactiques impliquées dans la technologie. (IPICS RABiotech, Local)

WARE LARISSA YACINE (F). Evaluation de la qualité sanitaire des farines infantiles produites au Burkina Faso. (IPICS RABiotech, Local)

Birba Mamadou (M). Contrôlabilité à zéro des systèmes d'équations couplées dégénérées et non linéaires. (IPMS BURK:01, Local)

Konate Ibrahime (M). Étude de problèmes anisotropiques continus fortement non linéaires avec des données mesure. (IPMS BURK:01, Local)

Zoungrana Malick. (M). Etude de problèmes anisotropies continus et discrets avec des données de type graphes. (IPMS BURK:01, Local)

Mahamadi Savadogo (M). 3D determination of the electronic and electrical parameters of a concentration solar cell. (IPPS BUF:01, Local)

Ulrich Combari (M). Study of the influence of an external magnetic field on the response of a photovoltaic module. (IPPS BUF:01, Local)

Idrissa Sourabie (M). 3 D modeling of intensity and incidence angle of external magnetic field the performance of a bifacial silicon solar cell. (IPPS BUF:01, Local)

Hassime Guengane(M). Solar process of cold production by adsorption (zeolite-water) and elements of dimensioning a cold room. (IPPS BUF:01, Local)

Bienvenu Magloire Pakouzou (M). Theoretical and experimental study of a cylindro-parabolic sensor attached to a drying cage. (IPPS BUF:01, Local)

Abdoulaye Compaore (M). Study of the thermal performance of a typical Burkina Faso habitat. Application: contribution to the implementation of a thermal regulation. (IPPS BUF:01, Local)

Cambodia

Khley Cheng (M). Elaboration of Mixed Metal Oxide $Zr_xTi_{1-x}O_2$ nano-photocatalysts. (IPICS CAB:01, Sandw. FT)

Sotheara Veng (M). Option Pricing and Portfolio Optimization Problems under Multifactor Heston's Stochastic Volatility Models. (IPMS SEAMaN, Sandw.)

Cameroon

Abanda Antoine Yannick (M). Cryptosystems based on mixing and data fusion. (IPPS AFSIN, Local)

Ethiopia

Girum Aklilu (M). On the theory of BRK-Algebras. (IPMS ETH:01, Local)

Dawit Solomon Tadesse (M). A Sagbi basis for some subalgebras of polynomial rings. (IPMS ETH:01, Local)

Kassahun Workalemahu Gashaw (M). Climate dependent malaria disease transmission model and its analysis. (IPMS ETH:01, Local)

Tibebu Worku Hunde (M). Fixed Point Approximation for Some Nonlinear Mappings in Banach and Modular Metric Spaces with Graph Structure. (IPMS ETH:01, Local)

Mulugeta Habte (M). Monomial orders and ring of multiplicative invariants.
(IPMS ETH:01, Local)

Anley Gessese (M). Monte Carlo simulation of tissue growth. (IPPS ETH:01, Local)

Solomon Negash (M). Effect of tacticity on the structure and glass transition temperature of polystyrene thin films adsorbed onto graphite and hydroxylated α -quartz. (IPPS ETH:01, Local)

Gambia

John T. Mendy (M). Contributions to iterative algorithms for nonlinear equations in real Banach spaces. (IPMS BURK:01, Local)

Ivory Coast

Agnero A. Marcel (M). Optimization of multispectral and multimodal microscope. Application to the extraction of refractive index and thickness of specimens microscopic. (IPPS AFSIN, Local)

Kouakou Kouabenan Anicet (M). Microscopic analysis of the physiological state of tropical plants by multi spectral and multi modal imagery: application to cucumber and corn leaves.
(IPPS AFSIN, Local)

Diby Wilfried Gauthier (M). Acquisition of fluorescence and reflectance data for monitoring agricultural crop growth. (IPPS AFSIN, Local)

Régnima Gnahoré Guy oscar (M). Measurement of optical properties of chromophores in dense media by spectrophotometry. Alternatives to the limits of the application of the Beer Lambert-Bouguer law. (IPPS AFSIN, Local)

Yalé Pavel (M). Development of piconewton-scale force calculation techniques applied to optical molasses systems; Applications to the study of the mechanical properties of biological specimens. (IPPS AFSIN, Local)

Kenya

Patrick Tum (M). Photocatalytic Degradation of Wastewater from Tea Factories by Titanium Dioxide: A Case Study of Tea Factories in Kenya. (IPICS KEN:01, Local)

Souaibou Yaouba (M). Phytochemical Investigation of Selected Plants in the Families Anacardiaceae and Asteraceae for Bioactive Principles. (IPICS KEN:02, Local)

Yoseph Atilaw (M). Phytochemical Investigation of Selected Tephrosia species for Antiplasmodial and Anti-inflammatory Principles. (IPICS KEN:02, Local)

Stella Kioko (F). Synthesis, Growth and Physico-Chemical Properties of Titanium Dioxide Nanotubes for Photocatalytic Water Purification. (IPPS KEN:03, Sandw.)

Mali

Sanata TRAORE (F). Teneur en zinc dans les sols et produits maraichers à Bamako et alentour. (IPICS MAL:01, Sandw.)

Bouréma Souleymane Traoré (M). Experimental and Numerical Study of the dynamics of heat and water fluxes in the soil: Case of Néguela in Mali. (IPPS MAL:01, Local)

Myanmar

Su Myat Nyein (F). Assessment of radiological risk and heavy metals contamination associated with fertilizers. (IPPS MYA:01, Local)

Min Min Thein (M). Development of one-dimensional TiO_2 nanotubes as photoanode in photoelectrochemical cells for Water-splitting. (IPPS MYA:01, Local)

Tun Tun Naing (M). Morphology control of Organo Metal Halide Perovskite Films. (IPPS MYA:01, Local)

Hlaing Min (M). Controlled Growth of TiO_2 Nanotube Arrays for Mesoscopic Solar Cells. (IPPS MYA:01, Local)

Khin Waso Oo (M). Fabrication and Characterization of Sol-Gel Derived Copper Oxide Films Decorated with Silver Nanoparticles. (IPPS MYA:01, Local)

Win Win Maw (F). Analysis on Invariant Mass Spectrum of $d(K^-,n)\Lambda(1405)$ Reaction. (IPPS MYA:01, Local)

Nigeria

Sylvester M. Tongu (M). Determination of some endocrine disrupting compounds in open city drains and the River Benue in Makurdi, Nigeria. (IPICS ANCAP, Local)

Peter Onuwa (M). Analysis of pesticide residues in vegetables and soil from farm sites in University of Agriculture Makurdi, Benue State. (IPICS ANCAP, Local)

Senegal

Mohamed Lamine SALL (M). Electrosynthesis of polypyrrole doped with 4-amino-3-hydroxyl-naphthalene-1-sulfonic acid (AHNSA-PPy): use for removal of heavy metals (chromium, lead and cadmium). Application in samples of Senegal natural waters. (IPICS ANEC, Local)

Momath LO (M). Diazonium interface chemistry in the design of high performance polypyrrole-adherent on flexible ITO for detection of ions metals in water. (IPICS ANEC, Local)

Moustapha Dièye (M), Contribution à l'étude des équations intégrodifférentielles en dimension infinie : stabilité, contrôlabilité et contrôle optimale. (IPMS BURK:01, Sandw.)

Tanzania

Emmanuel Evarest (M). Modelling and pricing of weather derivatives: A regime switching approach. (IPMS EAUMP, Sandw.)

John Andongwisye (M). Asset liability management for Tanzania pension funds. (IPMS EAUMP, Sandw.)

Triphonia Jacob Ngailo (F). Statistical modelling of extreme rainfall variability in Tanzania. (IPMS EAUMP, Local)

Geomira George Sanga (F). Modelling cervical cancer and HIV co-infection with optimal control among women in Tanzania. (IPMS EAUMP, Local)

Joseph Kyobe (M). Thermolytic Synthesis of Metal Chalcogenide Quantum Dots Capped with Organic Acids from Cashew Nut Shells and Castor Oil. (IPPS TAN:01/2, Local)

Uganda

Alex Behakanira Tumwesigye (M). On existence of periodic points of piece-wise polynomial maps with applications to wavelet analysis. (IPMS EAUMP, Sandw.)

Juliet Nakakawa (F). Multi-patch models for the dynamics of Banana Xanthomonas wilt: incorporating disease drivers, latency and resurgence. (IPMS EAUMP, Local)



Alex Behakanira Tumwesigye (right) after his defense at Mälardalen Univ. Sweden, 29 May. Courtesy of IPMS.

Zambia

John Musonda (M). Reordering in Noncommutative Algebras, Orthogonal Polynomials and Operators. (IPMS EAUMP, Sandw.)

Zimbabwe

Netai Mukaratirwa-Muchanyereyi (F). Adsorption of Volatile n-Alkanes and Polar Organic Solvents by Water Hyacinth (*Eichhornia crassipes*) Root Biomass: Thermodynamics, Mechanism and Effect of Chemical Treatment. (IPICS ANCAP, Local)

Other postgraduate theses

Theses regard MSc graduations unless otherwise indicated (MPhil or Licentiate degrees).

Bangladesh

Shamim Gazi (M). Effect of selective probiotics in streptozotocin induced type 2 diabetics rats.
(IPICS ANRAP, Local)

Mithu Chakma (M). A comparative study for determination on concentration of paracetamol in tablet from different pharmaceutical company in Bangladesh by using UV- visible spectrophotometer.
(IPICS ANRAP, Local)

Md Injamul Huq (M). A comparative study for determination on concentration of paracetamol in tablet from different pharmaceutical company in Bangladesh by using UV- visible Spectrophotometer.
(IPICS ANRAP, Local)

Md Mafizul Islam (M). Method Development and Validation for the Analysis of Artificial Preservatives, Stimulating and Sweetening Agents of Carbonated Beverages by HPLC.
(IPICS BAN:04, Local)

Murshid Hossain (M). Quantitative Analysis of Preservatives and Artificial Sweeteners by HPLC in Commercial Fruit Juice Available in Bangladesh.
(IPICS BAN:04, Local)

Salma Akter Mou (F). Analysis of Sulfa Drugs and Chloramphenicol in Meat Samples by LC-MS/MS.
(IPICS BAN:04, Local)

Tofael Ahmed (M). Isolation of Secondary Metabolites from *Morus alba* L.
(IPICS BAN:04, Local)

Farhana Sharmin (F). Water quality parameters and environmental contaminants at the Southern part of Bangladesh.
(IPICS BAN:04, Local)

Saiful Islam Bhuyian (M). Method development and validation for the determination of selected antibiotics in different food samples by HPLC.
(IPICS BAN:04, Local)

Md Shovon Al-Fuad (M). Microbial Contamination in Fresh Date Palm Fruits Available at Different Markets of Dhaka City.
(IPICS BAN:05, Local)

Tahamina (F). Heavy metal contamination of energy stimulating herbal preparation formulated in Bangladesh.
(IPICS BAN:05, Local)

Md Sohel Rana (M). Structural and magnetic properties of $\text{Bi}_{0.80}\text{Ba}_{0.20}\text{Fe}_{1-x}\text{Ti}_x\text{O}_3$ ceramics prepared by ball milling technique. (M.Phil.)
(IPPS BAN:02/1, Local)

Abdul Ahad (M). Structural and magnetic properties of $\text{Ba}_{0.95}\text{La}_{0.05}\text{Ti}_{1-x}\text{Y}_x$.
(IPPS BAN:02/2, Local)

Afrin Nahar Tamanna (F). Leaf Extract Mediated Synthesis of Anatase Titanium Dioxide Nanoparticles for Biomedical Applications.
(IPPS BAN:02/2, Local)

AL-Masud(M). Synthesis of $(1-x)[\text{Bi}_{0.9}\text{Eu}_{0.1}\text{FeO}_3] + x[\text{Ni}_{0.6}\text{Zn}_{0.4}\text{Fe}_2\text{O}_4]$ Nanostructured Multiferroic Composites and Study of its Structural, Magnetic and Electrical Properties.
(IPPS BAN:02/2, Local)

- Arzina Khatun (F). Structural and multiferroic properties of Barium Titanate ($\text{Ba}_{0.9}\text{La}_{0.1}\text{Ti}_{1-x}\text{Eu}_x\text{O}_3$).
(IPPS BAN:02/2, Local)
- Atanu Sarker Jyoti (M). Structural, Electrical and Magnetic Properties of Vanadium Substituted Mn-Zn Ferrite Compounds.
(IPPS BAN:02/2, Local)
- Fariha Chowdhury (F) Preparation of Iron Oxide (Fe_3O_4) Nanoparticles by Sol-Gel Method and coated with Folate Chitosan for Thermo-therapeutic Application of Cancer Treatment by Hyperthermia.
(IPPS BAN:02/2, Local)
- Md Abdulla Al Mamun (M). Synthesis of nano-sized iron oxide (Fe_3O_4) using chemical co-precipitation method and and coated with folate chitosan for viability of hyperthermia for cancer treatment.
(IPPS BAN:02/2, Local)
- Md Abu Musa (M). Structural and multiferroic properties of Ba and Sn Co-doped $\text{Bi}_{0.85}\text{Ba}_{0.15}\text{Fe}_{1-x}\text{Sm}_x\text{O}_3$ (Where, $x=0,0.02,0.05,0.07,0.1$).
(IPPS BAN:02/2, Local)
- Md Ariful Islam (M). Bone Tissue Engineering: Synthesis of Hydroxyapatite-Chitosan and Gelatin Based scaffolds.
(IPPS BAN:02/2, Local)
- Md Hadisur Rahman (M). Study of Structural, Electrical and magnetic Properties of Europium Substituted Co-Zn Ferrites.
(IPPS BAN:02/2, Local)
- Mohammad Moniruz Zaman(M). Plant Extract Mediate Synthesis of Magnetite (Fe_3O_4) Nano-Particles and its antibacterial application.
(IPPS BAN:02/2, Local)
- Md Mostafa Al Mahfuz (M). Synthesis and characterization of Hydroxyapatite ($\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$) nanoparticle and Development of gelatin-chitosan-nanohydroxyapatite based scaffold with controlled pore size and mechanical strength.
(IPPS BAN:02/2, Local)
- Md Salman Shakil (M). In vitro and in vivo toxicity studies of chitosan-coated nanocomplex for therapeutic purpose of cancer.
(IPPS BAN:02/2, Local)
- Nahian Adnan Sohan (M). Thermoluminescence Response of Carbon Nanotubes and some other familiar TL materials using medical LINAC.
(IPPS BAN:02/2, Local)
- Sadia Noor (F) Synthesis of Folate Chitosan Coated Fe_3O_4 Nanoparticle by Thermal Decomposition Method Method and Study of Magnetic Induction Heating for Cancer Treatment.
(IPPS BAN:02/2, Local)
- Sharmin Rahman (F). Synthesis and characterization of Hydroxyapatite ($\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$) nanoparticle and preparation of HAP/Chitosan-Gelatin network composites for further investigation on bone tissue engineering.
(IPPS BAN:02/2, Local)
- Sheikh Parvez(M). Preparation and Characterization of Hydroxyapatite Nano-Particle ($\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$) and Development of Controlled Porous hydroxyapatite/chitosan-gelatin composite Scaffold for Bone Tissue Engineering.
(IPPS BAN:02/2, Local)
- Nigar Afsana (F). Structural and multiferroic properties of Barium titanate ($\text{Ba}_{0.7}\text{Sr}_{0.3}\text{Ti}_{1-x}\text{Al}_x\text{O}_3$).
(IPPS BAN:02/2, Local)
- Shanjida Haque (F). Structural and multiferroic properties of $\text{Mn}_{0.5}\text{Ni}_{0.1}\text{Zn}_{0.4}\text{Fe}_{2-x}\text{Cr}_x\text{O}_4$.
(IPPS BAN:02/2, Local)

- Sheuly Khatun (F). Structural and multiferroic properties of Spinal Ferrite ($\text{Co}_{0.5}\text{Zn}_{0.5}\text{Fe}_{2-x}\text{Cr}_x\text{O}_4$).
(IPPS BAN:02/2, Local)
- Anila Pasha (F). Calibration of an Optical Sensor based Dynamic Foot Pressure Measurement System.
(IPPS BAN:04, Local)
- Ashaduzzaman (M). Development of a 2D distributed pressure sensor using conductive rubber, based on Electrical Impedance Tomography.
(IPPS BAN:04, Local)
- Manish Debnath (M). Factors affecting reproducibility and repeatability in bioimpedance measurements.
(IPPS BAN:04, Local)
- Mannu Bardhan Paul (M). Design of an effective stimulation technique for Electrotactile Sensation in the fingertips for the blind.
(IPPS BAN:04, Local)
- Mohammad Ali Reza (M). Development of an Epileptic Seizure Detection Paradigm through EEG Analysis.
(IPPS BAN:04, Local)
- Md Maruful Islam (M). Comparative Study among FIM, PHI and Modified PHI in Breast Tumor Analysis: A Simulation Based approach.
(IPPS BAN:04, Local)
- Muhammad Sabbir Alam (M). Feature Extraction and Classification of Multi-Channel Forearm Surface EMG Signals to Recognize Dynamic Hand Movements.
(IPPS BAN:04, Local)
- Md Soumik Farhan (M). Real-time diagnosis of Myocardial Infarction in Remote Healthcare.
(IPPS BAN:04, Local)
- Mizanur Rahaman (M). To Develop A Portable Ultrasound Based Instrument To Indicate Pathologic Risk Of Bone Fracture.
(IPPS BAN:04, Local)
- Qumrul Islam (M). Study of electric field and heat distribution in tissue during electroporation.
(IPPS BAN:04, Local)
- A.H.M Ramijul Islam (M). Development of a Telepalpation System. (IPPS BAN:04, Local)
- Rezwana Nasrin (F). Characterization of organic materials and biological tissues based on their optical properties.
(IPPS BAN:04, Local)
- Shomor Kanti Roy (M). Probing deep tissue organ of the human body by electrical impedance technique. (In collaboration with BUET; prof. Rabbani co-supervisor). (IPPS BAN:04, Local)
- Umme Marium Mim (F). A Novel Electrode Configuration for characterization of Cervical tissue using impedance Spectroscopy.
(IPPS BAN:04, Local)
- Afsana Mimi Raka (F). Effect of Temperature on Conformation of Sugar Beet Pectin.
(IPPS BAN:05, Local)
- Mariam Afroze Nabila (F). Study of the Association Behavior of Regenerated Silk Fibroin Using AFM.
(IPPS BAN:05, Local)
- Md Khorshed Alam (M). Fabrication and Characterization of P-N Junction for a Large Area Silicon Solar Cell.
(IPPS BAN:05, Local)
- Zannatul Ferdous (F). Effect of Temperature on the Properties of Ferric Oxide Thin Films Deposited by Spray Pyrolysis and Chemical Bath Deposition Techniques.
(IPPS BAN:05, Local)

Md Jahirul Islam (M). Structural and Electrical Properties of Carbon Nanoparticles Synthesized from Kerosene. (IPPS BAN:05, Local)

Burkina Faso

ADAMA KONATE (M). Removal of free cyanide from the wastewater of Essakane's process plant. (IPICS ANEC, Local)

Ebba Rosental (F). Characterization of geographical variation in antioxidative active *Eucalyptus camaldulensis* extracts for future use as biopesticides in Burkina Faso. (IPICS BUF:01, Local)

Thierry SAMBA (M). Electrochemical determination of anti-oxidant molecules in extracted shea butter of Burkina Faso. (IPICS BUF:02, Local)

Moutari Mahamadou SAMBO (M). Development of electrochemical sensors for thallium ions determination in groundwaters. (IPICS BUF:02, Local)

Abel Tankouano (M). Caractérisation biochimique, microbiologique du Gappal et caractérisation moléculaire de ses bactéries lactiques d'intérêt technologique en vue de leur utilisation comme starters. (IPICS RABiotech, Local)

AKAKPO Agbémébia Yawovi (M). Assessment of the action of essential oil of *Cymbopogon citratus* (DC) Stapf on the stability of the soy milk produced by DJIGUI HOPE in Ouagadougou (Burkina Faso). (IPICS RABiotech, Local)

AKOTIONGA Bénédicte (F). Study of physico-chemical and microbiological quality of the food products transformed in PMI/PME: case of the pastries and yogurts sold in the city of Ouagadougou (Burkina Faso). (IPICS RABiotech, Local)

BEOGO Saydou (M). Survey of the healthiness of the pasteurized cool milks and yogurts sold on the market in Ouagadougou. (IPICS RABiotech, Local)

BOUGMA Sibiri (M). Factors associated to the delay of growth of under five children in the township of Pissila (Region of the North center)/Burkina Faso. (IPICS RABiotech, Local)

HADJARA SOULOUM ADOUM (F). Profil de sensibilité aux antibiotiques des Streptocoques du groupe B isolés chez les femmes enceintes de l'hôpital de la mère et de l'enfant à N'Djaména (Tchad) (IPICS RABiotech, Local)

KABRE W. Jeanne d'Arc (F). Study of factors associated to severe malnutrition of under five children of health district of Sabou (Middle West locality of Burkina Faso). (IPICS RABiotech, Local)

KIEMDE Yolande (F). Technological diversity and microbiological quality of sauces and accompaniments served in the restaurants of Ouagadougou. (IPICS RABiotech, Local)

MIHIN Henriette (F). Contribution to the study of essential oils of two aromatic plants of Burkina (*Laggera aurita* L. f. Benth. Ex C.B. Clarke and *Hyptis Poit suaveolens*) in view of their use in agro-food. (IPICS RABiotech, Local)

Namwin Siourimé Somda (M). Antibiorésistance et typage moléculaire des souches de *Salmonella typhi*, *paratyphi* et les pathovars de *Escherichia coli* d'origines humaine et alimentaire responsables des diarrhées au Burkina Faso. (IPICS RABiotech, Local)

Pane Bernadette Sourabie-Ouattara (F). Inhibition de la croissance et de la production d'aflatoxines chez *Aspergillus* spp. par des extraits de plantes (*Cymbopogon citratus*, *Cymbopogon giganteus* et *Hyptis spicigera*). (IPICS RABiotech, Local)

SANGARE Hassane (M). Physico-chemical analysis of rice samples (steamrooms and non steamrooms) consumed in Burkina Faso. (IPICS RABiotech, Local)

SAWADOGO Tenwendé (M). Survey of the technological aspects, of the nutritional and sanitary quality of the peanut oilcakes (Koura Koura) products in Kaya in the North Center of Burkina Faso. (IPICS RABiotech, Local)

TCHAAKOUMA DOUNA Jonathan (M). Technological and microbiological characterization of the kissar produces in the city of djamena (Chad). (IPICS RABiotech, Local)

TRAORE Mahamady (M). Analysis of the conformity of the value targets of free chlorine, some physico-chemical and microbiological parameters of waters of Paspanga station: case of Dywidag treatment unit and distribution area of R6/R9. (IPICS RABiotech, Local)

WALBEOGO Ella (F). Assessment of different parameters of extraction impact of solar oil press on the oil quality and oilcakes of sesame (*Sesamum L. indicum*). (IPICS RABiotech, Local)

YAMEOGO Wendpanga Inès (F). Physico-chemical characterization and determination of steaming optimal parameters of rice orylox. (IPICS RABiotech, Local)

Barry Noufou (M). Study of energy performance and optimization of a solar photovoltaic power plant connected to the electricity grid: case of the photovoltaic solar power plant of the Ministry of Energy of Burkina Faso. (IPPS BUF:01 Local)

Moyenga Cyrille Constant (M). Theoretical study of a radial junction solar under static conditions and monochromatic illumination. (IPPS BUF:01 Local)

Bolivia

Romina Cossio (F). Courtship pattern and male calling songs of *Guayaquila* sp. (*Hemiptera: Membracidae*) living on two sympatric host plants. Lic. (IPICS BOL:01, Sandw.)
(IPICS LANBIO, Sandw.)

Alexandria Saravia (F). Pollen types used by the native stingless bee, *Tetragonisca angustula* (Latreille), in an Amazon-Chiquitano transitional forest of Bolivia. Lic. (IPICS BOL:01, Sandw.)
(IPICS LANBIO, Sandw.)

Cambodia

Kungmeng Khov (M). Determination of phosphorus (P) in red soil of Tboung Khmum district, Tboung Khmum province. (IPICS CAB:01, Local)

Nimul Seap (M). Identification of Physio Chemical Properties of Wastewater at RUPP. (IPICS CAB:01, Local)

Ny Ngin (M). Determination of Metal Level Iron, Lead, Zinc, Copper and Cadmium in Surface Water of Waiko's River, Svay Rieng Province, Cambodia. (IPICS CAB:01, Local)

Raksmeay Sron (F). Phosphate removal from aqueous solution by Electro coagulation using Aluminum and Iron. (IPICS CAB:01, Local)

Sochivon You (M). Purification and Meat Tenderizing of Papain from Latex Papaya and Papaya Peel. (IPICS CAB:01, Local)

Sopheap Thong (F). Toxic effects of particulate emissions from diesel vehicles. (IPICS CAB:01, Local)

Sreythea Sok (F). Carbonate Chemistry in Tonle Sap River. (IPICS CAB:01, Local)



Chemistry MSc students defending their theses. Courtesy of IPICS CAB:01.

Vannak Cheang (M). Markov chain and its application. (IPMS SEAMaN, Local)

Sovanrotna Kuch (F). A Use of Martingale in Option Pricing. (IPMS SEAMaN, Local)

Borey Seang (M). Bessel's Functions with Application. (IPMS SEAMaN, Local)

Sovannara Keov (F). Application of Laplace Transform in Solving Differential Equations. (IPMS SEAMaN, Local)

Chin Samaun (M). Studies Potentiometers Ethanol Sensor Based on Silicon and Porous Silicon. (IPPS CAM:01, Local)

Loy Virak (M). Fabrication of Mini Solar Dryer and Banana Drying Method. (IPPS CAM:01, Local)

Meng Longseng (M). Observation and Analysis of Solar Rotation by using CLEA Application. (IPPS CAM:01, Local)

Ngok Sreymean (F). Quality Improvement of Ceramic Pot Filter Incorporating with Rock Dust. (IPPS CAM:01, Local)

Pen Pichvicheth (M). Fabrication of Heterojunction ZnO/Si Solar Cell for Visible Light Sensing Application. (IPPS CAM:01, Local)

Cameroon

Gaëlle JOUONANG LETCHE (F). Electroanalysis of Leucocyanidin on a carbon paste electrode modified by a mesoporous silica (SBA-15). (IPICS ANEC, Local)

Blondelle KAZOCK NANDJOU (F). Elaboration of an electrochemical sensor (CPE/SBA-15) for the sensitive detection of tartrazine: application to the quality control of soft drinks.
(IPICS ANEC, Local)

NGEUMALEU YANNICK (M). Etude du comportement electrochimique du 2,2 diphenyl-1 picrylhydrazyl (DPPH°.) incorpore dans une electrode a pate de carbone. (IPICS ANEC, Local)

NTANKEU POUSSEU NATASHA (F). Electroanalyse du 4-nitrocatechol en milieu aqueux sur l'électrode à pâte de carbone.
(IPICS ANEC, Local)

Chancellin PECHEU NKEPDEP (M). Composite material obtained by acid activation and amino functionalization of smectite: characterization and application for the electro analysis of catechol.
(IPICS ANEC, Local)

Chile

Pamela Santos (F). Structural identification of secondary metabolites of *Fabiana denudata* Miers and evaluation of their antibacterial activity.
(IPICS LANBIO, Local)

Daniel Torrico (M). Chemical responses of *Nicotiana tabacum* (*Solanaceae*) induced by vibrational signals of a generalist herbivore.
(IPICS BOL:01, Sandw.)
(IPICS LANBIO, Sandw.)

Ethiopia

Bisrat Kiros (F). Syntheses of pyrrolobenzotriazoledione- and pyrrolobenzothiadiazoledione-based conjugated copolymers and a PDI-based small molecule acceptor.
(IPICS ETH:01, Local)

Addisu Bacha (M). Electron transport through semiconductor quantum dots.
(IPPS ETH:01, Local)

Begashaw Tadesse (M). Transport properties of charge carriers in organic polymer films used in field effect transistors (Monte Carlo simulations).
(IPPS ETH:01, Local)

Dagne Terefe (M). Effects of parabolic potential on impurity distribution in semiconductors (Monte Carlo simulation).
(IPPS ETH:01, Local)

Dereje Haile Mariam (M). Adsorption of a two dimensional polymer ring on a flat surface.
(IPPS ETH:01, Local)

Ermias Mekonnen (M). Electron transport through p-n type semiconductor interface.
(IPPS ETH:01, Local)

Feredelign Tamrat (M). Electron transport through through metal n-type semiconductor interface.
(IPPS ETH:01, Local)

Gebreselasie Atsbaha (M). Reaction limited aggregation.
(IPPS ETH:01, Local)

Meseret Adane (M). Critical behaviour of a two dimensional Ising Model.
(IPPS ETH:01, Local)

Seid Melaku (M). Effects of localization length and concentration on charge carriers mobility in disordered organic semiconductors (Monte Carlo simulation).
(IPPS ETH:01, Local)

Shewangizaw Nigussie (M). Towards optimizing transport networks: A lattice numerical model
(IPPS ETH:01, Local)

Sisay Mekonnen (M). Design of optimal transport network. (IPPS ETH:01, Local)

Sisay Nigussie (M). Temperature activated charge transport in disordered organic semiconductors (Monte Carlo Simulation). (IPPS ETH:01, Local)

Solomon Berhanu (M). Effects of electric field on charge carrier diffusion in disordered semiconductors (Monte Carlo simulation). (IPPS ETH:01, Local)

Tsadiku Abadi (M). Adsorption-desorption transition of a single semi-flexible polymer chain. (IPPS ETH:01, Local)

Yohannis Jemera (M). Temperature and density dependence of electron conductivity in degenerate n-type semiconductor. (IPPS ETH:01, Local)

Melese Temesgen (M). Earthquake activity around Addis Ababa. (IPPS ETH:02, Local)

Kenya

M. Masenge (F). Assessment of total petroleum hydrocarbons, btex, oil and grease in water and sediments of Ngong' and Mathare Rivers. (IPICS ANCAP, Local)

Magdalene Nguli (F). Assessment of essential micronutrients levels in common beans in selected sites in Kenya. (IPICS KEN:01, Local)

M.M. Gacheru (M). Phytochemical Investigation of *Zanthoxylum paracanthum* and *Zanthoxylum chalybeum* for cytotoxic principles against drug sensitive and multi drug resistant leukemia cancer cell lines. (IPICS KEN:02, Local)

Ivan Kiganda (M). Phytochemical investigation of *Alstonia boonei* for anticancer principles. (IPICS KEN:02, Local)

J.I. Owino (M). Preparation of functionalized *Tagetes minuta* (TAMI) dye. (IPICS KEN:02, Local)

AFRA NUWASIIMA (M). Multiple Imputation and Random Survival Forests: Application to the Demographic and Health Survey Child Survival Data. (IPMS EAUMP, Local)

AMOS EUGENE KIPTUM (M). Determinants of Hiv Prevalence in Kenya. (IPMS EAUMP, Local)

AMOS OMONDI OTUNGA (M). Experience Rating in Motor Insurance Industry Using Glm. (IPMS EAUMP, Local)

DAVID MUTISO MUTINDA (M). Factors Influencing Place of Delivery in Kenya: A Multilevel Analysis. (IPMS EAUMP, Local)

EDMOND OCHIENG' OCHOLA (M). A Stochastic Analysis of Claim Reserving in General Insurance Using Bootstrapping Technique. (IPMS EAUMP, Local)

EDWIN MISATI ONDARI (M). Pentanomial Lattice Models in Option Pricing. (IPMS EAUMP, Local)

EUNICE NJERI IRUNGU (F). Determining a Framework to Evaluate Different Income Drawdown Plans. (IPMS EAUMP, Local)

- GEOFFREY KANGWANA (M). Application of Generalized Linear Models in Private Medical Insurance Rate Making. (IPMS EAUMP, Local)
- GEOFFREY OTIENO MBOYA (M). Euler Characteristic of the Moduli of Riemann Surfaces. (IPMS EAUMP, Local)
- GICHUHI GEORGE GIKUNJU (M). Modelling Exchange Rate Volatility of Kenya's Top Ve Trade Partners. (IPMS EAUMP, Local)
- GILBERT KIPROTICH (M). Laplace Distribution and Its Generalizations. (IPMS EAUMP, Local)
- GLADYS NGINA MUNYAO (F). Homotopy Perturbation Method and the Korteweg-de Vries Equation. (IPMS EAUMP, Local)
- HARMON MUSYOKA MULE (M). Risk Factors in Clinical Malaria Mortality Among Children in Kenya. (IPMS EAUMP, Local)
- JOHN MUNENE KAMANDE (M). Pricing Currency Options Using Parabolic Pde. (IPMS EAUMP, Local)
- KENNETH BENSON MUYA (M). Application of Ordinal Logistic Regression in Analysing Students' Performance at Kenya Certificate of Secondary Education Level in Kiambu County. (IPMS EAUMP, Local)
- KEVIN ODHIAMBO NYAWADE (M). Generalized Inverse Gaussian Distribution Under Different Parameterizations. (IPMS EAUMP, Local)
- KHAOYA MOSES MUTAKI (M). Application of Random Survival Forests and Accelerated Failure Time Shared Frailty Models in Understanding Under-five Child Mortality in Kenya. (IPMS EAUMP, local)
- KIBET JACQUALINE (M). Modeling Tail Risks and Systemic Risks Using Copulas. (IPMS EAUMP, Local)
- MAGERO ERIC NYAANGA (M). Pricing of Micro-Insurance Product for Medical Insurance in Kenya Using Black-scholes Model. (IPMS EAUMP, Local)
- MAUREEN ONDECHE JAGOGO (F). The Impact of Pension Funds on Equities Market Development in Kenya. (IPMS EAUMP, Local)
- MAYUNZU Henry KIMIYWI (M). Random Walks as Markov Chains. (IPMS EAUMP, Local)
- MUTUNGI ANTONY W. (M). Estimation of Adolescents Fertility in Kenya Using Poisson and Negative Binomial Regression Models With 2014 Dhs Data. (IPMS EAUMP, Local)
- MWANGI Agnes WANJIRU (M). A Comparison of the socio-economic status of female-headed and male-headed households in Kenya: Use of ordinal logistic regression. (IPMS EAUMP, Local)
- NANDWA CHITERI VINCENT (M). Hydrodynamic Stability of Taylor-couette Flow. (IPMS EAUMP, Local)
- NYARIBO MILLER NYAMARI (M). Pricing of futures with basis risk. (IPMS EAUMP, Local)

NYATUGA GIDEON NYAKUNDI (M). A Comparison of Parametric Methods for Modeling Mosquito Survival Using Temperature and Age-dependent Survival Data. (IPMS EAUMP, Local)

OBED MOKAYA MENJERI (M). Strategic Asset Allocation of Pension Funds; an Application of Markowitz Portfolio Theory. (IPMS EAUMP, Local)

PAMELA OMANGI ORINA (F). Numerical Solution of One-dimensional Incompressible Steady Flow Burgers' Equation. (IPMS EAUMP, Local)

RUGUT MARKSON KIPYEGO (M). Comparison Between Lee-carter Model a Negative Binomial Regression Model in Forecasting Male Mortality Data of USA (1989-2020). (IPMS EAUMP, Local)

SARAH AKINYI PONDO (F). Mortalty Risk Modelling Using the Feller Process. (IPMS EAUMP, Local)

SYMON MAREYAN LESARIS (F). Distributions Arising from Birth and Death Processes at Equilibrium and Their Extensions. (IPMS EAUMP, Local)

VICTOR O. LUKE ANYUO (M). Optimal Control Problem for Cholera Epidemiology. (IPMS EAUMP, Local)

WERU PETER MUTHII (M). Markov Chains and Mixed Poisson Distributions in the No Claims Discount Systems. (IPMS EAUMP, Local)

WILFRED GITONGA GIKUNDA (M). On Equivalence of Some Operators and Topology of Invariant Subspaces. (IPMS EAUMP, Local)

Emily Akinyi Otieno (F). Development of Laser Induced Breakdown Spectrometry Method for Cancer Detection and Characterization in Soft Tissue Utilizing Multivariate Chemometrics. (IPPS AFSIN, Local)
(IPPS KEN:04, Local)

Joshua Onkangi Nyairo (M). Nuclear Forensics Analysis of Fission Products by Means of Chemometric Laser Induced Breakdown Spectroscopy. (IPPS AFSIN, Local)
(IPPS KEN:04, Local)

Juma Moses Wabwile (M): Raman Spectromicroscopic Assessment of Nuclear Forensic Signatures in High Background Radiation Area Atmospheric Aerosols. (IPPS AFSIN, Local)
(IPPS KEN:04, Local)

Amos Kipkosgei Chepkwony (M). Environmental Radiation Dose Rate in the Gold Mining Region of Lolgorian in Narok County. (IPPS KEN:01/2, Local)

Ann Njeri Ngendo (F). Optimizing the African very long Baseline Interferometry Network (AVN) for Astronomy, Geodesy and Astrometry: A Case Study for Kenya. (IPPS KEN:01/2, Local)

Anthony D. K. Nzuki (M). Baseline Assessment of Environmental Heavy Metal Soil Pollution in Block C, Mui Basin, Coal Deposits, Kitui County, Kenya. (IPPS KEN:01/2, Local)

Ben A. Moywaywa (M). Distribution of Heavy Metal Pollution in Water, Flora and Sediments along Thika River. (IPPS KEN:01/2, Local)

Benson Maiyo (M). Natural Radioactivity and Heavy Metals Levels in Soils around the Niobium Mining Site in Kwale County. (IPPS KEN:01/2, Local)

Bernard Cheneket (M). Impact of Iron Ore Mining on Heavy Metal Concentration in Soils of Kishushe Area in Wundanyi, Taita Taveta County. (IPPS KEN:01/2, Local)

Ernest K. Gachui (M) (A co-supervised student of Kenya University of Agriculture and Technology). Traffic impacts on particulate matter ($PM_{2.5}$) and heavy metals along Thika Road, Kenya. (IPPS KEN:01/2, Local)

Joshua N. Onkangi (M). Nuclear Forensic Analysis of Fission Products by Means of Chemometric Laser Induced Breakdown Spectroscopy. (IPPS KEN:01/2, Local)

Lawrence K. Kioko (M). Impact of PDSA Quality Improvement model for Radiotherapy Application in Kenya. (IPPS KEN:01/2, Local)

Lindah K. Kiriinya (F). Design and Fabrication of a Water-vapor condenser. (IPPS KEN:01/2, Local)

Magdalene K. Nguli (F). Assessment of Essential Micronutrient Levels in Common Beans (*Phaseolus vulgaris*) in Muguga and Kyevaluki, Kenya. (IPPS KEN:01/2, Local)

Obed M. Ondimu (M). Modeling Simple-jet Mode Electro-hydrodynamic atomization Droplets' Trajectories: Investigation of the influence of possible additional forces. (IPPS KEN:01/2, Local)

Ignatius Barasa (M). Basic Operational Amplifier Based Lead Acid Battery Monitoring System for Automobile. (IPPS KEN:02, Local)
(IPPS MSSEESA, Local)

Jacinta Okwako (F). Optical and Electrical Characterization of Cu_2ZnSnS_4 Deposited by SILAR Technique. (IPPS KEN:02, Local)
(IPPS MSSEESA, Local)

Moses Mutisya Ndunda (M): Temperature and Moisture Impact on Polarization Mode Dispersion in Carrier Grade Optical Fibre Links in Kenya. (IPPS KEN:04, Local)

Laos

Khammai BOUNPHONE (M). Dynamic of virus infection mediated by cell-to-cell. (IPMS SEAMaN, Sandw.)

Mali

Cherif Mamadou Moctar TRAORE (M). Introduction aux champs aléatoires associés. (IPMS BURK:01, Local)

Mariam B TRAORE (F). Existence, unicité, et comportement asymptotique de solutions d'équations intégrodifférentielles stochastiques neutres a retard infini. (IPMS BURK:01, Local)

Djibril DAO (M). Modélisation et simulation de la pollution de la nappe phréatique. (IPMS BURK:01, Local)

Paul dit Akouni GUINDO (M). Mouvement brownien fractionnaire et multifractionnaire. (IPMS BURK:01, Local)

Rwanda

- Jean Bosco Nkuranga (M). Corrosion inhibiting properties of aminonanes derived from oleic acid on mild steel in acidic media. (IPICS RWA:01, Local)
- Jean Claude Safari (M). Chemical speciation of selected heavy metals in sediment samples collected from Nyabugogo river. (IPICS RWA:01, Local)
- Emmanuel Ngendahayo (M). Wetlands pollution and potential for Schistosomiasis transmission in Nyabugogo wetland. (IPICS RWA:01, Local)
- Claudette Kayirangwa (F). Assessment of the capability of two wetland plants, *Cyperus papyrus* and *Leersia hexandra* to fix nutrients and heavy metals. (IPICS RWA:01, Local)
- J.-P. Murara (M). Asset pricing Models with Stochastic Volatilities, Lic. (IPMS EAUMP, Sandw.)
- Munyabugingo Valens (M). Matrix Factorization Approach to network model reduction. (IPMS EAUMP, Local)
- Nyandwi Bosco (M). Applications of conformal mapping to the the fluid flow. (IPMS EAUMP, Local)
- Ngendahayo Jean Pierre (M). Estimation of Surface temperature from interior measurements. (IPMS EAUMP, Local)
- Uwineza Marie Aimee (F). Prior specification of spatio-temporal models.(IPMS EAUMP, Sandw.)
- Ange Cynthia Umuhire (F). Characterisation of coronal mass ejections from the associated high frequency type II solar radio bursts. (IPPS RWA:01, Local)
- Ernest Rusingizandekwe (M). Characterisation and photometric analysis of polar ring galaxies with star formation activity. (IPPS RWA:01, Local)

Senegal

- Ablaye SOUNG (M). Study of the physical and electrochemical properties of a poly-Nmethylpyrrole/graphite composite electrode for the development of a supercapacitor element. (IPICS ANEC, Local)
- Amadou Béal Gueye (M). Preventing steel corrosion by using organic coatings. (IPICS ANEC, Local)
- Antoine THIARE (M). General study of climate change due to the greenhouse effect. Case of the region of Ziguinchor. (IPICS ANEC, Local)
- Ismaila DIEDHIOU (M). Application of polybithiophene films electrosynthesized in aqueous micellar medium to the electroanalysis of heavy metal ions in water. (IPICS ANEC, Local)
- Mbogniane DIOUF (F). Electrosynthesis of polypyrrole film doped with ethylene glycolbis(2-amino ethyl ether)-N, N, N', N'-tetraacetic acid (EGTA): application to lead detection. (IPICS ANEC, Local)
- Kolani Yentchabré (M). Un Modèle Épidémique SIRI Stochastique Avec Rechute et Couverture Médiaque. (IPMS BURK:01, Local)

Mbarack FALL (M). Stabilité locale et dépendance paramétrique de solutions faibles d'équations intégrodifférentielles, Stochastiques. (IPMS BURK:01, Local)

Issa Oumar Abdallah (M). Modélisation stochastique de provisions techniques en assurance non-vie. (IPMS BURK:01, Local)

Sudan

Nada Mohamed El-Khatim Yousif Mustafa (F). Immunomodulatory effect of *Acacia nilotica* extracts on leishmania infected THP-1 macrophages cell line. (IPICS NAPRECA, Local)

Shereen Omer Elfarouk AbdAlgaffar (M). *In vitro* glycogen phosphorylase inhibition coupled with LC/MS profiling and antioxidant activity of *Naculea latifolia* Smith fruits. (M.Pharm.) (IPICS NAPRECA, Local)

Tanzania

Innocent Maduhu (M). A study of longevity trend, mortality risks and their implications to insurers in India. (IPMS EAUMP, Local)

Neema Wilberth (F). Investigation of somewhere dense orbits on the complex Hilbert space. (IPMS EAUMP, Local)

Melkiory A. Marandu (M). Characterization of hypercyclic and chaotic operators on Frechet space. (IPMS EAUMP, Local)

Elizabeth Elisey Mrema (F). Investigation of properties of commutative rings equipped with the zariski topology. (IPMS EAUMP, Local)

Scholastica Luambano (F). Some fixed point theorems for f-contraction mappings in partial metric spaces. (IPMS EAUMP, Local)

Faustine Nziku (M). Some Boyd and Wong type fixed point theorems in partial metric spaces. (IPMS EAUMP, Local)

Gowele Jesline Elieza (F). Investigation on the structure of Lipschitz-free Banach space. (IPMS EAUMP, Local)

Elimercy E. Ntagalinda (F). Mathematical modelling of the effects of vaccination and treatment on the transmission dynamics of typhoid. (IPMS EAUMP, Local)

Damas Karmel Mgani (M). On Hilbert Functions and h-Vectors of Graded Modules for Finite Sets of Points in Projective Space. (IPMS EAUMP, Local)

Mayila Shega (M). The Katetov extension of a Hausdorff space and some of its properties. (IPMS EAUMP, Local)

Jacob Lyimo (M). Modelling and analysis of a Holling type Stage structured predator-prey system in the presence of harvesting. (IPMS EAUMP, Local)

Priscus Victoris (M). Mathematical modeling of the impact of adulticides and mosquito repellents on dynamics of chikungunya fever. (IPMS EAUMP, Local)

Delvina Japhet (F). Investigation of the Effects of Deposition and Annealing Conditions on Properties of Thermochromic VO₂ Films. (IPPS MSSEESA, Local)
(IPPS TAN:01/2, Local)

Hija Abas (M). Investigation on The Performance of Titania Based Dye Sensitized Solar Cells: effects of Natural Dyes and Sodium-Boron Co-Doping. (IPPS MSSEESA, Local)
(IPPS TAN:01/2, Local)

Xwaymay Emmanuel (M). Studies on Corrosion Inhibiting Properties of 2,4,6-Triamino-3-Pentadecylphenyl Acetate Derived From Cashew Nut Shell Liquid on Mild Steel in Seawater (IPPS MSSEESA, Local)
(IPPS TAN:01/2, Local)

Tunisia

Azza Ben AKACHA (F). synthesize a hybrid nanomaterial based on silica nanoparticles encapsulating fluorescent molecules. (IPICS ANEC, Local)

Uganda

Henry Matovu (M). Concentrations and Sources of Petroleum-Derived Pollutants in Water from Lake Albert, Uganda. (IPICS UGA:01, Local)

Brian Makonzi (M). Localisation of different categories. (IPMS EAUMP, Local)

Cosmas Muhumuza (M). A Mathematical Model for the Transmission Dynamics and Optimal Control Strategy for the Coffee Wilt Disease. (IPMS EAUMP, Local)

Jamira Nagobi (F). The Characteristics of Optical, Ultra-Violet, and X-Ray Radiation from Cygnus, X-3. (IPPS EAARN, Local)

Bernard Tabu (M). Thermal performance of selected oils in Uganda for indirect solar domestic cooking applications. (IPPS MSSEESA, Local)
(IPPS UGA:01, Local)

Banda Matovu (M). Performance evaluation of 830 kW grid-connected photovoltaic power plant at kamuzu international airport – Malawi. (IPPS MSSEESA, Local)
(IPPS UGA:01, Local)

Jimmy Chachiga (M). Construction of high temperature (~200°C) oil pump for cooking applications. (IPPS MSSEESA, Local)
(IPPS UGA:01, Local)

Felix Kampindi (M). Cluster Membership of the 1523 formally Misclassified red giants and rate of mass loss in red giants in the Kepler clusters. (IPPS UGA:02, Local)

Edson William Tumuhereze (M). Assessment of radiological risks in ground and surface water from Kashongi and Rubindi sub counties in Western Uganda. (IPPS UGA:02, Local)

Zambia

Jimmy Hambulo (M). Asymptotic and normal distribution of the U-statistics for σ^2 and the methods of estimator for σ^2 . (IPMS EAUMP, Local)

Alex Mungo (M). Asymptotic consistency of the James-Stein shrinkage estimator.
(IPMS EAUMP, Local)

Elijah Mpelele (M)., Statistical projections of climate change for Zambia based on simulations of regional climate models.
(IPMS EAUMP, Local)

Levy Matindih (M). The structure of extended real-valued quasi-metric spaces.
(IPMS EAUMP, Local)

Zimbabwe

Hezekiah Nhamo (M). Degradation kinetics of Cotrimoxazole in the aquatic environment.
(IPICS ANCAP, Local)

Linda Maposa (F). A survey of persistent and other organic pollutants in Mazowe Dam, Zimbabwe.
(IPICS ANCAP, Local)

Tashinga Ngoshi (M). Adsorption of Lead from aqueous solution by acid treated *Typha capensis* root and leaf biomass: Apparent thermodynamic properties.
(IPICS ANCAP, Local)

Philip Mawire (M). Antimicrobial Evaluation of Phytochemicals from *Parinari curatellifolia*.
(IPICS ZIM:01, Local)

APPENDIX 2 PUBLICATIONS

Below, publications are detailed for each program, chemistry, mathematics and physics, and summarized in tables. The bibliographic data given is obtained directly from the reporting of the supported activities, with only minor editing. The code of the ISP-supported activity that is reporting the publication is given after each entry. All publications reported to ISP are listed, independent of whether the scientific work has been directly supported by ISP funding or not. In cases where the Digital Object Identifier (DOI) code is given, information can be accessed by adding the code to the web address <http://dx.doi.org/>. For publications in scientific journals (but not for other publications), **green** color marking of the code denotes that acknowledgement of ISP support is given in the paper.²⁵ Furthermore, the ISSN code of the publication is given, and when applicable two codes, in cases when the printed and the electronic issues have different codes. In all cases, each publication reported to ISP is never intentionally listed twice in the annual reports; if the electronic article is listed; the listing is not repeated when the printed version is published.

Scientific Quality Journals and Other Journals

The publications are sorted by scientific journal, and where available the *Thomson Reuters (TR) Impact Factor (IF) 2017* is given (with the 5-year Impact Factor within brackets).²⁶ Journals listed with TR IF are here considered to be “scientific quality journals”.

From 2016, an additional quality measure is applied, comprising the ranking in the Norwegian Register for Scientific Journals, Series and Publishers, maintained by the Norwegian Centre for Research Data (NCRD). Where available, **the rank is given in brackets**, between the journal name and any TR IF.

The Norwegian scale stretches from 0–2. Journals ranked at 0 (sometimes indicated “-“) are not categorized as a scientific publication venues, those ranked at 1 being a scientific publication venue, and those at 2 being extra prestigious scientific publication venues.²⁷

The data are based on search on journals’ ISSN. Where no rank is given, the ISSN was not recognized in the database. Journals ranked 1 or 2 are here considered to be “scientific quality journals”, while those ranked 0/- and those not listed as “other journals”.

In this report, articles in journals listed in Web of Science with TR IF or ranked at 1 or 2 in the Norwegian Register for Scientific Journals, Series and Publishers are regarded as published in scientific quality journals.

Journals marked by asterisk* occur on Cabells Blacklist, indicating a “predatory”, non-scientific publication venue.²⁸

²⁵ Directly or indirectly, e.g. also by acknowledging the research group or scientific network that is supported by ISP.

²⁶ 2017 InCites™ Journal Citation Reports® Thomson Reuters, 2017.

<https://jcr.incites.thomsonreuters.com/JCRJournalHomeAction.action>; see also http://en.wikipedia.org/wiki/Impact_factor

²⁷ Norwegian Centre for Research Data; <https://dbh.nsd.uib.no/publiseringskanaler/Forside>

²⁸ <https://www2.cabells.com/blacklist>

Chemistry Publications

IPICS partners reported 159 publications (Table 22). In the 143 articles in scientific journals, ISP was acknowledged in 39% of the 71 publications in all “quality journals”, and in 18% of the 72 publications in “other journals”. Totally 50% of the articles were in “quality journals”. Among publications in other journals, 18 were in journals characterized as “predatory”. In addition, 16 publications reported were book chapters, popular publications, etc.

Table 22. Summary by region of publication data for Chemistry. The number of publications (Publ.) in scientific journals is specified to those with and without Thomson Reuters (TR) impact factors (IF) or Norwegian Centre for Research Data (NCDR) ranking (see explanation in the first paragraphs of this appendix, and whether ISP funding was acknowledged (Y) or not (N). (L.Am. = Latin America)

Publication category	Africa yes / no	Asia yes / no	L.Am. yes / no	Total yes / no
ISP acknowledged (publ. in scientific journals only)				
Publ. in Scientif. Quality J. (TR or TR+NCDR ranked)	23 / 40	3 / 0	2 / 3	28 / 43
Publ. in Scientific Quality Journals (NCDR ranked only)	5 / 7			5 / 7
Publ. in Other Scientific Journals (unranked)	2 / 37	5 / 8	1 / 1	8 / 46
Publ. in Journals by “predatory publishers”	3 / 13	2 / 0	0 / 0	5 / 13
Books, Chapters, Popular Publ., Technical Reports, etc.	7	8	1	16
Total number of publications	125	26	8	159

Publications in Scientific Journals

ACS Applied Energy Materials (1)

ISSN 2574-0962 (Online)

B.A. Abdulahi, X. Xu, P. Murto, O. Inganäs, W. Mammo & E. Wang (2018). Open-Circuit Voltage Modulations on All-Polymer Solar Cells by Side Chain Engineering on 4,8-Di(thiophen-2-yl)benzo[1,2-b:4,5-b']dithiophene-Based Donor Polymers. ACS Appl. Energy Mater., 1:2918-2926. DOI: 10.1021/acsaem.8b00562 (IPICS ETH:01)

P. Murto, S. Tang, C. Larsen, X. Xu, A. Sandström, J. Pietarinen, B. Bagemihl, B.A. Abdulahi, W. Mammo, M.R. Andersson, E. Wang & L. Edman (2018). Incorporation of Designed Donor-Acceptor-Donor Segments in a Host Polymer for Strong Near-Infrared Emission from a Large-Area Light-Emitting Electrochemical Cell. ACS Appl. Energy Mater., 1:1753–1761. (IPICS ETH:01)
DOI: 10.1021/acsaem.8b00283

ACS Applied Materials & Interfaces (1) 8.087(8.284)

ISSN 1944-8244 (Print); 1944-8252 (Online)

R. Tchoumene, G. Kenne Dedzo & E. Ngameni (2018). Preparation of Methyl Viologen-Kaolinite Intercalation Compound: Controlled Release and Electrochemical Applications. ACS APPL MATER INTER, 10:34534-34542. DOI: 10.1021/acсами.8b13953. (IPICS ANEC)

ACS Macro Letters (1) 6.131(6.015)

ISSN 2161-1653 (Online) ACS MACRO LETT

P. Murto, Z. Genene, C.M. Benavides, X. Xu, A. Sharma, X. Pan, O. Schmidt, C.J. Brabec, M.R. Andersson, S.F. Tedde, W. Mammo & E. Wang (2018). High performance all-polymer photodetector comprising a donor-acceptor-acceptor structured indacenodithiophene-bithieno[3,4-c]pyrroletet-rone copolymer, ACS MACRO LETT, 7:395-400. DOI: 10.1021/acsmacrolett.8b00009 (IPICS ETH:01)

ACS Omega**(1)**

ISSN 2470-1343 (Online)

M. Zouari, S. Campuzano, J.M. Pingarron & N. Raouafi (2018). Amperometric biosensing of miRNA-21 in serum and cancer cells at nanostructured platforms using anti-DNA–RNA hybrid antibodies. ACS Omega, 3:8923-8931. DOI: 10.1021/acsomega.8b00986 (IPICS ANEC)

Advanced Materials**(2)****21.950(21.888)**

ISSN: 0935-9648

A. Minotto, P. Murto, Z. Genene, A. Zampetti, G. Carnicella, W. Mammo, M.R. Andersson, E. Wang & F. Cacialli (2018). Efficient Near-Infrared Electroluminescence at 840 nm with “Metal-Free” Small-Molecule:Polymer Blends. ADV MATER, 1706584 (9 pp.). DOI: 10.1002/adma.201706584 (IPICS ETH:01)

Advanced Sustainable Systems

ISSN: 2366-7486 (Online)

Fekadu Checkol, Anders Elfving, Grzegorz Greczynski, Solomon Mehretie, Olle Inganäs & Shimelis Admassie (2018). Highly Stable and Efficient Lignin-PEDOT/PSS Composites for Removal of Toxic Metals. Adv. Sustainable Syst., 2:1700114 (7pp.). DOI: 10.1002/adsu.201700114 (IPICS ETH:01)

African Health Sciences**(1)****0.842(1.161)**

ISSN 1680-6905

John AM Mahugija, Zainab S Kasenya & Kessy F Kilulya, (2018). Levels of heavy metals in urine samples of school children from selected industrial and non-industrial areas in Dar es Salaam, Tanzania. AFR HEALTH SCI, 18(4)1226-1235. DOI: 10.4314/ahs.v18i4.44 (IPICS ANCAP)

African Journal of Agricultural research***(-)****0.263(0.203)²⁹**

ISSN 1991-637X

Nogaye Niang, Sandrine Demanèche, Ibrahima Ndoye, Elisabeth Navarro & Saliou Fall (2018). Genetic diversity of rhizobia and plant growth promoting rhizobacteria of soil under the influence of *Piliostigma reticulatum* (DC.) Hochst and their impact on shrub growth. AFR J AGR RES, 13(46)2668-2679. DOI: 10.5897/AJAR2018.13494 (IPICS RABiotech)

African Journal of Aquatic Science**(1)****0.706(0.781)**

ISSN 1608-5914 (Print); 1727-9364 (Online)

D.A. Abong’o, S.O. Wandiga & I.O. Jumba (2018). Occurrence and distribution of organochlorine pesticide residue levels in water, sediment and aquatic weeds in the Nyando River catchment, Lake Victoria, Kenya. AFR J AQUAT SCI, 43: 255-270. DOI: 10.2989/16085914.2018.1490244 (IPICS ANCAP)
(IPICS KEN:01)

C. Teta, B.F. Holbech, L. Norrgren & Y.S. Naik (2018). Occurrence of estrogenic pollution and wide spread feminisation of male tilapia in peri urban dams in Bulawayo, Zimbabwe. AFR J AQUAT SCI 43(1):17-26. DOI: 10.2989/16085914.2017.1423269 (IPICS ZIM:02)

²⁹ Latest Impact Factor, 2010. Appears on Cabell’s black list.

African Journal of Biotechnology*(-) **0.573(0.794)³⁰**

ISSN 1684-5315

Marius K. SOMDA, Mahamadi NIKIEMA, Ibrahim KEITA, Iliassou MOGMENGA, Sonagnon H. S. KOUHOUNDE, Yerobessor DABIRE, Wahauwouélé H. Coulibaly, Essodolom TAALE & Alfred S. TRAORE (2018). Production of single cell protein (SCP) and essentials amino acids from *Candida utilis* FMJ12 by solid state fermentation using mango waste supplemented with nitrogen sources. AFR J BIOTECHNOL, 17(23)716-723. DOI: 10.5897/AJB2017.16361 (IPICS RABiotech)

TAPSOBA Fidèle Wend-bénédo, Hagrétou Sawadogo-Lingani, Donatien Kaboré, Sandrine Zongo, Diarra Compaoré-Séréme and Mamoudou Hama DICKO (2018). Controlled fermentation of the zoom-koom dough using two isolates of lactic acid bacteria (LAB 1 and LAB 5) as starter cultures: Effect on hygienic, rheological, nutritional and sensorial characteristics of the final product. AFR J BIOTECHNOL, 17(5)96-107. DOI: 10.5897/AJB2017.16306 (IPICS RABiotech)

Tapsoba Fidèle Wend-bénédo, Sawadogo-Lingani Hagrétou, Kaboré Donatien, Zongo Sandrine, Compaoré-Séréme Diarra and Dicko Mamoudou Hama (2018). Controlled fermentation of the zoom-koom dough using two isolates of lactic acid bacteria (LAB 1 and LAB 5) as starter cultures: Effect on hygienic, rheological, nutritional and sensorial characteristics of the final product. AFR J BIOTECHNOL, 17(5):96-107. DOI: 10.5897/AJB2017.16306 (IPICS RABiotech)

African Journal of Environmental Science and Technology*

ISSN 1996-0786

Martin S.M. Wafula, Philip. O. Owuor, Fredrick O. Kengara, Ayub V.O. Ofula & Said-Ally Matano (2018). Influence of land use practices on water physicochemical parameters and nutrients loading along the Mara River of East Africa. AJEST, 12(7)235-243. DOI: 10.5897/AJEST2015.2021 (IPICS ANCAP)

African Journal of Food Science*

(-)

ISSN 1996-0794

KANTE-TRAORE Hyacinthe, Hagrétou SAWADOGO-LINGANI, Charles PARKOUDA, Judith P. M. SAMADOULOGOU– KAFANDO1 & Mamoudou H. DICKO (2018). Mango doughnuts technology process for innovative prevention of post-harvest loss of mango fruits in Burkina Faso. Afr. J. Food Sci. Vol. 12(4)63-72. DOI: 10.5897/AJFS2017.1665 (IPICS RABiotech)

Agriculture

(1)

ISSN 2077-0472

Amadou T. Sall, Filippo M. Bassi, Madiama Cisse, Habibou Gueye, Ibrahima Ndoeye, Abdelkarim Filali-Maltouf & Rodomiro Ortiz (2018). Durum Wheat Breeding: In the Heat of the Senegal River. Agriculture, 8:99 (12 pp.). DOI: 0.3390/agriculture8070099 (IPICS RABiotech)

Agriculture and Food Sciences Research*

ISSN 2411-6653 (Print); 2411-6653 (Online)

V.M. Dakéné, A. Séréme, M. Koala, M.K. Somda, H. Sawadogo-Lingani & A.S. Traoré (2018). Influence of agro-ecological areas on the antioxidant capacity of onion varieties grown in Burkina Faso. Agric. Food Sci. Res., 5(2)73-78. DOI: 10.20448/journal.512.2018.52.73.78 (IPICS RABiotech)

³⁰ Latest Impact Factor, 2010. Appears on Cabell's black list.

Analytica Chimica Acta
ISSN 0003-2670

(1) 5.123(4.837)

A. Mars, M. Hammami, L. Bechnak, D. Patra & N. Raouafi (2018). Curcumin-graphene quantum dots for dual mode sensing platform: Electrochemical and fluorescence detection of APO ϵ 4, responsible of Alzheimer's disease. ANAL CHIM ACTA, 1036:141-146. DOI: 10.1016/j.aca.2018.06.075
(IPICS ANEC)

Asian Journal of Chemical Sciences
ISSN 2456-7795

B.L. Gav, R.N. Vesuwe, A.O. Ijeomah, E.E. Okoko, P.N. Tor & J.N. Tsaviv (2018). Determination of heavy metal concentrations of rain water harvested from different roofing sheets in outskirts of Makurdi, Benue State, Nigeria. Asian J. Chem. Sci., 5(2)1-6. DOI: 10.9734/AJOCS/2018/35442
(IPICS ANCAP)

Asian Journal of Chemistry
ISSN 0970-7077

(1) 0.335(0.293)

Karume, I., E. Tebandeke, J. Mbabazi, H. Ssekaalo & O.F. Wendt (2018). C-C cross-coupling reactions by palladium on barium and potassium polyoxotungstate supports. ASIAN J CHEM, 30:2357-2360. DOI: 10.14233/ajchem.2018.21508
(IPICS UGA:02)

Asian Journal of Physical and Chemical Sciences
ISSN 2456-7779

Peter O. Onuwa, Ishaq S. Eneji, Adams U. Itodo & Rufus Sha'Ato, (2018). Determination of pesticide residues in edible crops and soil from University of Agriculture Makurdi Farm Nigeria. Asian J. Phys. Chem. Sci., 3(3) 1-17; Art. no. AJOPACS.35001
(IPICS ANCAP)

Bangladesh Journal of Medical Science
ISSN 2223-4721 (Print); 2076-0299 (Online)

Mandal M, Rakibuzzaman, Rokeya B, Ali L, Hassan Z & Faruque MO (2018). Anti-diabetic effect of oyster mushroom mediates through increased AMP-activated protein kinase (AMPK) and cyclic AMP-response element binding (CREB) protein in type 2 diabetic model rats. Bangl. J. Med. Sci., 17:661-668. DOI: 10.3329/bjms.v17i4.38333
(IPICS ANRAP)

Bioelectrochemistry
ISSN 1567-5394

(1) 3.789(3.631)

Leuna, J.-B. M., Sop, S. K., Makota, S., Njanja, E., Ebelle, T.C., Azebaze, A.G., Ngameni, E. & Nassi, A. (2018). Voltammetric behavior of Mameisin (MA) at a glassy carbon electrode and its interaction with Bovine Serum Albumin (BSA). BIOELECTROCHEMISTRY, 119:20-25. DOI: 10.1016/j.bioelechem.2017.08.008
(IPICS ANEC)

GSC Biological and Pharmaceutical Sciences
ISSN 2581-3250 (Online)

Konaté Kiessoun, Mamounata Diao, Crepin Dibala Ibingou, Yomalan Kassi, Alain Souza & Mamoudou H. DICKO (2018). *In vitro* antioxidant capacity and *in vivo* anti-ulcer and analgesic potentials of dichloromethane fraction of stem barks from *Boswelli dalzielii* Hutch. GSC Biological and Pharmaceutical Sciences, 04(03)7-17. DOI: 10.30574/gscbps.2018.4.3.0025 (IPICS RABiotech)

BMC Complementary and Alternative Medicine (2) 2.109 (2.732)
ISSN 1472-6882

V. Kuete, D. Ngnintedo, G.W. Fotso, O. Karaosmanoğlu, BT. Ngadjui, F. Keumedjio, S.O. Yeboah, K. Andrae-Marobela & H. Sivas (2018). Cytotoxicity of seputhecarpan D, thonningiol and 12 other phytochemicals from African flora towards human carcinoma cells. BMC COMPLEMENTERN, 18:36. DOI 10.1186/s12906-018-2109-9 (IPICS NABSA)

BMC Medical Education (1) 1.511(1.938)
ISSN 1472-6920

Pillai G, Chibale K, Constable EC, Keller AN, Gutierrez MM, Mirza F, Sengstag C, Masimirembwa C, Denti P, Maartens G, Ramsay M, Ogutu B, Makonnen E, Gordon R, Ferreira CG, Goldbaum FA, Degraeve WMS, Spector J, Tadmor B & Kaiser HJ (2018). The Next Generation Scientist program: capacity-building for future scientific leaders in low- and middle-income countries. BMC MED EDUC, 18(1):233 (11 pp.). DOI: 10.1186/s12909-018-1331-y (IPICS ZIM: AiBST)

BMC Research Notes (1)
ISSN: 1756-0500 (Online)

Soko ND, Masimirembwa C & Dandara C. (2018). A cost effective RFLP method to genotype Solute carrier organic anion 1B1 (SLCO1B1) c.1929A>C (p.Leu643Phe, rs34671512); a variant with potential effect on rosuvastatin pharmacokinetics. BMC Res. Notes, 11:384 (4 pp.). (IPICS ZIM: AiBST)
DOI: 10.1186/s13104-018-3469-4

Bulletin of Cambodian Chemical Society

Seng, C.Y., Rath, T., Lim, S., Eav, C. & Phan, K. (2018). Assessment of physico-chemical properties of the river water in Phnom Penh and its suburban area. Bull. Cam. Chem Soc., 9:29-35. (IPICS CAB-CCS)

Meng, K., Kev, S., Kruiy, L., Eav, C. & Phan, K. (2018). Assessment of water and sediment quality in fish ponds in the suburban area of Phnom Penh. Bull. Cam. Chem Soc. 9:36-41. (IPICS CAB-CCS)

Toch, V., Samean, U., Kreng, S. & Phan, K. (2018). Monitoring physico-chemical properties of water quality in Kob Srov Wetland. Bull. Cam. Chem Soc., 9:42-46. (IPICS CAB-CCS)

Kev, S., Kruiy, L., Kreng, S., Lim, S. & Phan, K. (2018). Assessing heavy metals contamination in Kob Srov Lake of Phnom Penh. Bull. Cam. Chem Soc., 9:47-50. (IPICS CAB-CCS)

Bulletin of the Institute of Tropical Agriculture, Kyushu University
Online ISSN 1881-4212; Print ISSN 0915-499X

J.B Ndayambaje, J. Habinshuti, A. Ingabire, E.N. Beneyo & G. Habarurema (2018). Methylotrophic recombinant *Pichia pastoris* for phytase production on D-mannitol/methanol optimization. Bull. Inst. Trop. Agric. Kyushu Univ., 14:97-105. DOI: 10.11189/bit.41.97 (IPICS RWA:01)

Chemical Science International Journal
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ISSN 2090-9063 (Print); 2090-9071 (Online)

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ISSN: 1661-5751 (Print) 1661-5867 (Online)

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ISSN 2471-0288

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ISSN 0022-0728

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Journal of Ethnopharmacology**(1) 3.315(3.493)**

ISSN 0378-8741

J.C.D. Tomani, L.O.T. Gankam, S. Nshutiayesu, M.J. Mukazayire, S.O. Ribeiro, C. Stevigny, M. Frederich, R. Muganga & J. Souopgui (2018). An ethnobotanical survey and NRLP3 inflammasomes/Caspase-1 inhibition of herbal recipes extracts traditionally used in Rwanda for asthma treatment. *J ETHNOPHARMACOL*, 227:29-40. DOI: 10.1016/j.jep.2018.08.016 (IPICS RWA:01)

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ISSN (not available)

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ISSN 0889-1575

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ISSN 2159-5828 (Print); 2164-5795 (Online)

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ISSN: 0304-3894

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DOI: 10.1016/j.jhazmat.2017.08.057

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ISSN 2155-9600

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ISSN: 2456-9119

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ISSN: 1099-0488 (Online)

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ISSN 2141-2316

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ISSN: 0896-8446

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ISSN 1420-3049

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ISSN: 1519-566X

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ISSN: 2574-7797

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Pharmacogenomics (1) 2.302(2.648)
ISSN 1462-2416 (Print); 1744-8042 (Online)

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ISSN 1473-1150

(1) 3.812(3.561)

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(IPICS ZIM: AiBST)

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ISSN 2394-0859

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(IPICS RABiotech)

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ISSN 1874-3900

(1) 1.575(1.547)

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(IPICS KEN:01)

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ISSN 1932-6203

(1) 2.756(3.352)

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ISSN: 0719-1472

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(IPICS LANBIO)

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ISSN 2046-2069

(1) 2.936(3.096)

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(IPICS ANCAP)

(IPICS KEN:01)

Science of the Total Environment
ISSN 0048-9697

(2) 4.610(4.984)

Shucheng Zheng, Pu Wang, Huizhong Sun, Julius Matsiko, Yanfen Hao, Derong Meng, Yingming Li, Guogang Zhang, Qinghua Zhang & Guibin Jiang, (2018). Tissue distribution and maternal transfer of persistent organic pollutants in Kentish Plovers (*Charadrius alexandrinus*) from Cangzhou Wetland, Bohai Bay, China. SCI TOTAL ENVIRON, 612:1105-1113. DOI: 10.1016/j.scitotenv.2017.08.323 (IPICS ANCAP)

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ISSN: 2045-2322

4.122(4.609)

Wenyong Meng, Pu Wang, Ruiqiang Yang, Huizhong Sun, Julius Matsiko, Dou Wang, Peijie Zuo, Yingming Li, Qinghua Zhang & Guibin Jiang (2018) Altitudinal dependence of PCBs and PBDEs in soil along the two sides of Mt. Sygera, southeastern Tibetan Plateau. SCI REP-UK, 8:14037 (7 pp.). DOI: 10.1038/s41598-018-32093-y (IPICS ANCAP)

Sensing and Bio-Sensing Research
ISSN: 2214-1804

Molla Tefera, Merid Tessema, Shimelis Admassie, Emmanuel I. Iwuoha, Tesfaye T. Waryo & Priscilla G.L. Baker (2018). Electrochemical determination of phenothrin in fruit juices at graphene oxide-polypyrrole modified glassy carbon electrode. Sens. Bio-Sens. Res., 21:27-34. DOI: 10.1016/j.sbsr.2018.09.003 (IPICS ETH:01)

Sensors
ISSN 1424-8220

(1) 2.475(3.014)

E. Vargas, E. Povedano, V. Ruiz-Valdepeñas Montiel, R.M. Torrente-Rodríguez, M. Zouari, J.J. Montoya, N. Raouafi, S. Campuzano & J.M. Pingarrón (2018). Single-step incubation determination of miRNAs in cancer cells using an amperometric biosensor based on competitive hybridization onto magnetic beads. SENSORS-BASEL, 18:863 (13 pp.). DOI:10.3390/s18030863 (IPICS ANEC)

Sensors and Actuators, B: Chemical
ISSN: 0925-4005

(1) 5.667(5.118)

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Solid State Ionics**(1) 2.751(2.607)**

ISSN: 0167-2738

Paolo Bollella, Luca Medici, Merid Tessema, Andrey A. Poloznikov, Dmitry M. Hushpulyan, Vladimir I. Tishkov, Rafael Andreu, Dónal Leech, Negussie Megersa, Massimo Marcacciob, Lo Gorton & Riccarda Antiochia (2018). Highly sensitive, stable and selective hydrogen peroxide amperometric biosensors based on peroxidases from different sources wired by Os-polymer: A comparative study. SOLID STATE IONICS, 314:174-186. DOI: 10.1016/j.ssi.2017.10.015

(IPICS ETH:04)

South African Journal of Chemistry**(1) 0.953(0.870)**

ISSN 0379-4350

John A.M. Mahugija, Lutamyo Nambela & Aviti J. Mmochi (2018). Determination of Dichlorodiphenyltrichloroethane (DDT) and metabolites residues in fish species from Eastern Lake Tanganyika. S AFR J CHEM-S-AFR T, 71(2)86-93. DOI: 10.17159/0379-4350/2018/v71a11 (IPICS ANCAP)

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ISSN 2571-9637

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Taibah University Journal of Medical Sciences

ISSN: 1658-3612

Mohammad Asrafuzzaman, Mohammad M. Rahman, Manoj Mandal, Mohammad Marjuque, Amrita Bhowmik, Begum Rokeya, Zahid Hassan & Mohammad Omar Faruque (2018). Oyster mushroom functions as an anti-hyperglycaemic through phosphorylation of AMPK and increased expression of GLUT4 in type 2 diabetic model rats. Taibah Univ. J. Med. Sci.,13:465-471. (IPICS ANRAP)
DOI: 10.1016/j.jtumed.2018.02.009

Tanzanian Journal of Science

ISSN: 2507-7961

John AM Mahugija (2018). Levels of heavy metals in drinking water, cosmetics and fruit juices from selected areas in Dar Es Salaam. Tanz. J. Sci.,44(1)1-11. (IPICS ANCAP)

John Mahugija & Hawa Sheikh (2018). Status of selected heavy metals dispersion from top soil in and around automobile workshop areas in Zanzibar municipality. Tanzania. Tanz. J. Sci., 44(1)12-23. (IPICS ANCAP)

John AM Mahugija (2018). Determination of toxic diethylene glycol in toothpastes in Dar es Salaam by high performance thin layer chromatography and colorimetric methods. Tanzania. Tanz. J. Sci., 44(2)117-127. (IPICS ANCAP)

Aldo Kitalika, Revocatus Machunda, Hans Komakech & Karoli Njau, (2018). Assessment of water quality variation in rivers through comparative index technique and its reliability for decision making. Tanzania. Tanz. J. Sci., 44(3)163-193. (IPICS ANCAP)

Toxicological & Environmental Chemistry**(1) 0.972(1.021)**

ISSN 0277-2248 (Print); 1029-0486 (Online)

C. Teta & Y. Naik (2018). Endosulfan reduces fertilization success and causes abnormal embryo development to zebrafish. TOXICOL ENVIRON CHEM, 100:452-464. (IPICS ZIM:02)
DOI: 10.1080/02772248.2018.1530777

Virology Research Journal

ISSN (not available)

J.B. Ndayambaje, E. N. Beneyo, A. S. Ingabire, J. Habinshuti, A. Ingabire, J.P. Munyampundu (2018). Comparative bacterial inhibition by bioactive extracts from *Datura stramonium* and *Phytolacca dodecandra*. *Virol. Res. J.*, 2(1)1-5. DOI: (not available) (IPICS RWA:01)

Waste Management

(1) 4.723(5.262)

ISSN: 0956-053X

T.B. Hammeda, S.O. Wandiga, Y. Mulugetta & M.K.C. Sridhar (2018). Improving knowledge and practices of mitigating greenhouse gas emission through waste recycling in a community, Ibadan, Nigeria. *WASTE MANAGE*, 81:22-32. DOI: 10.1016/j.wasman.2018.09.044 (IPICS ANCAP)
(IPICS KEN:01)

World Journal of Pharmaceutical Sciences

ISSN 2321-3310 (Print), 2321-3086 (Online)

Semde Z, Koudou J, Figueredo G, Zongo C, Somda MK, Sawadogo/Lingani H & Traore AS (2018). Chemical analysis, antioxidant and antimicrobial activities of leaves essential oil of *Annona senegalensis* pers. from Burkina Faso. *World J. Pharm. Sci.*, 6(1)1-13. DOI: (not available)
(IPICS RABiotech)

Books, Book Chapters, Popular Publications, Technical Reports, etc.

Victoria Gioto, Shem Wandiga & Christopher Oludhe (2018). Determinants of household food security status and challenges of building resilience to climate variability and change posed by drought in Tharaka Nithi, Kenya. *In* Leal Filho W. (Ed) *Handbook of Climate Change Resilience* Springer, Cham. DOI: 10.1007/978-3-319-71025-9_96-1; ISBN 978-3-319-71025-9
(IPICS ANCAP)

Francis Orata Omoto (2018). Conventional wastewater treatment plants as a discharge and source point for biota exposure to micro-pollutants. *In* Rachel Ann Hauser-Davis, Thiago Estevam Parente (Eds) *Ecotoxicology: Perspectives on Key Issues*, Chapter 11. (27 pp.) CRC Press, Taylor & Francis Group. DOI: 10.1201/b21896-11 (IPICS ANCAP)

Modou Fall, Serigne Amadou Ndiaye & Mayoro Diop (2018). Chemistry in Senegal: Between Skepticism and Hope. *Chemistry International. The News Magazine of IUPAC*, 40(3)18-26.
(IPICS ANEC)

Mohammad Shoeb (2018). Plastic and other contaminants: A new and Growing Threat to Marine Environment. Published on the occasion of World Environment day 5 June 2018 by Department of Environment (DoE), Dhaka, Bangladesh. (popular publication) (IPICS BAN:04)

Mohammad Shoeb (2018). Environmental Contaminants in Marine Ecosystems of the Bay of Bengal. Report to the Ministry of Science and Technology, Government of the People's Republic of Bangladesh. (IPICS BAN:04)

Mohammad Shoeb (2018). Anticancer Agents from Endophytic Microorganisms (2018). Final Report to Ministry of Education, Government of the People's Republic of Bangladesh. (IPICS BAN:04)
(IPICS NITUB)

Mohammad Shoeb (2018). Antidiabetic agents from Medicinal Plants. Report to the University Grants Commission of Bangladesh (UGC). (IPICS BAN:04)

- Mohammad Shoeb (2018). Novel Bioactive compounds from *Morus alba* (Tut). Final Report, University of Dhaka from UGC (report). (IPICS BAN:04)
- Y. L. Bonzi-Coulibaly (2018). Les étapes essentielles d développement d'un biopesticide d'origine végétale chimie du végétal à potentialité biopesticide. Flyer N°3, 4 pp. (IPICS BUF :01)
- Yacouba Sanou, N. Kwamivi N. Segbeaya, Samuel Pare , Gnon Baba L. & Yvonne Bonzi-Coulibaly (2018). Etudes expérimentale et cinétique de l'adsorption du calcium sur des charbons actifs mésoporeux dans les eaux usées. 19èmes Journées Scientifiques Annuelles de la SOACHIM, Lomé, Togo, 7-10 Aug., 17 pp. (IPICS BUF :01)
- KHENG Chanthorn. Determination of metal Levels (Cd, Cu, Fe, Pb and Zn) in Surface water in Phnom Penh City, Tonle Sap River, Cambodia. Poster on permanent display at RUPP. (IPICS CAB:01)
- MAO Theara, Determination of Metal levels (Cd, Cu, Fe, Pb and Zn) in surface water in Kandal Province of Mekong River, Cambodia. Poster on permanent display at RUPP. (IPICS CAB:01)
- The Bulletin of Cambodian Chemical Society (2018). (IPICS CAB-CCS)
- Teillier, S., Villaseñor, R., Marticorena, A., Novoa, P. & Niemeyer, H.M. (2018). Flora del litoral de la Región de Valparaíso. Productora Gráfica Andros Ltda., Santiago, Chile. 618 pp. ISBN: 978-956-393-243-0 (IPICS LANBIO)
- Sonagnon Kouhondé, Wahauwouélé H. Coulibaly, Kifouli Adeoti, Marius K. Somda, Thomas Dadié, Aly Savadogo, Fatiou Toukourou & Farid Baba-Moussa (2018) 6 Probiotics: A Sustainable Option for Food Safety and Preservation in Africa, (29 pp.). *In* Razafindralambo, Hary (Ed.), Trends in Probiotic Applications, Studium Press LLC, New Dehli. ISBN 1626991103 (IPICS RABiotech)
- Bassirou Ndoye (2017). Biotechnologies modernes et developpement de Bio-industries en Afrique. Editions Universitaires Europeennes. ISBN-3-639-60769-7 (IPICS RABiotech)

Mathematics Publications

IPMS partners reported 77 publications (Table 23). In the 73 articles in scientific journals, ISP was acknowledged in 24% of the 37 publications in all “quality journals”, and in 8% of the 36 publications in “other journals”. Totally 50% of the articles were in “quality journals”. Among publications in other journals, 1 was in a journal characterized as “predatory”. In addition, 4 publications reported were book chapters, popular publications, etc.

Table 23. Summary by region of publication data for Mathematics. The number of publications (Publ.) in scientific journals is specified to those with and without Thomson Reuters (TR) impact factors (IF) or Norwegian Centre for Research Data (NCDR) ranking (see explanation in the first paragraphs of this appendix, and whether ISP funding was acknowledged (Y) or not (N)).

Publication category	Africa yes / no	Asia yes / no	Total yes / no
ISP acknowledged (publ. in scientific journals only)			
Publ. in Scientif. Quality J. (TR or TR+ NCRD ranked)	9 / 26	0 / 2	9 / 28
Publ. in Scientific Quality Journals (NCRD ranked only)	4 / 16		4 / 16
Publ. in Other Scientific Journals (“unranked”)	3 / 30	0 / 1	3 / 31
Publ. in Journals by “predatory publishers”	0 / 1		0 / 1
Books, Chapters, Popular Publ., Technical Reports, etc.	0 / 1		0 / 1
	4		4
Total number of publications	74	3	77

Publications in Scientific Journals

Acta Applicandae Mathematicae (1)

ISSN: 0167-8019 (Print) 1572-9036 (Online)

Kurujiyiwami, C., Basarab-Horwath & P. Popovych, R.O. (2018). Algebraic Method for Group Classification of (1+1)-Dimensional Linear Schrödinger Equations. *Acta Appl. Math.*, 157:171–203. DOI: 10.1007/s10440-018-0169-y (IPMS EAUMP)

Advances Fixed Point Theory

ISSN: 1927-6303

M.G. Sangago, T.W. Hunde & H. Zegeye (2018). Demiclosedness and fixed points of G-asymptotically nonexpansive mapping in Banach spaces with graph. *Adv. Fixed Point Theory*, 8(3)313-340. DOI: 10.28919/afpt/3742 (IPMS ETH:01)

W.W. Kassu, M.G. Sangago & H. Zegeye (2018). Convergence theorems to common fixed points of multi-valued ρ -quasi-nonexpansive mappings in modular function spaces. *Adv. Fixed Point Theory* 8(1)21-36. DOI:10.28919/afpt/3504 (IPMS ETH:01)

Advance in Difference Equation (1) 1.066(1.095)

ISSN: 1687-1847

Ousmane Koutou, Bakary Traoré & Boureima Sangaré (2018). Mathematical modeling of malaria transmission global dynamics: taking into account the immature stages of the vectors. *ADV DIFFER EQU-NY*, 220:1-34. (IPMS BURK:01)

Afrika Matematika**(1)**

ISSN: 1012-9405

Oumar Diop & Abdou Séne (2018). Mathematical model of fish, birds and tourists in wetlands: the impact of periodic fluctuations on the coexistence of species, *Afr. Matem.*, 29(5–6)841-859

(IPMS BURK:01)**Afrika Statistika**

ISSN: 2316-090X

Andongwisye John, Torbjorn Larsson, Martin Singull & Allen Mushi (2018). Asset liability management for Tanzania: Pension funds by stochastic programming. *Afr. Stat.*, 13(3)1733 –1758.

DOI: 10.16929/as/1733.131

(IPMS EAUMP)**Annals of the University of Craiova, Mathematics and Computer Science Series**

ISSN: 1223-6934

Bakary Traoré, Boureima Sangaré & Sado Traoré (2018). Mathematical model of mosquito populations dynamics with logistic growth in a periodic environment. *Ann. Univ. Craiova Math. Comp. Sci. Ser.*, 45(1)86-102.

(IPMS BURK:01)**Applied Mathematical Sciences****(-)**

ISSN: 1314-7552

Abubakari Abdul Ghaniyyu, Philip Ngare & Joseph Mung'atu (2018). Pricing Interest Rate Caps and Floors under the Pearson-Sun Interest Rate Model. *Appl. Math. Sci.*, 12(20)975-988.

DOI: 10.12988/ams.2018.8468

(IPMS EAUMP)**Applied Mathematics****(-)**

ISSN: 2152-7385 (Print) 2152-7393 (Online)

A. Guiro, D. Ouedraogo & H. Ouedraogo (2018). Stability analysis for a discrete SIR epidemic model with delay and general nonlinear incidence function. *Appl. Math.*, 9:1039-1054. **(IPMS BURK:01)**

Applied Mathematics and Optimization**(2)****1.175 (1.137)**

ISSN: 0095-4616 (Print) 1432-0606 (Online)

Moustapha Diéye, Mamadou Abdoul Diop, & Khalil Ezzinbi (2018). Necessary Conditions of Optimality for Some Stochastic Integrodifferential Equations of Neutral Type on Hilbert Spaces. *APPL MATH OPT*, 77:343-375.

(IPMS BURK:01)**Asian Journal of Mathematics and Applications**

ISSN: 2307-7743

Ibrahim Fanuel & Allen Mushi (2018). Multi-Objective Optimization Model for Irrigation Water Allocation: A Case Study of Nduruma Catchment-Arusha, Tanzania. *As. J. Math. Appl.*, Article Id Ama0449 (14 pp.)

(IPMS EAUMP)**Atti della Accademia Peloritana dei Pericolanti****(1)**

ISSN: 1825-1242

M.D. Asfaw, B. Buonomo & S.M Kassa (2018). Impact of Human Behavior on ITNs control strategies to prevent the spread of Vector borne Diseases. *AAPP*, 96(S3).

(IPMS ETH:01)

DOI: 10.4178/AAPP.96S3A2

BIOMATH (1)

ISSN: 1314-684X (Print), 1314-7218 (Online)

Abdoulaye Diouf, Baba Issa Camara & Diene Ngom (2018). Bayesian inference of a dynamical model evaluating Deltamethrin effect on Daphnia survival. *Biomath*, 7 (10 pp.). (IPMS BURK:01)
DOI: 10.11145/j.biomath.2018.12.177

Bulletin of the Malaysian Mathematical Sciences Society 0.840 (0.744)

ISSN: 0126-6705 (Print) 2180-4206 (Online)

Mamadou Abdoul Diop, Khalil Ezzinbi & Mamadou Moustapha Mbaye (2018). Measure Theory and Square-Mean Pseudo Almost Periodic and Automorphic Process: Application to Stochastic Evolution Equations. *B MALAYS MATH SCI SO*, 41:287-310. (IPMS BURK:01)

Cogent Mathematics & statistics

ISSN: 2574-2558

Ousmane Koutou, Bakary Traoré, & Boureima Sangaré (2018). Mathematical model of malaria transmission dynamics with distributed delay and a wide class of nonlinear incidence rates. *Cogent Math. Stat.*, 5:1564531. (IPMS BURK:01)

CUBO: A Mathematical Journal

ISSN: 0716-7776 (Print) 0719-0646 (Online)

Moussa Barro, Aboudramane Guiro & Dramane Ouedraogo (2018). Optimal control of a SIR epidemic model with general incidence function and a time delays. *CUBO*, 20:53–66. (IPMS BURK:01)

Differential Equations and Dynamical Systems (1)

ISSN: 0971-3514 (Print) 0974-6870 (Online)

Khalil Ezzinbi, Hamidou Touré, Issa Zabsonre (2018). Weighted Pseudo Almost Periodic and Pseudo Almost Automorphic Solutions of Class r for Some Partial Differential Equations, *Differential Equations and Dynamical Systems*. *Diff. Eq. Dyn. Syst.*, 26 pp. DOI: 10.1007/s12591-018-00447-7 (IPMS BURK:01)

Dynamic Systems and Applications (1) 0.359 (0.362)

ISSN: 1056-2176

Ji-Hun Yoon & Sotheara Veng (2018). Asymptotic analysis for portfolio optimization problem under an extended Heston's stochastic volatility model. *DYNAM SYST APPL*, 27:331-352.
DOI: 10.12732/dsa.v27i2.8 (IPMS SEAMaN)

East Asian Mathematical Journal

ISSN: 1226-6973

Jai Heui Kim & Sotheara Veng (2018). Asymptotic analysis for portfolio optimization problem under two-factor Heston's stochastic volatility model. *E. As. Math. J.*, 34:1-16. (IPMS SEAMaN)

Electronic Journal of Differential Equations (1) 0.944 (1.031)

ISSN: 1072-6669

Kebede Feyissa, Abdi Tadesse & Giovanni Porru (2018). On the placement of a source or a well so as to optimize the energy integral. *ELECTRON J DIFFER EQ*, 104:1-12. (IPMS ETH:01)

Environmental Research Letters**(1) 4.541 (5.288)**

ISSN: 1748-9326

S. Osima, V.S. Indasi, M. Zaroug, H.S. Endris, M. Gudoshava, H.O. Misiani, A. Nimusiima, R.O. Anyah, G. Otieno, B.A. Ogwang, S. Jain, A.L. Kondowe, E. Mwangi, C. Lennard, G. Nikulin & A. Dosio (2018). Projected climate over the Greater Horn of Africa under 1.5° C and 2 °C global warming. ENVIRON RES LETT, 13:065004. (IPMS EAUMP)

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ISSN: 2055-0154 (Print) 2055-0162 (Online)

R. Simw, (2018). On Pricing of Unemployment Insurance Assuming Non-Zero Mortality for Employees with Application to the USA Economy. Eur. J. Stat. Prob., (2)1-11. (IPMS EAUMP)

Folia Mathematica

ISSN: 2450-7652

S. Ouaro, D. Ouedraogo (2018). SEIS model with treatment in an exponentially growing population. Folia Math., 20:50–85. (IPMS BURK:01)

Food and Nutrition Sciences**(-)**

ISSN: 2157-944X (Print) 2157-9458 (Online)

F.B.N. Fall, Beye, C. Kane, N.C. Ayessou, C. Talla & C.M. Diop (2018). Influence of Variety and Maturity Level on Natural Convective Heat Drying of Four Onion Varieties Grown in Senegal. Food Nutr. Sci., 9:997-1013. (IPMS BURK:01)

Gulf Journal of Mathematics**(1)**

ISSN: 2309-4966

I. Konaté & S. Ouaro (2018). Nonlinear multivalued problems with variable exponent and diffuse measure data in anisotropic space. Gulf J. Math., 6:13-30. (IPMS BURK:01)

Indian Journal of Pure and Applied Mathematics**(1)****0.252 (0.379)**

ISSN: 0019-5588 (Print) 0975-7465 (Online)

Samuel Asefa Fufa & Melkamu Zeleke (2018), On the Möbius Function of a Pointed Graded Lattice. INDIAN J PURE AP MAT, 49:51–69. DOI: 10.1007/s13226-018-0255-x (IPMS ETH:01)

Integral Transforms and Special Functions**(1)****0.828 (0.832)**

ISSN: 1065-2469 (print) 1476-8291 (online)

Tesfa Mengestie & Mafuz Worku (2018). Isolated and essentially isolated Volterra-type integral operators on generalized Fock spaces. INTEGR TRANSF SPEC F, 30: 41-54. (IPMS ETH:01)
DOI: 10.1080/10652469.2018.1536127

International Academic Journal of Information Science and Project Management

ISSN: 2519-7711

I.M. Njeru & S.W. Luketero (2018). Influence of adoption of technology on performance of Kenya Power and Lighting Company: A case of Kenya Power Embu Office. Int. Acad. J. Inf. Sci. Proj. Manag., 3(1)47-60. (IPMS EAUMP)

International Journal for Research and Development in Technology

ISSN: 2349-3585

Miraji Hossein, Othman O.C., Ngassapa F. & Mureithi E.W. (2018). The evolutionary engagement of analytical techniques in the eco-toxicity of emerging contaminants. *Int. J. Res. Dev. Tech.*

(IPMS EAUMP)

International Journal of Applied Mathematics and Statistics

ISSN: 0973-1377 (Print) 0973-7545 (Online) (1)

Kablan A, Chisha R, & Hasan H. S (2018). Green's Function for Finitely Many-Interval Sturm-Liouville Problem. *IJAMAS*, 57:180-193.

(IPMS EAUMP)

Christian Kasumo, Juma Kasozi & Dmitry Kuznetsov (2018). Dividend maximization in a diffusion-perturbed classical risk process compounded by proportional and excess-of-loss reinsurance.

IJAMAS, 57:68-83.

(IPMS EAUMP)

International Journal of Biomathematics

(1) 0.846 (0.889)

ISSN: 1793-5245 (Print), 1793-7159 (Online)

Flavia Remo, Mbalawata Sailon Isambi, Livingstone S Luboobi & Betty Nannyonga (2018). A mathematical model for the dynamics and MCMC analysis of tomato bacterial wilt disease. *INT J BIOMATH*, 11:1850001 (22 pp.). DOI: 10.1142/S1793524518500018

(IPMS EAUMP)

M.D. Asfaw, S.M. Kassa & E.M. Lungu, Co-existence threshold in the dynamics of the plant-herbivore interaction with Allee effect and harvest. *INT J BIOMATH*, 11:1850057.

DOI: 10.1142/S1793524518500572

(IPMS ETH:01)

International Journal of Electronic Finance

(1)

ISSN: 1746-0069 (print) 1746-0077 (online)

D.B. Ntwiga, C. Ogutu & Michael Kiura Kirumbu (2018). Inclusion of Peer Group and Individual Low-Income Earners in Mshwari Micro-Credit Lending: A Hidden Markov Model Approach. *Int. J. Elec. Finance*, 9(2)121 – 133.

(IPMS EAUMP)

International Journal of Evolution Equation

(1)

ISSN: 1549-2907

Ibrahim KONATE & Stanislas OUARO. Good measure for nonlinear Neumann anisotropic problems with variable exponent. *Int. J. Evol. Eq.*, 10:233-251.

(IPMS BURK:01)

International Journal on Future Revolution in Computer Science & Communication Engineering

ISSN: 2454-4248

Karanjah, A., G.P. Pokhariyal & F. Njui (2018). Application of the Variance Function of the Difference Between Two Estimated Responses in Regulating Blood sugar Level in a Diabetic Patient Using Herbal Formula. *Int. J. Fut. Rev. Comp. Sci. Comm Eng.*, 4:104-109.

(IPMS EAUMP)

International Journal of High Performance Computing Applications

ISSN (Print): 1094-3420, (Online): 1741-2846 (2) 2.015 (1.975)

Martin Kronbichler, Ababacar Diagne & Hanna Holmgren (2018). A fast massively parallel two-phase flow solver for microfluidic chip simulation. *INT J HIGH PERFORM C*, 32(2)266-287.

DOI: 10.1177/1094342016671790

(IPMS BURK:01)

International Journal of Innovation in Sciences and Mathematics

ISSN: 2347-9051 (Online)

G.P. Pokhariyal, S.K. Moindi & F. Njui (2018). A Study of W_3 - Symmetric K – Contact Riemannian Manifold. *Int. J. Innov. Sci. Math. (IJSM)*, 6:102-104. (IPMS EAUMP)

International Journal of Mathematical Archive

ISSN: 2229-5046

N.E. MUTURI, G.P. Pokhariyal & J.M. Khalagai (2018). Splitting and Admissible Topologies Defined on the Set of Continuous Functions between Bitopological Spaces. *IJMAA*. 9(1) 65-68. (IPMS EAUMP)

International Journal of Simulation and Multidisciplinary Design Optimization

eISSN: 1779-6288

Ibrahim Mwita Fanuel, Allen Mushi & Damian Kajunguri (2018). Irrigation water allocation optimization using Multi-Objective Evolutionary Algorithm (MOEA): A review. *Int. J. Sim. Multidisc. Design Opt.*, 9:A3. (IPMS EAUMP)

International Journal of Stochastic Analysis (1)

ISSN: 2090-3332 (print) 2090-3340 (online)

Samuel Asante Gyamerah, Philip Ngare & Dennis Ikpe (2018). Regime-Switching Temperature Dynamics Model for Weather Derivatives. *Int. J. Stoch. Anal.*, Art. ID 8534131 (15 pp.). DOI: 10.1155/2018/8534131 (IPMS EAUMP)

International Journal of Theoretical and Applied Finance (1)

ISSN: 0219-0249 (print) 1793-6322 (online)

JULIEN HOK, PHILIP NGARE, & ANTONIS PAPAPANTOLEON (2018). Expansion formulas for European Quanto Options in a Local Volatility FX-Libor Model. *Int. J. Theor. Appl. Finance*, 21(02)1850017. DOI: 10.1142/S0219024918500176. (IPMS EAUMP)

International Journal of Trend in Research and Development

ISSN: 2394-9333

L.F. Uwimbabazi, G.P. Pokhariyal & S.K. Moindi (2018). η -Ricci Solitons on Lorentzian Para-Sasakian Manifolds. *Int. J. Tr. Res. Dev.*, 30(2)489-496. (IPMS EAUMP)

International Review of Business Research Papers

ISSN: 1837-5685 (Print) 1832-9543 (Online)

D.C. Muteshi, Z.B. Awino, R.K. Kitiabi & G.P. Pokhariyal (2018). Firm-Level Strategy, Capabilities and Performance of Food and Beverage Manufacturing Companies in Kenya. *Int. Rev. Bus. Res. Pap.*, 14(1)19-29. (IPMS EAUMP)

Journal of Advanced Studies in Topology (1)

ISSN: 2090-8288 (print) 2090-388X (online)

J. Khalagai, G.P. Pokhariyal & N.E. Muturi (2018). Separation Axioms on Function Spaces Defined on Bitopological Spaces. *J. Adv. Stud. Topol.*, 9(2)113-118. DOI: 10.20454/jast.2018.1454 (IPMS EAUMP)

Journal of Analysis and Number Theory

ISSN: 2375-2785 (print) 2375-2807 (online)

Hunduma Legesse Geleta (2018). Error Bernoulli Polynomials and their Relation to Hermite Polynomials. *J. Anal. Number Theory*, 6:7-11. DOI: 10.18576/jant/060102 (IPMS ETH:01)

Santosh Kumar & Johnson Kessy (2018). Some fixed point theorems for two hybrid pairs of mappings in partial metric spaces. *J. Anal. Number Theory*, 6:1-6. (IPMS EAUMP)

Terentius Rugumisa & Santosh Kumar. Fixed Points of Non-Self Mappings in Partial Metric Spaces. *J. Anal. Number Theory*, 6:13-19. (IPMS EAUMP)

Journal of Applied Mathematics (1)

ISSN: 1110-757X (print) 1687-0042 (online)

C. Kasumo, J. Kasozi & D. Kuznetsov (2018). On minimizing the ultimate ruin probability of an insurer by reinsurance. *J. Appl. Math.*, Art. ID 9180780 (11 pp.). DOI: 10.1155/2018/9180780 (IPMS EAUMP)

Journal of Biological Dynamics (1) 1.576 (1.640)

ISSN: 1751-3758 (Print) 1751-3766 (Online)

Bakary Traoré, Boureima Sangaré & SadoTraoré (2018). A mathematical model of malaria transmission in a periodic environment. *J BIOL DYNAM*, 12(1)400-432. (IPMS BURK:01)

Journal of Biological Systems (1)

ISSN: 0218-3390 (Print) 1793-6470 (Online)

Bakary Traoré, Ousmane Koutou & Boureima Sangaré (2018). Global dynamics of a seasonal mathematical model of schistosomiasis transmission with general incidence function. *J. Biol. Sys.*, 26(4). (IPMS BURK:01)

Journal of Evolution Equations (1) 1.025 (0.985)

ISSN: 1424-3199 (print) 1424-3202 (online)

Khin Phyu Phyu Htoo, J. Takahashi & E. Yanagida (2018). Higher Dimensional Moving Singularities in a Superlinear Parabolic Equation. *J. Evol. Eq.*, 18(4)1575-1593. (IPMS SEAMaN)

Journal of Geosciences and Environment Protection

ISSN: 2327-4344

Triphonia Jacob Ngailo, Nyimvua Shaban, Joachim Reuder, Michel D. S. Mesquita, Edwin Rutalebwa, Isaac Mugume & Chiku Sangalungembe. Assessing Weather Research and Forecasting (WRF) Model Parameterization Schemes Skill to Simulate Extreme Rainfall Events over Dar es Salaam on 21 December 2011. *J. Geosci. Environ. Prot.*, 6:36-54. (IPMS EAUMP)

Journal of Mathematical Analysis and Applications (1) 1.138 (1.239)

ISSN: 0022-247X

Musonda J & Kaijser S (2018). Three systems of orthogonal polynomials and L^2 -boundedness of two associated operators. *J MATH ANAL APPL*, 459:464-475. (IPMS EAUMP)

Journal of Mathematical Finance (-)
ISSN: 2162-2434 (Print) 2162-2442 (Online)

S.A. Gyamerah & P. Ngare (2018). Regime-Switching Model on Hourly Electricity Spot Price Dynamics. *J. Math. Finance*, 8:102-110. DOI: 10.4236/jmf.2018.81008 (IPMS EAUMP)

Jane Aduda, P. Weke & P. Ngare (2018). A Co-Integration Analysis of the Interdependencies between Crude Oil and Distillate Fuel Prices. *J. Math. Finance*, 8:478-496. DOI: 10.4236/jmf.2018.82030 (IPMS EAUMP)

Journal of Mathematical Sciences: Advances and Applications (1)
ISSN: 0974-5750

G.I. Mirumbe & J.M. Mango (2018). On generalized solutions of locally Fuchsian ordinary differential equations. *J. Math. Sci Adv. Appl.*, 51:99-117. (IPMS EAUMP)

Journal of Mathematics (1)
ISSN: 2314-4629 (Print) 2314-4785 (Online)

Wendkouni Ouedraogo, Hamidou Ouedraogo & Boureima Sangaré (2018). A Reaction Diffusion Model to Describe the Toxin Effect on the Fish-Plankton Population. *J. Math.*, Art. ID 2037093 (15 pp.) (IPMS BURK:01)

Journal of Probability and Statistics (1)
ISSN: 1687-952X (print) 1687-9538 (online)

D. Nelson, P. Ngare & L. Odongo (2018). A Poisson-Gamma Model for Zero Inflated Rainfall Data. *J. Prob. Stat.*, 10:1-12. DOI: 10.1155/2018/1012647 (IPMS EAUMP)

Kenya Journal of Science Series A

Mung'atu, J.K., P. Weke & Mwalili, S.M. (2018). Copula Modelling of Insurance Risks with a Hierarchical Dependence Structure. *Kenya J. Sci. Ser. A*, 16(2):1-25. (IPMS EAUMP)

L.A. Musiga (2018). Uncertainty Analysis of the Availability of Cisco 12000 GSR. *Kenya J. Sci. Ser. A*, 16(2). (IPMS EAUMP)

L.A. Musiga (2018). A Stochastic Hierarchical System Steady-State Availability Model. *Kenya J. Sci. Ser. A*, 16(2). (IPMS EAUMP)

Libertas Mathematica
ISSN: 2182-567X

Feyissa Kebede (2018). Optimization problems in classes of rearrangements. *Lib. Math.*, 38:1-15. (IPMS ETH:01)

Malaya Journal of Matematik
ISSN: 2319-3786 (Print) 2321-5666 (Online)

Santosh Kumar & Terentius Rugumisa (2018). Fixed Points for Non-Self Mappings in Multiplicative Metric Spaces. *Malaya J. Mat.*, 6:800-806. DOI: 10.26637/MJM0604/0015 (IPMS EAUMP)

Santosh Kumar & Terentius Rugumisa (2018). Common Fixed Points of a Pair of Multi-valued Non-self Mappings in Partial Metric Spaces *Malaya J. Mat.*, 6:788-794. (IPMS EAUMP)

Mathematical Bioscience**(1) 1.500 (1.617)**

ISSN 0025-5564

T. Britton & D. Ouédraogo (2018). SEIRS epidemics with disease fatalities in growing populations. *MATH BIOSCI*, 296:45–59. DOI: 10.1016/j.mbs.2017.11.006 (IPMS BURK:01)

Mathematics and Computers in Simulation**(1) 1.476 (1.475)**

ISSN: 0378-4754

Babacar Léye, Jonas koko, Soulèye Kane & Mamadou Sy (2018). Numerical simulation of saltwater intrusion in coastal aquifers with anisotropic mesh adaptation. *MATH COMPUT SIMULAT*, 154:1-18. (IPMS BURK:01)

Mediterranean Journal of Mathematics**(1) 1.000 (0.922)**

ISSN: 1660-5446 (Print) 1660-5454 (Online)

T. Mengestie & M. Worku (2018). Topological structures of generalized Volterra-type integral operators. *Mediterr. J. Math.* 15(16) Art. 42. (IPMS ETH:01)

Monte Carlo Methods and Applications

ISSN: 0929-9629

Emmanuel Evarest, Martin Singull, Fredrik Berntsson & Xiangfeng Yang (2018). Weather derivative pricing using regime switching model. *Monte C. Meth. Appl.*, 24(1). DOI: 10.1515/mcma-2018-0002 (IPMS EAUMP)

Nonlinear Dynamics and Systems Theory**(1)**

ISSN: 1562-8353 (Print) 1813-7385 (Online)

Hamidou Ouedraogo, Wendkoui Ouedraogo & Boureima Sangaré (2018). A Self-Diffusion Mathematical Model to Describe the Toxin Effect on the Zooplankton-Phytoplankton Dynamics. *Nonlin. Dyn. Sys. Theory*, 18(4)392-408. (IPMS BURK:01)

Open Journal of Ecology**(-)**

ISSN: 2162-1985

Alanus Mapunda, Eunice Mureithi, Shaban Mbare & Sagamiko Thadei (2018). Effects of over-harvesting and drought on the predator-prey population with optimal control. *Open J. Ecol.*, 08(08)459-482. DOI: 10.4236/oje.2018.88028 (IPMS EAUMP)

Physica A: Statistical Mechanics and its Applications (1) 2.132 (2.076)

ISSN: 0378-4371

A. Diouf, H. Mokrani, D. Ngom, M. Haque, B.I. Camara: Detection and computation of high codimension bifurcations in diffuse predator-prey systems; *PHYSICA A*, 516:402-411. DOI: 10.1016/j.physa.2018.10.027 (IPMS BURK:01)

Tanzania Journal of Science

ISSN: 2507-7961

R. Kitengeso, E. Mureithi, J. Makungu & J. Mango (2018). Effects of magnetic fields on an unsteady mixed convective boundary layer flow of an electrically conducting fluid with temperature dependent properties. *Tanzania J. Sci.*, 44(3)103-114. (IPMS EAUMP)

Books, Book Chapters, Popular Publications, Technical Reports, etc

Hamidou Toure & Issa Zabsonre (2018). Weighted Stepanov-Like Pseudo Almost Automorphic Solutions of Class r for Some Partial Differential Equations. Springer Nature Switzerland AG 2019J. Delgado and M. Ruzhansky (Eds.): Analysis and Partial Differential Equations: Perspectives from Developing Countries, PROMS 275, pp. 242–269. DOI: 10.1007/978-3-030-05657-5_15
(IPMS BURK:01)

Diene Ngom, Benjamin Ivorra & Ángel M. Ramos (2018). Stability analysis of a compartmental SEIHRD model for the Ebola Virus Disease. In R Anguelov, M Lachowicz, Mathematical Methods and Models in Biosciences, Biomath Forum, Sofia, 2018, pp. 44-56. DOI: 10.11145/texts.2017.12.165
(IPMS BURK:01)

David Koloseni, Tove Helldin & Vicenç Torra (2018). Absolute and relative preference to AHP-like matrices Data Science and Knowledge Engineering for Sensing Decision Support. Proc. 13th International FLINS Conference (FLINS 2018), pp. 260-267. ISBN: 978-981-3273-22-1 (print) 978-981-3273-24-5 (electronic)
(IPMS EAUMP)

Augustin T. Batubenge & Wallace Haziq (2018). Symplectic Affine Action and Momentum Cocycle. Chapter in the book Mathematical Structures and Applications, by Toka Diagana and Toni Bourama, Springer, p. 119-135.
(IPMS EAUMP)

Physics Publications

IPPS partners reported 132 publications (Table 24). In the 128 articles in scientific journals, ISP was acknowledged in 36% of the 80 publications in all “quality journals”, and in 58% of the 48 publications in “other journals”. Totally 53% of the articles were in “quality journals”. Among publications in other journals, 4 were in journals characterized as “predatory”. In addition, 14 publications reported were book chapters, popular publications, etc.

Table 24. Summary by region of publication data for Mathematics. The number of publications (Publ.) in scientific journals is specified to those with and without Thomson Reuters (TR) impact factors (IF) or Norwegian Centre for Research Data (NCDR) ranking (see explanation in the first paragraphs of this appendix, and whether ISP funding was acknowledged (Y) or not (N). (L.Am. = Latin America)

Publication category	Africa yes / no	Asia yes / no	LatAm yes / no	Total yes / no
ISP acknowledged (publ. in scientific journals only)				
Publ. in Scientif. Quality J. (TR or TR+ NCRD ranked)	17 / 26	10 / 25	2 / 0	29 / 51
Publ. in Scientific Quality Journals (NCRD ranked only)	1 / 1	2 / 1		3 / 2
Publ. in Scientific Journals (“unranked”)	18 / 7	6 / 13		24 / 20
Publ. in Journals by “predatory publishers”	2 / 0	2 / 0		4 / 0
Books, Chapters, Popular Publ., Technical Reports, etc.	0 / 2	0 / 2		0 / 4
Total number of publications	72	58	2	132

Publications in Scientific Journals

AAPPS Bulletin

(-)

ISSN 0218-2203

Chan Oeurn Chey, John Briggs, Tharith Sriv, Kimleang Khun, Kalyan Sou & Seang Hor Eang (2018). Physics Education and Research at Royal University of Phnom Penh. AAPPS Bull., 28(4)47-50.

(IPPS CAM:01)

Acta Crystallographica E: Crystallographic Communications

ISSN 2056-9890

(1)

M Ouédraogo, A Abou, A Djandé, O Ouari & TJ Zoueu (2018). 2-Oxo-2H-chromen-7-yl 4-tert-butylbenzoate. Acta Cryst., E74(4)530-534. DOI: 10.1107/S205698901800418 (IPPS AFSIN)

A Abou, J Yoda, A Djandé, S Coussan & TJ Zoueu (2018). Crystal structure of 2-oxo-2H-chromen-7-yl 4-fluorobenzoate. Acta Cryst., E74(5)761-765. DOI: 10.1107/S205698901800614X

(IPPS AFSIN)

Advanced Materials and Technologies

ISSN 2414-4606 (Print), 2541-8513 (Online)

U Habiba, S Manjura Hoque, SI Liba & HK Rouf (2018). Magnetocaloric Effects of Barium-Strontium Ferrites for Magnetic Refrigeration System. Adv. Mat. Technol., 4:25-29.

DOI:10.17277/amt.2018.04.pp.025-030

(IPPS BAN:02/2)

Advanced Powder Technology (1) 3.250 (3.101)
ISSN 0921-8831

H Das, N Debnath, A Toda, T Kawaguchi, N Sakamoto & S. Manjura Hoque (2018). Controlled synthesis of dense MgFe₂O₄ nanospheres by ultrasonic spray pyrolysis technique: Effect of ethanol addition to precursor solvent. ADV POWDER TECHNOL, 29(2)283-288. (IPPS BAN:02/2)
DOI: 10.1016/j.appt.2017.11.014

Advances in Condensed Matter Physics 0.653 (1.141)
ISSN 1687-8108

Dioari Ulrich Combari, Emmanuel Wendsongré Ramde, Idrissa Sourabie, Martial Zoungrana, Issa Zerbo & Dieudonné Joseph Bathiebo (2018). Performance Investigation of a Silicon Photovoltaic Module under the Influence of a Magnetic Field. ADV COND MATTER PHYS, 2018:6096901 (8 pp.). DOI: 10.1155/2018/6096901 (IPPS BUF:01)

Advances in Polymer Technology (1) 2.663 (1.986)
ISSN 0730-6679 (Print), 1098-2329 (Online)

Nasima Banu, Abu H. Bhuiyan & Khandker S. Hossain (2018). Characterization of structural and optical properties of plasma polymerized diethanolamine thin films. ADV POLYM TECH, 37(8)3084-3094. DOI: 10.1002/adv.22079 (IPPS BAN:05)

Afrique Science
ISSN 1813-548X

Cheick Oumar Kindo, Cheick Diarra & Abdramane Ba (2018). Simulation par le modèle HYSPLIT du transport des aérosols des feux de biomasse dans la boucle du Baoulé. Mali. Afrique Sci., 14(3)220-233. (IPPS MAL:01)

AIP Advances (1) 1.579 (1.731)
ISSN 2158-3226 (Online)

Muthui Zipporah, Musembi Robinson, Mwabora Julius & Kashyap Arti (2018). Perpendicular Magnetic Anisotropy in Mn₂VIn Films: An ab initio Study. AIP ADV, 8(5)055701 (7 pp.). DOI: 10.1063/1.5007211. (IPPS KEN:02)
(IPPS MSSEESA)

P. Roy, S. Manjura Hoque, S.I. Liba & Shamima Choudhury (2018). Investigation of various magnetic features of spinel type cobalt ferrite (CoFe₂O₄) nanoparticles tuned by annealing temperature. AIP ADV 8(10)105124 (10 pp.). DOI: 10.1063/1.5040890 (IPPS BAN:02/2)

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(1) 2.791 (2.826)

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ISSN 2397-3366

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(IPPS UGA:02)
(IPPS EAARN)

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ISSN 2413-9009

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(IPPS MSSEESA)

Nicholas Musila, Mathew Munji, Justus Simiyu, Eric Masika & Raphael Nyenge (2018). Effect of TiO₂ Compact Layer on DSSC Performance. Path Sci., 4(9)5001-5008. DOI: 10.22178/pos.38-10 (IPPS KEN:02)
(IPPS MSSEESA)

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(IPPS MSSEESA)

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ISSN 2469-9985

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ISSN 2475-9953

T Demonchaux, KK Sossoe, MM Dzagli, JP Nys, M Berthe, D Troadec, A Addad, M Veillerot, G Patriarche, HJ Von Bardeleben, M Schnedler, C Coinon, I Lefebvre, MA Mohou, D Stiévenard, JF Lampin, Ph Ebert, X Wallart & B Grandidier (2018). Chemical nature of the anion antisite in dilute phosphide alloy grown at low temperature. PHYS REV MATER, 2(10)104601:1-11. DOI: 10.1103/PhysRevMaterials.2.104601 (IPPS AFSIN)

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ISSN 2050-3911

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ISSN 1583-4433

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M.A. Basith, Nilufar Yesmin & Rana Hossain (2018). Low temperature synthesis of BiFeO₃ nanoparticles with enhanced magnetization and promising photocatalytic performance in dye degradation and hydrogen evolution. RSC ADV, 8(52)29613-29627. DOI: 10.1039/C8RA04599B (IPPS BAN:02/1)

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ISSN 1468-6996 (Print), 1878-5514 (Online)

N. Debnath, T. Kawaguchi, H. Das, S. Suzuki, W. Kumasaka, N. Sakamoto, K. Shinozaki, H. Suzuki & N. Wakiya (2018). Magnetic-field-induced phase separation via spinodal decomposition in epitaxial manganese ferrite thin films. SCI TECHNOL ADV MAT, 19(1)507-516. (IPPS BAN:02/2)
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ISSN 2045-2322

M.A. Basith, Ragib Ahsan, Ishrat Zerine & M.A. Jalil (2018). Enhanced photocatalytic dye degradation and hydrogen production ability of Bi₂FeO₄-rGO nanocomposite and mechanism insight. SCI REP-UK, 8(1)11090 (11 pp.). DOI:10.1038/s41598-018-29402-w (IPPS BAN:02/1)

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ISSN 1744-6848

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Sustainable Energy Technologies and Assessments (1) 3.456 (-)
ISSN 2213-1388

R. Lugolole, A. Mawire, K.A. Lentswe, D. Okello & Karidewa Nyeinga (2018). Performance comparison of three Sunflower Oil based sensible heat thermal energy storage systems during charging cycles. SUSTAIN ENERGY TECHN, 30:37-51. DOI: 10.1016/j.seta.2018.09.002. (IPPS UGA:01/1)

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ISSN 2507-7961 (Print) 2507-7961 (Online)

Austine A Mulama, Julius M Mwabora, Andrew O Oduor & Cosmas M Muiva (2018). Compositional and Thickness Effects on the Optical Properties of Zinc-Doped Selenium-Antimony Thin Films. Tanz. J. Sci., 44(4)51-58. (IPPS KEN:02)
(IPPS MSSEESA)

³¹ N:o 44(4) is a "Special Issue of the Materials Science and Solar Energy Network for Eastern and Southern Africa (MSSEESA)"

Francis W Nyongesa, Bernard O Aduda & Wilson G Nyaga (2018). Electrophoretic Deposition of TiO₂ Thin Films for Photocatalytic Degradation of Organic Pollutants in Water. *Tanz. J. Sci.*, 44(4)65-76.

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(IPPS MSSEESA)

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John Paul Eneku, Tom Otiti, Julius M. Mwabora & David Horwat (2018). Effect of substrate radial-position measured from the sputter-gun axis on the electrical, optical and structural properties of ZnO thin films deposited by reactive direct current magnetron sputtering. *Tanz. J. Sci.*, 44(4)12-20.

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Hezekiah B Sawa, Margaret E Samiji & Nuru R Mlyuka (2018). Effects of Selenized DC Sputtered Precursor Stacking Orders on the Properties of Cu₂ZnSnSe₄ Absorber Layer for Thin Film Solar Cells. *Tanz. J. Sci.*, 44(4)1-11.

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Cephas J Lyobha, Nuru R Mlyuka & Margaret E Samiji (2018). Effects of Aluminium and Tungsten Co-Doping on the Optical Properties of VO₂ Based Thin Films. *Tanz. J. Sci.*, 44(4)91-99.

(IPPS TAN:01/2)
(IPPS MSSEESA)

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(IPPS TAN:01/2)
(IPPS MSSEESA)

Benard Tabu, Denis Okello, Chaciga Jimmy & Nyeinga Karidewa (2018). Thermal performance of selected oils in Uganda for indirect solar domestic cooking applications. *Tanz. J. Sci.*, 44(4)77-90.

(IPPS UGA:01/1)
(IPPS MSSEESA)

Jimmy Chaciga, Nyeinga Karidewa & Denis Okello, Benard Tabu (2018). Construction of a High Temperature (~ 200 °C) Oil Pump for Solar Thermal Energy Storage System for Cooking Applications. *Tanz. J. Sci.*, 44(4)21-35.

(IPPS UGA:01/1)
(IPPS MSSEESA)

Transportation Research Part D – Transport and Environment

ISSN 1361-9209

(2) 3.445(3.788)

M.J. Gatari, P.L. Kinney, B. Yan, E. Sclar, N. Volavka-Close, N. Ngo, S.M. Gaita, A. Law, P.K. Ndiba, A. Gachanja, J. Graeff & S.N. Chillrud (2018). High airborne black carbon concentrations measured near roadways in Nairobi, Kenya. *TRANSPORT RES D-TR E*, 68:99-109.

DOI: 10.1016/j.trd.2017.10.002

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ISSN 1300-0101 (Print), 1303-6122 (Online)

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Vadose Zone Journal

(1) 3.634 (2.839)

ISSN 1539-1663 (Print), 1539-1663 (Online)

S. Galle, M. Grippa, C. Peugeot, I. Bouzou Moussa, B. Cappelaere, J. Demarty, E. Mougin, G. Panthou, P. Adjomayi, E.K. Agbossou, A. Ba, M. Boucher, J.-M. Cohard, M. Descloitres, L. Descroix, M. Diawara, M. Dossou, G. Favreau, F. Gangneron, M. Gosset, B. Hector, P. Hiernaux, B.-A. Issoufou, L. Kergoat, E. Lawin, T. Lebel, A. Legchenko, M. Malam Abdou, O. Malam-Issa, O. Mamadou, Y. Nazoumou, T. Pellarin, G. Quantin, B. Sambou, J. Seghieri, L. Séguis, J.-P. Vandervaere, T. Vischel, J.-M. Vouillamoz, A. Zannou, S. Afouda, A. Alhassane, M. Arjounin, H. Barral, R. Biron, F. Cazenave, V. Chaffard, J.-P. Chazarin, H. Guyard, A. Koné, I. Mainassara, A. Mamane, M. Oi, T. Ouani, N. Soumaguel, M. Wubda, E.E. Ago, I.C. Alle, A. Allies, F. Arpin-Pont, B. Awessou, C. Cassé, G. Charvet, C. Dardel, A. Depeyre, F.B. Diallo, T. Do, C. Fatras, F. Frappart, L. Gal, T. Gascon, F. Gibon, I. Guiro, A. Ingatan, J. Kempf, D.O.V. Kotchoni, F.M.A. Lawson, C. Leauthaud, S. Louvet, E. Mason, C.C. Nguyen, B. Perrimond, C. Pierre, A. Richard, E. Robert, C. Román-Cascón, C. Velluet & C. Wilcox (2018). AMMA-CATCH, a critical Zone Observatory in West Africa. Monitoring a Region in Transition. *VADOSE ZONE J*, 17(1)2-24. (IPPS MAL:01) DOI: 10.2136/vzj2018.03.0062

Books, Book Chapters, Popular Publications, Technical Reports, etc

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KS Rabbani (2018). Focused Impedance Method: Basics and Applications. *In Simini F., Bertemes-Filho P. (Eds): Bioimpedance in Biomedical Applications and Research*. Springer, Cham, pp. 137–185. DOI: 10.1007/978-3-319-74388-2_9, ISBN (Print): 978-3-319-74387-5. (IPPS BAN:04)

Ahmed Sayyid, Justus Simiyu (2018). Proposed Distributed Energy Solar PV System at University of Nairobi for Captive Energy Use. Consultancy Report, University of Nairobi. (IPPS KEN:02)

Sompaserth. S., Singsoupho. S., Xayavong. V., Xaunsuandao, T. (2018) Structural Geology. (In Lao)³² (IPPS LAO:01)

³² This book is written in the Lao language and summarizes basic concepts of geology and structural geology for geophysics students at National University of Laos. It is published in National University of Laos (Vientiane).

APPENDIX 3. CONTRIBUTIONS TO CONFERENCES, WORKSHOPS AND MEETINGS

Meetings are listed chronologically for each country, and contributions listed according to ISP group/network code, whether oral or poster, and then by author.

International

ISP partners reported 236 contributions to international scientific conferences (67% oral; Table 25). IPICS partners reported 52 (73% oral), IPMS partners 33 (82% oral), and IPPS partners 151 (62% oral).

Table 25. Number of poster (P) and oral (O) contributions to international scientific meetings in the listed countries, by scientists in ISP-supported groups and networks

Region	Country	IPICS		IPMS		IPPS		Total	
		P	O	P	O	P	O	P	O
Africa	Botswana				9			0	9
Africa	Cameroon				1			0	1
Africa	Ethiopia				1			0	1
Africa	Kenya	8	15			2	2	10	17
Africa	Niger					2		2	
Africa	Senegal				1				1
Africa	South Africa		1						1
Africa	Tanzania					1		1	
Africa	Total	8	16		12	5	2	13	30
Asia	Bangladesh		3			39	58	39	61
Asia	Cambodia		3	5				5	3
Asia	China						1	0	1
Asia	India						1	0	1
Asia	Japan		1					0	1
Asia	Laos		2					0	2
Asia	Malaysia		2					0	2
Asia	Myanmar					2	15	2	15
Asia	Singapore					1		1	
Asia	South Korea		3			1		1	3
Asia	Thailand						2		2
Asia	Total		14	5		43	77	48	91
Europe	Austria					3	1	3	1
Europe	Belgium		1					0	1
Europe	Czech Republic			1	1		2	1	3
Europe	France						2	0	2
Europe	Germany		1					0	1
Europe	Greece				3			0	3
Europe	Hungary				4			0	4
Europe	Italy		1		1			0	2
Europe	Netherlands	2						2	
Europe	Serbia						1		1
Europe	Spain	1	1			3	2	4	3
Europe	Sweden				2		2		4
Europe	United Kingdom		1		2	1		1	3
Europe	Total	3	5	1	13	7	10	11	28
North America	USA		1		1	3	4	3	6
North America	Total		1		1	3	4	3	6
South America	Argentina	2	1					2	1
South America	Bolivia		1					0	1
South America	Brazil				1			0	1
South America	Mexico	1	0					1	0
South America	Total	3	2		1			32	3
All countries		14	38	6	27	58	93	78	158

Argentina

Drug Discovery for Neglected Diseases International Congress 2018 & 4th Scientific Meeting of the Research Network Natural Products against Neglected Diseases, 4-7 Dec., Buenos Aires

Abd Algaffar, S.O., VandeSande, W.J., Khalid S.A. & Schmidt T.J. *In vitro* susceptibility of *Madurella mycetomatis* to essential oils and pure constituents – a preliminary report. (P)
(IPICS NAPRECA)

Abd Algaffar, S.O., Van de Sande, W.J., Nnadi, C.O., Khalid S.A. & Schmidt T.J. *In vitro* antifungal activity and *in vivo* toxicity of structurally related steroid and secocycloartanoid alkaloids against *Madurella mycetomatis*. (P)
(IPICS NAPRECA)

Khalid SA. The *in vitro* antifungal activity and *in vivo* toxicity of structurally related steroid and secocycloartanoid alkaloids against *Madurella mycetom.* (O)
(IPICS NAPRECA)

Austria

2nd Technical Meeting on Radiation Detection Instruments for Nuclear Security: Trends, Challenges and Opportunities, 16-20 Apr., IAEA, Vienna

Angeyo. K. H. Combining Radiation with Microphotonics for Rapid Nuclear Forensics Detection. (P)
(IPPS AFSIN)
(IPPS KEN:04)

3rd Research Coordination Meeting of the Coordinated Research Project on Geochemical and Mineralogical Characterization of Uranium and Thorium Deposits, 4 June, IAEA, Vienna

Angeyo K.H. Radiometric and Spectroanalytical Characterization of Uranium-Bearing Geological Matrices – Some Results from Kenya. (O)
(IPPS AFSIN)
(IPPS KEN:04)

The XXXth General Assembly of the International Astronomical Union, 20-31 Aug., Vienna,

E. Jurua, F. Kampindi & O. Trust. KIC 5110739: A new red giant in NGC 6819. (P)
(IPPS UGA:02)

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M.A.A. Bally, F.A. Khan, P. Svedlindh, S.A. Ivanov, P. Nordblad, & M.S. Andersson. Structural and Magnetic Properties of $\text{Sm}_{0.5}\text{Ca}_{0.5-x}\text{Sr}_x\text{MnO}_3$. (P)
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B Rokeya. Ethnopharmacology & drug development: innovation meets tradition. (O)
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P.C. Karmaker, M.O. Rahmn, N.H. Dan, S.I. Liba, P. Nordblad & S. M. Hoque. Thermal Behavior and Magnetic Properties of Co-rich Nd₂Fe₁₄B/Fe₃B Nanocomposite Magnetic Mel-Spun Ribbons with partial substitution of Tb for Nd. (O) (IPPS BAN:02/2)

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K Siddique-e Rabbani. Biomedical Engineering research targeting people in low resource countries. (O) (IPPS BAN:04)

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M. Shoeb. Scope of Natural Products for Drug Discovery. (O) (IPICS BAN:04)
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- K Siddique-e Rabbani. Applying Physics to Life. (O) (IPPS BAN:04)

MdM. Rahman, S.C. Ghosh, K.S. Hossain, M. Hoq & Md Khairul Bashar. Effect of surface processing on optical and morphological properties of solar-grade monocrystalline silicon wafer. (O) (IPPS BAN:05)

Md Jahirul Islam, Tanisha Mehreen, Mohammad Abul Hossain, & Khandker S. Hossain. Structural and electrical properties of carbon nanoparticles synthesized from kerosene. (O) (IPPS BAN:05)

Afsana Mimi Raka, Akihiko Takada & Khandker S. Hossain. Effect of Heat Treatment on Association Properties of Sugar Beet Pectin. (P) (IPPS BAN:05)

R.H. Rakin, MdR. Hossain, K.S. Hossain & S.C. Ghosh. Estimation of potential roof top photovoltaic capacity for a planned neighborhood of Dhaka using GIS data. (P) (IPPS BAN:05)

Zannatul Ferdous & Sabina Hussain. Effects of temperature on the properties of ferric oxide thin films deposited by spray pyrolysis and chemical bath deposition techniques. (P) (IPPS BAN:05)

Int. Conf. on Innovations in Science, Engineering and Technology, 27-28 Oct., Chittagong,

Khorshed Alam, Tanisha Mehreen, Mohammad Khairul Basher, Mohammad Abu Sayid Haque, Subir C. Ghosh & Khandker S. Hossain. Fabrication and Characterization of a P-N Junction for Large Area Silicon Solar Cell. (O) (IPPS BAN:05)

Int. Joint Conf. on Computational Intelligence (IJCCI 2018), organised by Daffodil Intl. Univ., Jahangirnagar Univ., Bangladesh, and South Asian Univ. of India, 14 Dec., Dhaka

K Siddique-e Rabbani. The importance of indigenous development of computer based technology in healthcare - seen through a chronicle of our own efforts. (O) (IPPS BAN:04)

Belgium

Tropentag 2018. International Research on Food Security, Natural Resource Management and Rural Development. Global food security and food safety: the role of universities, 17-18 Sep., Ghent

V. Umulisa, B. Reichert & D. Kalisa. Practices and perceptions of pesticide use in tropical wetlands: An assessment from the Nyabarongo lower catchment in Kigali, Rwanda. (O) (IPICS RWA:01)

Bolivia

I Congreso Int. de investigación en las áreas de salud, económicas, sociales y exactas, 22 Oct., Sucre

Jaime Rodríguez. Infrared spectroscopy applied to studies in pest control. (O) (IPICS BOL:01)

Botswana

SAMSA 2018, 19-22 Nov., Palapye

Tilahun Abebaw & Tadesse Wubshet. On Generalized Derivations and Commutativity of Prime Near-Rings. (O) (IPMS ETH:01)

Manalebish Debalike Asfaw, Semu Mitiku Kassa & Edward M Lungu. Stochastic plant-herbivore interaction model with Allee effect. (O) (IPMS ETH:01)

Kurujiyiwami Célestin. Admissible transformations of (1+1)-dimensional Schrödinger equations with variable mass. (O) (IPMS EAUMP)

- D. Ndanguza. Modeling the effects of toxic waste on population dynamics. (O) (IPMS EAUMP)
- Japhet Niyobuhungiro. An Efficient Graph-Based Iterative Total Variation Minimizer for Applications in Imaging. (O) (IPMS EAUMP)
- Eunice Mureithi. Analysis of a Holling type II Stage Structured Predator-Prey system in the presence of Harvesting. (O) (IPMS EAUMP)
- Santosh Kumar. Common fixed points for a pair of non-self mappings in partial metric spaces. (O) (IPMS EAUMP)
- Juma Kasozi. A numerical method to find the probability of ultimate ruin in an insurance model with stochastic investment returns. (O) (IPMS EAUMP)
- David Ssevviiri. Nilpotent elements control the structure of a module. (O) (IPMS EAUMP)

Brazil

International Congress of Mathematicians (ICM2018, 31 July - 9 Aug., Rio de Janeiro

- Abdou SENE. Global Stabilization of the Navier-Stokes Equations Around an Unstable Steady State with Mixed Boundary Kinetic Energy Controller. (O) (IPMS BURK:01)

Cambodia

ICPAC 2018, 7-10 Mar. Siem Reap

- Sorya Proum, Seladavit Sath & Sreileap Yan. Seasonal variation of metals (Cd, Cu, Fe, Pb and Zn) in surface water of tropical riverinesystem, Cambodia. (O) (IPICS CAB:01)
- Phan, K. & Kim, KW. Assessing arsenic health issues in the Mekong River basin of Cambodia. (O) (IPICS CAB-CCS)

UNICAM conference "Sustainable Agriculture in Cambodia Current knowledge applications and future needs", 27-29 Aug., Siem Reap

- Phan, K. & Kim, KW. A review of environmental contaminations and health in Cambodia. (O) (IPICS CAB-CCS)

The 2nd Angkor Internat. Conf. on Applied Mathematics and Statistics, 19-21 Nov., Siem Reap

- Peng Yun. Mathematical Modelling in Biology. (P) (IPMS SEAMaN)
- Kimhuo Heang. Finite Element approximation for Elliptic Problems. (P) (IPMS SEAMaN)
- Sokly It. Variable Selection for Modeling linear regression. (P) (IPMS SEAMaN)
- Kunthea Nget & Somalinoch Koeurn. Numerical Solution for Ordinary Differential Equation. (P) (IPMS SEAMaN)
- Keo Viwath & Neang Pheak. Finite Difference approximation for Elliptic Problems. (P) (IPMS SEAMaN)

Cameroon

AIMS-Volkswagen Stiftung Workshop on Introduction to Orthogonal Polynomials and Applications, 5-12 Oct., Douala

J. Musonda. Three systems of orthogonal polynomials and L_2 -boundedness of two associated operators. (O) (IPMS EAUMP)

China

International Conference for the Decade Memory of the Wenchuan Earthquake, 12-14 May, Chengdu

Atalay Ayele. Probabilistic seismic hazard analysis (PSHA) for Ethiopia and the neighboring region. (O) (IPPS ETH:02)

Czech Republic

IUPESM 2018 - World Congress on Medical Physics & Biomedical Engineering, 3-8 June, Prague

K Siddique-e Rabbani. Do we need undergraduate education in medical physics & biomedical engineering? (O) (IPPS BAN:04)

K Siddique-e Rabbani. Experience of indigenous technology based telemedicine in rural Bangladesh - years of successful implementation. (O) (IPPS BAN:04)

32nd International Colloquium on Group Theoretical Methods in Physics, 9-13 July, Prague

J. Musonda. Twisted difference operator representations of deformed Lie type commutation relations. (O) (IPMS EAUMP)

56th Summer School on Algebra & Ordered Sets, 2-7 Sep., Špindlerův Mlýn

Nega Arega & John van den Berg. Commutativity in the lattice of topologizing filters of a commutative semiartinian ring. (P) (IPMS ETH:01)

Ethiopia

3rd International Workshop of AWMA, 6-7 Dec., Addis Ababa

Manalebish D. Asfaw & Robert Smith. Modelling Treatment Switching. (O) (IPMS ETH:01)

France

Rencontre des jeunes chercheurs africains en France, Third Edition, 6-7 Dec., Paris.

Jeremie T. Zoueu. Multispectral Imaging and Microscopic Diagnostics. (O) (IPPS AFSIN)

Marie Florence Yebouet. Super-resolution and tomographic microscopy. (O) (IPPS AFSIN)

Germany

Grand Challenges Annual Meeting, 15 Oct., Berlin

Collen Masimirembwa. Strengthening African Research and Development Ecosystem. (O) (IPICS ZIM:AiBST)

Greece

5th Stochastic Modeling Techniques and Data Analysis International Conference and Demographics Workshop, June, Chania, Crete

Abola. B, Biganda. P., Engström. C. Magero. J.M., Kakuba. G. & S. Silvestrov. Updating of PageRank in Evolving Tree Graphs. (O) (IPMS EAUMP)

Biganda. P., Abola. B., Engström. C., Magero. J.M., Kakuba. G. & S. Silvestrov. Exploring the relationship between ordinary PageRank, lazy PageRank and random walk with backstep PageRank for different graphs structures. (O) (IPMS EAUMP)

Asaph Muhumuza. The Generalized Vandermonde Interpolation Polynomial Based on Divided Differences. (O) (IPMS EAUMP)

Hungary

Building Bridges: 4th EU/UK Summer School + Workshop on Automorphic Forms and Related Topics Renyi Institute, 9-20 July, Budapest

Hunduma Legesse Geleta. Error Bernoulli Polynomials and their Relation to Hermite Polynomials. (O) (IPMS ETH:01)

The 20th European Conference on Mathematics for Industry, 18-22 June, Budapest

Kakuba Godwin. Properties of Local Defect Correction for Boundary Element Methods. (O) (IPMS EAUMP)

IWAP2018 International Workshop on Applied Probability. ELTE University, 18-21 June, Budapest

Asaph Muhumuza. The Multivariate Wishart Distribution Based on Generalized Vandermonde Determinant. (O) (IPMS EAUMP)

Biganda. P., Abola. B., Engström, C., Magero. J.M., Kakuba. G. & S. Silvestrov. Comparison of PageRank of Perturbed Markov chains of First and Second Order. (O) (IPMS EAUMP)

India

4th WHO Global Forum on Medical Devices, 13-15 Dec., Visakhapatnam

K. Siddique-e Rabbani. Indigenous development of medical devices – a must for low resource countries. (O, through video) (IPPS BAN:04)

Italy

Combinatorics 2018 conferenc, 3-9 June, Arco

Samuel Asefa Fufa. On Combinatorics of Partition Posets. (O) (IPMS ETH:01)

TWAS 14th General Conference, 27-29 Nov., Trieste

M.Y. Yeshak. Lessons from Traditional Medicine: case of *Satureja punctata* as an example. (O) (IPICS ETH:02)

Japan

5th Int. Arsenic Symp. MIYAZAKI 2018: Environ. Impact and Health Hazards, 22-25 June, Miyazaki

Phan, K. & Kim, KW. Arsenic health risk in foodstuffs in the Mekong River basin of Cambodia. (O)
(IPICS CAB-CCS)

Kenya

International Conference of Natural Products, NAPRECA - Kenya, 8-10 Feb., Nairobi.

Daniel Buyinza, Solomon Derese, Abiy Yenesew, Leonidah Kerubo, Amir O. Yusuf & Matthias Heydenreich. Antimicrobial Study of Compounds from *Zanthoxylum holstzianum*. (P)
(IPICS KEN:02)
(IPICS NAPRECA)

Chepkirui Carolyne, Mbugua Martin, Matthias Heydenreich & Abiy Yenesew. Alkaloids from *Erythrina brucei*. (P)
(IPICS KEN:02)
(IPICS NAPRECA)

Solomon Derese, Albert Ndakala, Michael O. Rogo, Scolastica Manyim, James Oyim, Stephanie Kamunya & Sydney Mwasambu. Mining natural products of Kenya for the design of antiplasmodials. (P)
(IPICS KEN:02)
(IPICS NAPRECA)

Induli, M., Cheloti, M., Wasuna, A, Wanjohi, J., Byamukama, R., Heydenreich, M., Makayoto, M., Yenesew, A. Antimicrobial naphthoquinones from the roots of *Aloe secundiflora*. (P)
(IPICS KEN:02)
(IPICS NAPRECA)

Jacob O Midiwo. Chemical constitution of some Kenyan medicinal plants. (O) (IPICS KEN:02)
(IPICS NAPRECA)

B. Ndunda, J.O. Midiwo, L.O. Kerubo, M.K. Langat & D.A. Mulholland. The Phytochemistry and Biological Activity Investigations of Kenyan *Croton* species. (O)
(IPICS KEN:02)
(IPICS NAPRECA)

Leonidah Kerubo Omosa, Victor Kuete, Viviane R. Sipowo Tala, Jacob O. Midiwo, Armelle T. Mbaveng, Sauda Swaleh, Oğuzhan Karaosmanoğlu & Hülya Sivas. Cytotoxicity of plumbagin, rapanone and 12 other naturally occurring quinones from Kenyan flora towards human carcinoma cells. (O)
(IPICS KEN:02)
(IPICS NAPRECA)

Yaouba S., Guantai E.M., Valkonen A., Derese S., Irungu B., Heydenreich M., Coghi P., Wong V., Erdélyi M. & Yenesew A. *Ent*-kaurene Diterpenes from *Aspilia pluriseta* Schweinf and *Aspilia mossambicensis* (Oliv) Wild (Asteraceae). (O)
(IPICS KEN:02)
(IPICS NAPRECA)

Abiy Yenesew, T. Deyou, M. Heydenreich, A. Koch, C.M. Bosire, C.M., J. Kabar, S. Derese & M. Erdélyi. Rotenoids from *Milletia* species –structure, stereochemistry and biological activity. (O)
(IPICS KEN:02)
(IPICS NAPRECA)

Induli, M., Gebru, M., Abdissa, N., Akala, H., Byamukama, R., Heydenreich, M., Dagne, E. & Yenesew, A. Antiplasmodial Quinones from the Rhizomes and Roots of *Kniphofia foliosa*. (O) (IPICS NAPRECA)

Stephen S. Nyandoro, Joan J.E. Munissi, Clarence A. Mgina & Mate Erdelyi. Novel chemistry with remarkable anti-TB, anti-cancer and antimalarial properties from rare Tanzanian plant species. (O) (IPICS NAPRECA)

International Inorganic Chemistry Conference, 22-24 May, Nairobi.

D.K. Kariuki. Doctoral Training in Inorganic Chemistry for Technological Innovations and Socio-Economic Development. (O) (IPICS KEN:01)

J. Khisa, R. Odhiambo, S. Derese & E.K. Amuhaya. Synthesis and Photophysical Properties of Porphyrin Based Compounds for Application in PACT for Water Treatment. (P) (IPICS KEN:01)

R.E.N. Njogu, L.W. Njenga, D.K. Kariuki, A.O. Yusuf & O.F. Wendt. Tris-Cyclometalated Iridium (III) Complexes: Synthesis, Characterization and Selected Applications. (O) (IPICS KEN:01)

R.A. Odhiambo, A.O. Aluoch, L.W. Njenga, S.M. Kagwanja, S.O. Wandiga & O.F. Wendt. Ruthenium(II) Oxathia Crown Ether Complexes: Synthesis, Characterization and their Application in the Detection of Mercury(II) Ions. (O) (IPICS KEN:01)

A. Okeyo, D.K. Kariuki & O. Osiro. Fluoridation of Locally Formulated Dental Cement and Investigation of Fluoride Dissipation to Assess Suitability in Dental Restoration. (P) (IPICS KEN:01)

Otieno S., Odhiambo R., S. Derese & E. Amuhaya. Synthesis and Photo-Physical Studies of Structurally Modified Meso Si-Porphyrin Dye for application in Water Treatment for Domestic Use. (P) (IPICS KEN:01)

V. Madadi, S.O. Wandiga & C.P. Mwendwa. Photocatalytic Disinfection of *E. coli* in Water Using Copper/Zinc Metal/Metal Oxide Photocatalyst. (O) (IPICS KEN:01)

Masese F.A., Wandiga S.O., Madadi V.O. & Mbui D.N. Water Quality Status of Selected Sources of Domestic Water in Kenya. (O) (IPICS KEN:01)

Mbugua, S.N., Njenga, L.W., Onani, M.O., Meyer, M., Odhiambo, R.A. & Wandiga, S.O. New Bis(Pyrrrolylimine) Platinum (II) and Palladium (II) Complexes: Synthesis, X-Ray Structure Determination, Spectroscopic Characterization, and in vitro Anticancer Activity on Various Human Carcinoma Cell Lines. (O) (IPICS KEN:01)

M. Nguli, M.J. Gatari, K. Shepherd & L. Njenga. Assessment of Selected Micronutrients in Common Beans in Kenya. (O) (IPICS KEN:01) (IPPS KEN:01/2)

S. Yiga, H. Ssekaalo & O.F. Wendt. C-H Functionalisation of Hydrocarbons Using Iron(II) Complexes Bearing Pentadentate Polypyridyl Ligands and their Nitrosyl Derivatives. (O) (IPICS UGA:02)

E.G. Maina, A.N. Gachanja, M.J. Gatari & H. Price. PM_{2.5} and Road-Side Dust Pollution by Heavy Metals Along Thika Superhighway in Kenya, Sub-Saharan Africa. (P) (IPPS KEN:01/2)

D. Ng'ang'a, M.J. Gatari, L.K. Kiriinya & S.M. Gaita. EDXRF and Multivariate Statistics in Source Identification of PM_{2.5}. (P) (IPPS KEN:01/2)

3rd International Conference, 14 June, Kibabii University, Bungoma

Ongaro O. B., Waita S. & Kerongo J. Characterization of Solar Thermal Energy Radiation Potential of Lake Victoria Region: A case study of Homa Bay County, Kenya. (O) (IPPS KEN:02)

Ongaki N. Laban, Christopher M. Maghanga & Kerongo Joash. Determination of the surface roughness parameter and wind shear exponent of Kisii region from the on-site measurement of wind profiles. (O) (IPPS KEN:03)

Water Security and Climate Change Conference, 3-5 Dec., Nairobi

B. Ouedraogo, J.C.W. Ouedraogo, E.H. Alhassan & Yvonne L. Bonzi-Coulibaly. Antimicrobial properties of plants extracts for water treatment. (P) (IPICS BUF:01)

Laos

Int. and Nat. Res. Conf. on Diversity, Environment, Sci., Technol. and Innov., 5-6 Nov., Vientiane

P. Deevanhxay, T. Yangchuthao, B. Souako, D. Leelianou, S. Khanthavong, Chaleunniapao & K. Phomkeona. Quantification of Organochlorine Pesticide Residue in *Curcuma Xanthorrhiza* by Gas-Chromatography-Mass spectrometry. (O) (IPICS LAO:01)

S. Kongmany, V. Chounlamany, P. Keobountham, S. Khanthavong, Hongxeng & Huay-Mark-Heiw. Domestic wastewater quantity surveillance in Vientiane Capital of Lao PDR. (O) (IPICS LAO:01)

Malaysia

UniSZA International Conference on Infectious Diseases: To Conquer or to be Conquered, 17-19 Aug., Kuala Terengganu

Collen Masimirembwa. Precision Medicine for Infectious Diseases. (O) (IPICS ZIM:AiBST)

ICPAC Langkawi 2018 and 19th Malaysian Intl. Chem. Congr. (19MICC) 30 Oct. - 2 Nov., Langkawi

Phan, K. & Kim, KW. Arsenic exposure biomonitoring in the Mekong River Basin of Cambodia. (O) (IPICS CAB-CCS)

Mexico

10th International symposium on fruit flies of economic importance, 23-27 Apr., Tapachula

Fikira Kimbokota. Electrophysiological responses of maxillary palpi of *Tephritidae* fruit flies to fruits and food based volatiles. (P) (IPICS ANCAP)

Myanmar

Int. Conf. on Physics Mandalay 2018 (ICPM2018), 25-27 Nov., Mandalay

Kalyar Thwe, Aung Mon Thet, Ei Mon Myint & Sompron Chantara. Environmental Assessment of Heavy Metals Pollution and Sediment Quality of Ayeyarwaddy River in Mandalay Region (O) (IPPS MYA:01)

Su Myat Nyein, Aung Mon Thet & Kalyar Thwe. Estimation of Naturally Occurring Radionuclides in Fertilizers Using Gamma Spectrometry. (O) (IPPS MYA:01)

- May Zin Oo, Myat Mon Thin, Kaythi Nwe & Kalyar Thwe. Water Quality Index for Assessment of Water Samples from Different Areas in Mandalay City (O) (IPPS MYA:01)
- Khaing Su Lwin, Aung Mon Thet & Kalyar Thwe. Natural Radioactivity Levels and Radiological Effects of Soils from the Vicinity of Copper Mine in Monywa District. (O) (IPPS MYA:01)
- Ni Ni Tint Swe. Contamination and Ecological Risk Assessment of Heavy Metal in The Sediment Near Ayeyarwaddy River Bank, Bagan Region. (O) (IPPS MYA:01)
- Thandar Swe. Assessment of Natural Radioactivity Levels and Radiation Hazards in Soil from Ayadaw Petroleum Oil Field Using Nai(Tl) Detector. (O) (IPPS MYA:01)
- Theint Hay Mar Wint, Win Win Aye, Than Zaw Oo & Prayoon Songsiriritthigul. Morphology, Surface Composition and Photodegradation Efficiency of Silver Nanoparticles-Integrated Titania Nanotube Arrays. (O) (IPPS MYA:01)
- Nyein Nyein, Than Zaw Oo, Than Wai Kian, Go Kawamura, Astunori Matsuda & Zainovia Lockman. Effect of Electrolytes on the Formation of TiO₂ Nanotubes by Anodic Oxidation and Performance Evaluation of Dye Sensitized Solar Cell. (O) (IPPS MYA:01)
- Me Me Theint, Hnin Ei Maung, Win Naing Min & Than Zaw Oo. Effect of Photoanode Modification on Charge Recombination and Efficiency of Dye Sensitized Solar Cells using Organic Dye. (O) (IPPS MYA:01)
- Kay Thi Soe, Me Me Theint, Su Htike Aung & Than Zaw Oo. Investigation into Current-Voltage Hysteresis in Dye-sensitized Solar Cells upon modifying TiO₂ Photoanode. (O) (IPPS MYA:01)
- Win Win Maw, Thida Wint, Khin Swe Myint, Toshimitsu Yamazaki & Yoshinori Akaishi. Theoretical Analysis on J-PARC E31 Experiment. (O) (IPPS MYA:01)
- Zin Mar Thwe, Theingi, Khin Swe Myint & Y. Akaishi. Missing Mass Spectrum of $^3\text{He}(K^-, n)K^-pp$ Reaction with Λ^*-p and K^- (pp) Models. (O) (IPPS MYA:01)
- Kyaw Thu Min & Khin Swe Myint. Theoretical analysis on HADES data with phenomenological generalized optical potential (P) (IPPS MYA:01)
- Shin Thant Lawn Maung & Kay Khaing Oo. Analysis on Gamma Spectra by NaI (Tl) Detector. (P) (IPPS MYA:01)
- Int. Conf. on Recent Innovations in Nanoscience and Technology (ICRINT2018), 26-28 Dec., Yangon*
- Myat Su Tun, Htoo Thiri Htet, Hsu Thazin Myint, Win Naing Min & Than Zaw Oo. Potentiodynamic Bottom-up Growth of Cu/MnO₂ Nanocomposite Films for Glucose Sensor Application. (O) (IPPS MYA:01)
- Myat Thet Khine, Ni Lar Win Pyae, Myat Thwe Naing, Aung Chan Thar & Than Zaw Oo. Photoluminescence Decay Kinetics of Silver Nanowire/MDMO-PPV Polymer Composite Films. (O) (IPPS MYA:01)
- Win Myint Oo, Win Naing Min, Than Zaw Oo & Khin Khin Win. Bleaching/Coloration Dynamics of Electropolymerized Polyaniline Film Electrode for Polymer Electrochromics. (O) (IPPS MYA:01)

Netherlands

20th International Society for Human and Animal Mycology Congress (ISHAM 2018), 30 June - 4 July, Amsterdam

Abd Algaffar SO, Veres Katalin, Hohmann Judit, Elamin Mubarak, van de Sande WW & Khalid SA. Metabolomic approach to tap the potential of essential oils against *Madurella mycetomatis* - one of the most neglected fungal infections. (P) (IPICS NAPRECA)

Awad, TA., Abd Algaffar, SO., Van de Sande, W.W. & Khalid SA. Molecular docking based on construction of 4-a-sterol demethylase (CYP51) as an active site of *Madurella mycetomatis* by homology modeling. (P) (IPICS NAPRECA)

Niger

International Conference Observatories of the Critical Zone in West Africa: AMMA-CATCH Current Issues and Findings, 12-14 Nov., Niamey

C. Normandin, F. Frappart, A.T. Diepkilé, V. Marieu, E. Mougin, F. Blarel, B. Lubac, N. Braquet & A. Ba. Evolution of the performance of radar altimetry missions from ERS-2 to Sentinel-3A: exemple of the Inner Niger Delta (IND). (P) (IPPS MAL:01)

Traoré B.S., Sanogo S., Ba, A. Etude in-Situ et par simulation avec HYDRUS-1D et 2D de l'humidité et de la température du sol: Cas de Négoué au Mali. (P) (IPPS MAL:01)

Senegal

Conférence Internationale de Biomathématiques au Sénégal (CIBS 2018), 29 June - 2 July

Diène NGOM. Modelling Ebola disease: stability, sensitivity analysis and validation of the model with data from the 2014-16 West African Ebola Virus. (O) (IPMS BURK:01)

Serbia

7th Serbian Ceramic Society Conference "Advanced Ceramics and Application" 17-19 Sep., Belgrade

F.A. Khan. Structural and magnetic ordering in polycrystalline $\text{Sm}_{0.5}\text{Ca}_{0.2}\text{Sr}_{0.3}\text{MnO}_3$ perovskite (O) (IPPS BAN:02/1)

Singapore

48th Int. Symp. on Multiparticle Dynamics (ISMD2018), 2-5 Sep.

Yoobin Jeong, Kimphun Sunly, Bum Hoon Lee & Gansukh Tumurtushaa. Dark Energy Constrains from a five-dimensional AdS Black Hole via AdS/CFT. (P) (IPPS CAM:01)

South Africa

International Conference on Surfaces, Coatings and Nanostructured Materials (NANOSMAT-Africa), 19-23 Nov., Cape Town

C. Mwansa, M.O. Munyati & S. Hatwaambo. Highly conductive sodium dodecyl sulfate treated PEDOT:PSS containing copper nanoparticles for flexible organic solar cells. (O) (IPICS ZAM:01) (IPPS ZAM:01)

South Korea

International Conference on Synthetic Metals (ICSM 2018), 1-6 July 2018, Busan

W. Mammo, B.A. Abdulahi, A. Negash, Z.G. Wolkeba, P. Murto X. Xu, Olle Inganäs & Ergang Wang. Benzo[1,2-c:4,5-c']dithiophene-4,8-dione-, thiadiazoloisindole- and triazoloisindole-dione-containing polymers for solar cell applications. (O) (IPICS ETH:01)

Int. Symp. for Organic Electronic Materials and Devices (ISOMED 2018), 6-8 July, Gyeongju

W. Mammo, Z. Genene, J. Wang, X. Xu, R. Yang & E. Wang. A comparative study of the photovoltaic performances of terpolymers and ternary systems. (O) (IPICS ETH:01)

26th International Conference on Raman Spectroscopy, 26-31 Aug., Jeju

Wabwile M.J., Angeyo K.H. & Dehayem-Massop A. Characterization of Uranium Bearing Aerosols Utilizing Drop Coating Deposition Based Peak Free Raman Microspectrometry Combined with Multivariate Curve Resolution. (P) (IPPS AFSIN)
(IPPS KEN:04)

International Forum on Climate Adaptation 2018 (IFOCA 2018), 14-15 Nov., Gwangju

Phan, K., Eav, C. & Sieng, H. Assessment of water quality in the coastal area of Cambodia. (O) (IPICS CAB-CCS)



Participants in the International Forum on Climate Adaptation, Gwangju. Courtesy of IPICS CAB-CCS.

Spain

Aerosol Technology (AT2018) Conference, 18 -20 June, Bilbao

L.K. Kiriinya, N. Nyambane, M.J. Gatari, L.L.F. Agostinho & J.C.M. Marijnissen (2018). Application of electrospray in thermal desalination in tropical countries. (O) (IPPS KEN:01/2)

N. Nyambane, M.J. Gatari, L.L.F. Agostinho & J.C.M. Marijnissen. Effect of droplet size in EHDA simple-jet mode without/with whipping break-up on evaporation. (P) (IPPS KEN:01/2)

S.W. Karuga, M.J. Gatari, J.C.M. Marijnissen & E.M. Kelder. Electrospray synthesis of porous cathode material for lithium ion batteries. (P) (IPPS KEN:01/2)

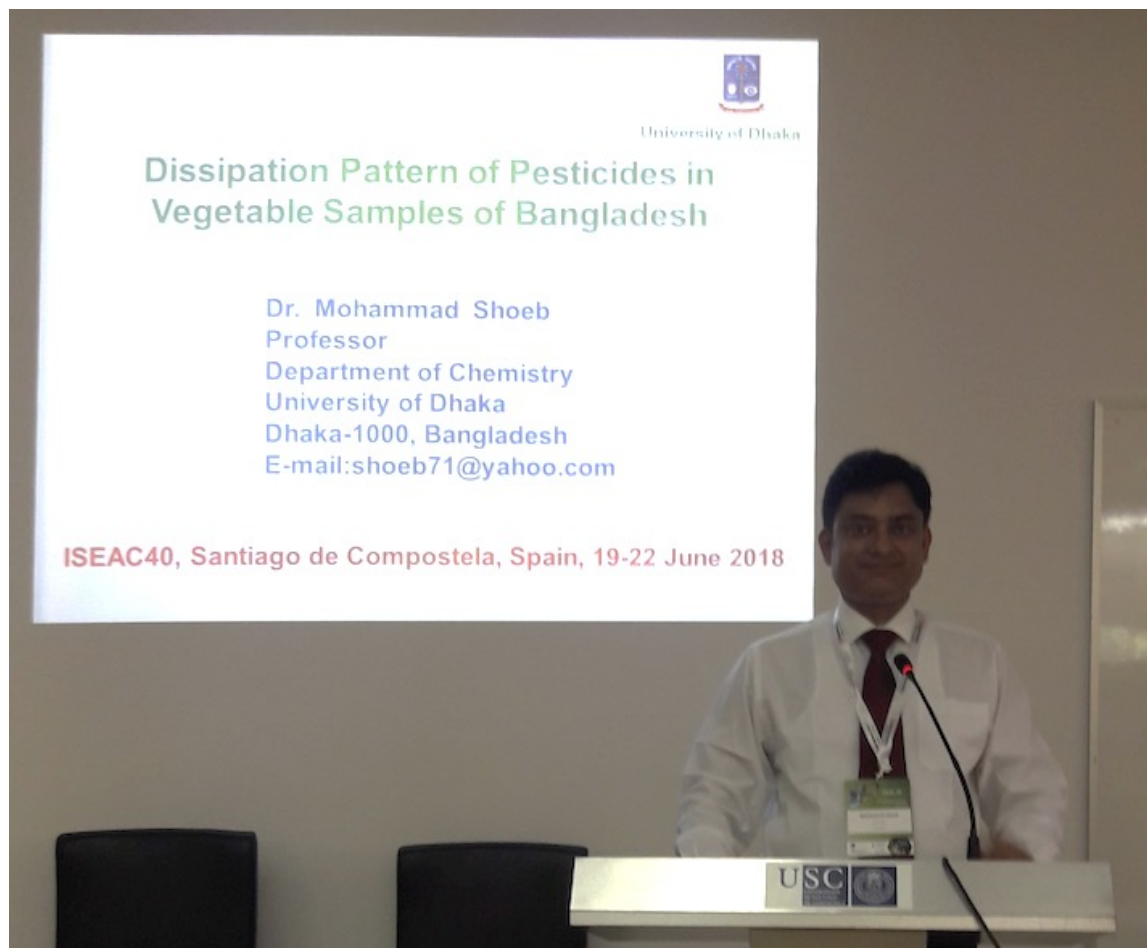
F. Kariithi, L. Manna, S. Verdoold, M.J. Gatari, J.C.M. Marijnissen, & L.L.F. Agostinho. An electric current-based monitoring system for EHDA of natural gas odorants. (P) (IPPS KEN:01/2)

L. Manna, F. Kariithi, F. Di Natale, A. Lancia, J.C.M. Marijnissen & L.L.F. Agostinho. Characteristics of water EHDA in the simple-jet mode with whipping breakup. (O) (IPPS KEN:01/2)

40th International Conference on Environmental and Food Monitoring (ISEAC-40), 19-22 Jun., Santiago de Compostela

M. Shoeb. Dissipation Pattern of Pesticides in Vegetable Samples of Bangladesh. (O) (IPICS BAN:04) (IPICS NITUB)

M. Shoeb. Organochlorine Compounds in Marine Fish Samples of Bangladesh. (P) (IPICS BAN:04) (IPICS NITUB)



Mohammad Shoeb speaking at the ISEAC40, Spain. Courtesy of IPICS BAN:04.

Sweden

EMMI-AAA 2018 International workshop on Engineering Mathematics and Mathematics in Industry - Algebra, Analysis and Applications, 30 May, Västerås

Juma Kasozi. Optimal dividends for risk processes with stochastic return on investments. (O) (IPMS EAUMP)

J. Musonda. Reordering in a multi-parametric family of algebras. (O) (IPMS EAUMP)

Development Research (DevRes18) Conference, 18-30 Aug., Gothenburg

Gichuru M.J.G. Roadside air quality measurements in Nairobi: Short studies contribution by Graduate Students of University of Nairobi. (O) (IPPS KEN:01/2)

Boman J., Thynell M., Gaita S. M. & Gatari M. An integrated inter-disciplinary approach to well-being, air quality management and city development in Nairobi. (O) (IPPS KEN:01/2)

Tanzania

42nd Dar es Salaam International Trade Fair (DITF) 28 June - 13 July, Dar es Salaam

Margaret Samiji. Development of Kesterite (CZTSe) Solar Cells from DC Magnetron Sputter Precursors. (P) (IPPS MSSEESA)
(IPPS TAN:01/2)

Thailand

8th International Conference on Applied Geophysics, 8-10 Nov., Songkhla

Singsoupho, S., Bhongsuwan, T. & Elming, S-Å. Rock magnetism and Anisotropy of Magnetic Susceptibility of Permo-Triassic Rocks in Northern Laos. (O) (IPPS LAO:01)

Xayavong, V., Singsoupho, S., Sompaserth, S. & Xaunsuandao, T. Groundwater Investigation Using Electrical Resistivity Tomography in Savannakhet Province, Laos. (O) (IPPS LAO:01)

United Kingdom

The European Week of Astronomy and Space Science Meeting, 3-6 Apr., Liverpool

E. Jurua, The Mbarara University of Science and Technology – International Science Programme Project. (P) (IPPS UGA:02)

15th International Conference on Integral Methods in Science and Engineering (IMSE2018), 16-20 July, Brighton

S.E. Mikhailov & Z.W. Woldemicheal. On united boundary-domain integer-differential equations for variable coefficient Dirichlet problem with general right hand side. (O) (IPMS ETH:01)

Ayele Tsegaye G & Bekele Solomon T. Two Operator Boundary - Domain Integral Equations for variable coefficient Dirichlet BVP in 2D. (O) (IPMS ETH:01)

Humanitarian Engineering Symposium, 10 Dec., Univ. Warwick

M. Shoeb. Resilience in Cox's Bazar and environmental impact of Rohingya influx. (O) (IPICS BAN:04)
(IPICS NITUB)

USA

American Physical Society Annual Meeting, 5-9 Mar., Denver

Mulugeta Bekele. Teaching Introductory Physics Courses to Freshmen and Sophomores at Addis Ababa University. (O) (IPPS ETH:01)

Mesay Tilahun & Tatek Yergou. Driven Translocation of a Star Polymer from a Confined Cylindrical Cavity with a Finite Volume. (P) (IPPS ETH:01)

33rd Int. Conf. on Solid Waste Technology and Management, 11-14 Mar., Annapolis, WA D.C.

P. Nishimwe, E. Gashugi & P. Buregeya. Sanitation markets and urban climate decisions asymmetry: Lessons from trend in CH₄ emissions from solid waste disposal subsector in Rwandan cities after private sector involvement in solid waste collection. (O) (IPICS RWA:01)

Mathematics of Planet Earth 2018 SIAM, 13-15 Sep., Philadelphia

Manalebish Debalike Asfaw, Semu Mitiku Kassa, Edward M Lungu & Woldeamlak Bewket. Mathematical analysis of the effect of some climatic factors and altitude on the plant-herbivore interactions. (O) (IPMS ETH:01)

X International Conference on Laser-Induced Breakdown Spectroscopy, 21-26 Oct., Atlanta

Angeyo K.H., Otieno E.A. & Dehayem-Massop A. Chemometrics-Assisted LIBS Method Development for Cancer Detection and Characterization. (O) (IPPS AFSIN)
(IPPS KEN:04)

Malaba J.N., Angeyo H.K. & Oduor F.O. Microextraction of Uranium and Nuclear Forensic Analysis by Chemometric Based LAMIS. (P) (IPPS AFSIN)
(IPPS KEN:04)

NuMat2018: The Nuclear Materials Conference, 14-18 Oct., Seattle

Angeyo K.H., Wabwile M.J, Nyairo J.O. & Dehayem-Massop A. Nuclear Forensics Analysis of Uranium Bearing Aerosols and Post-Irradiation Debris via Machine Learning Based Peak-Free Laser Raman and Induced Breakdown Spectroscopy. (P) (IPPS AFSIN)
(IPPS KEN:04)

5th Int. Conf. on Theoretical, Materials and Condensed Matter Physic, 26-28 Nov., Los Angeles

F.A. Khan. Structural and magnetic properties of Bi_{0.80}Ba_{0.20}Fe_{1-x}Ti_x O₃ ceramics prepared by planetary ball milling technique (O) (IPPS BAN:02/1)

F.A. Khan. Influence of Mn substitution on magnetoresistance and magnetic properties of (Fe_{1-x}Mn_x)₇₅P₁₅C₁₀ alloy ribbons. (O) (IPPS BAN:02/1)

Regional

ISP partners reported 204 contributions to regional scientific conferences (82% oral; Table 26). IPICS partners reported 94 (86% oral), IPMS partners 12 (92% oral), and IPPS partners 98 (78% oral).

Table 26. Number of poster (P) and oral (O) contributions to regional scientific meetings in the listed countries, by scientists in ISP-supported groups and networks

Region	Country	IPICS		IPMS		IPPS		Total	
		P	O	P	O	P	O	P	O
Africa	Algeria						2	0	2
Africa	Egypt						1	0	1
Africa	Ethiopia		1					0	1
Africa	Kenya		10		2	2	21	2	33
Africa	Lesotho						1	0	1
Africa	Madagascar		1					0	1
Africa	Malawi						1	0	1
Africa	Morocco						1	0	1
Africa	Namibia						1	0	1
Africa	Rwanda	1	42			1		2	42
Africa	South Africa	4	1		1		4	4	6
Africa	Tanzania					15	40	15	40
Africa	Togo		7						7
Africa	Tunisia					1		1	
Africa	Uganda	1			6	1	2	2	8
Africa	Total	6	62		9	20	74	26	145
Asia	Cambodia						1	0	1
Asia	China			1	1			1	1
Asia	Indonesia		2					0	2
Asia	Japan	3	3					3	3
Asia	Myanmar				1			0	1
Asia	South Korea	2						2	
Asia	Sri Lanka		12					0	12
Asia	Vietnam		1						1
Asia	Total	5	18	1	2		1	6	21
North America	USA					2	1	2	1
North America	Total					2	1	2	1
South America	Chile	2	1					2	1
South America	Total	2	1					2	1
All countries		13	81	1	11	22	76	36	168

Algeria

Forum on Renewable Energy, Water and Climate Security in Africa, 16-18 Apr., Tlemcen

Tabu Bernard, Karidewa Nyeinga & Denis Okello. Experimental evaluation of thermal performance of selected oils in Uganda for indirect solar domestic cooking applications. (O) (IPPS UGA:01)

3rd International Conference on African Large River Basin Hydrology, 6-8 May, Algiers

C. Chuma, D.J. Hlatywayo & V. Midzi. SWAT Modelling of the potential runoff and recharge of the Bulawayo catchment. (O) (IPPS ZIM:01)

Cambodia

5th Southeast Asia Conference on Thermoelectrics (SACT2018), 15 Dec., Siem Reap

Than Zaw Oo. Review and Perspective of Perovskite Photovoltaic-Thermoelectric (PV-TE) Hybrid Devices and Performance Reliability. (O) (IPPS MYA:01)

Chile

5th Congress of the Latin American Association of Chemical Ecology (ALAEQ), 23-26 Oct., Valparaíso

Estay, D.A., Vidal, C.N., Lemaitre, A.B., Villagra, C.A., Niemeyer, H.M. 2018. Effects of high copper concentration on florivory in *Oenothera picensis* ssp. *picensis* (Myrtales; Onagraceae). (P) (IPICS LANBIO)

Oñate, C.A., Lobos, A.P., Lemaitre, A.B., Villagra, C.A., Niemeyer, H.M. 2018. Temporal variation of floral volatile emission and diurnal visitation of *Oenothera picensis* ssp. *picensis* (Myrtales; Onagraceae). (P) (IPICS LANBIO)

Torrico-Bazoberry D., Caceres-Sanchez L., Flores-Prado L., Aguilera-Olivares D., Fontúrbel F.E., Niemeyer H.M. & C.F. Pinto. Kin Recognition in a Subsocial Treehopper (Hemiptera: Membracidae). (O) (IPICS LANBIO)

China

China-Myanmar Innovation and Entrepreneurship Competition 2018, April, Yunnan Province

Kyawt Kyawt Khin, Ei Hmue Khaing & Hsu Myat Noe. Roles of Mathematics in Some Security Lock Systems. (O+P) (IPMS SEAMaN)

Egypt

6th China Africa Water Resources Conference, 23– 27 July, Sharm El Sheikh

Muchingami I., Hlatywayo D.J., Chuma C., & M. Gumbo. Hydro-geophysics: a vital tool in ensuring sustainable groundwater provision in Zimbabwe. (O) (IPPS ZIM:01)

Ethiopia

Ethiopian Regional Workshop on Solar Energy and Energy Storage Technologies: Materials, System Design and Applications, 15-19 Oct., Addis Ababa

Shimelis Admassie. Biopolymer electrodes for energy storage. (O) (IPICS ETH:01)

Indonesia

Trends in Quality Management – Improving your Laboratory's Proficiency Workshop, APFAN, 25-27 July, Jakarta

M. Shoeb. Method Development and Validation for Analysis of Preservative, Artificial Sweetener and Stimulants in Carbonated Beverages and Juice by HPLC. (O) (IPICS BAN:04)
(IPICS NITUB)

M. Shoeb. Persistent Organic Pollutants in Freshwater and Marine Fish Species of Bangladesh. (O)
(IPICS BAN:04)
(IPICS NITUB)



Group picture at the Asia Pacific Food Analysis Network (APFAN) Workshop, Indonesia. Courtesy of IPICS BAN:04.

Japan

3rd Seminar on JSPS Core-to-Core Program (B. Asia-Africa Science Platforms) "Establishment of Research Hub for Compact Mobility Model in the ASEAN Region", 27 Feb., Nagoya

P. Deevanhxay, Y. Kamimoto & R. Ichino, Electroplating of carbon black on Nickel plate. (O)
(IPICS LAO:01)

V. Phouthavong, K. Sereenochai, P. Prompinit, S. Manakasettharn & D. Viboonratanasri. Online-magnetic-solid phase extraction of phosphate in water using magnetite. (O) (IPICS LAO:01)

K. Yourpor, B. Her, F. Mekaye, L. Vue, K. Phomkeona & P. Deevanhxay. Quantification and Characterization of Essential Oil in Lao *Aquilaria crassna*. (P) (IPICS LAO:01)

4th Seminar on JSPS Core-to-Core Program (B. Asia-Africa Science Platforms) "Establishment of Research Hub for Compact Mobility Model in the ASEAN Region", 13-14 Dec., Nagoya

P. Deevanhxay, Y. Kamimoto, S. Okura, T. Hagio, T. Wada & R. Ichino. Electroplating of carbon black on Nickel plate. (O) (IPICS LAO:01)

K. Phomkeona, Y. Takeuchi, S. Motoshima, T. Hagio & Y. Kamimoto. Energy storage by formation of methane hydrate. (P) (IPICS LAO:01)

V. Phouthavong, S. Nijpanich, T. Hagio, Y. Kamimoto & R. Ichino. Possibility studies of rice husk as a silica source for preparation of MFI zeolite particles. (P) (IPICS LAO:01)

Kenya

The 2018 Nairobi Workshop on Algebraic geometry, 26 Aug. - 01 Sep.

Kurujiywami Célestin. Group classification of differential equations. (O) (IPMS EAUMP)

David Ssevviiri. A cousin complex for the quantum projective space. (O) (IPMS EAUMP)

East and Southern Africa Environmental/Analytical Chemistry & Theoretical Chemistry Conference in Africa (ESAEC-TCCA); 3-7 Sep., Mombasa

N.M. Jacob, S.O. Wandiga, E. Kang'ethe, D.K. Kariuki & V.O. Madadi. Affordable detoxification method of aflatoxin contaminated maize in Kenya. (O) (IPICS ANCAP)

V.O. Madadi. Perspectives of global environmental Challenges of the 21st Century- Concerns and opportunities. (O) (IPICS ANCAP)

F. Masese, S.O. Wandiga, V.O. Madadi & D.N. Mbui. Photocatalytic degradation of methylene blue with coupled titanium (IV) oxide nanoparticles. (O) (IPICS ANCAP)

C. Mirikau. Low cost sensor for detection of atmospheric gases. (O) (IPICS ANCAP)

E.O. Ongweno, V.O Madadi & V.B Ondiere. Analysis of heavy metals in Sony Sugar effluent waters. (O) (IPICS ANCAP)

R. Onkangi, F.D.O Oduor, J.M. Wanjohi, P.N. Mwangi & V.O Madadi. Environmental Assessment. (O) (IPICS ANCAP)

E.M. Osoro, S.O. Wandiga, V.O. Madad & D.O. Abongo'o . Concentrations of polybrominated diphenyl ethers (PBDEs) in water and sediment from Nairobi River, Kenya. (O) (IPICS ANCAP)

RIFT2018 - Regional Seismic Risk and Resilience Workshop, 19-21 Sep., Nairobi

Atalay Ayele. Seismic Hazard in the East African Rift system (EARS): Challenges in Disaster Risk Management. (O) (IPPS ETH:02)

3rd MSSEESA Conf. on Materials Sci. Research for Sustainable Energy in Africa, 26-28 Sep., Nairobi

C. Mwansa, M.O. Munyati & S. Hatwaambo. Highly conductive sodium dodecyl sulfate treated PEDOT:PSS containing copper nanoparticles for flexible organic solar cells. (O) (IPICS ZAM:01) (IPPS ZAM:01)

Delvina Japhet. Investigation of the effect of deposition and post deposition annealing conditions for VO₂ films. (O) (IPPS MSSEESA) (IPPS TAN:01/2)

J. Okwako, A. Ogacho, R. Musembi, F. Nyongesa & G.A. Mwebaze. Effects of Dipping Cycles on the Optical and Electrical characterization of CZTS. (O) (IPPS KEN:02)

Josephat Mogusu, Robinson Musembi, Francis Nyongesa & Alex Ogacho. Fabrication and Characterization of Nb:TiO₂ Thin Film for Gas Sensor Application. (O) (IPPS KEN:02)

Brian Owino, Francis Nyongesa, Alex Ogacho and Bernard Aduda. Effects of TiO₂ compact layer on PV characteristics of TiO₂/Nb₂O₅ dye sensitized solar cells. (O) (IPPS KEN:02)

M.T. Simiyu, F. Nyongesa, B. Aduda, Z. Birech & G. Mwebaze. (2018). Use of Diatomaceous Earth Wastes and Plant Derived Binders in Water Purification Systems. (O) (IPPS KEN:02)

Robinson J. Musembi. Scientific Application of Excel VBA. (O) (IPPS KEN:02)

- Rotich Julia Jerono & Mghendi Mwamburi. Preparation and Characterization of Photocatalytic Metal Pigmented Anodized Titanium Dioxide Thin Films. (O) (IPPS KEN:03)
- Judith Chebwogen, Mghendi Mwamburi & Christopher Maghanga. Fabrication and Characterization of Anodized Doped Zinc for Photocatalytic Application (O) (IPPS KEN:03)
- L. Ongaki, C.M. Maghanga & K. Joash. Comparative analysis of wind power potential prediction methods from the measured methods based on Kisii wind profiles. (O) (IPPS KEN:03)
- Wellington Andati & Maxwell Mageto. Biogas Production from Biomass Kitchen-Waste Laced with Cow Dung in a Modified Laboratory – Scale Anaerobic Digester. (O) (IPPS KEN:03)
- Margdaline Ligavo & Maxwell Mageto. Outdoor Performance Characterization of Monocrystalline Silicon Solar Module Based on ambient Conditions in Kakamega. (O) (IPPS KEN:03)
- Peter Owino, David Waswa & Mghendi Mwamburi. Study of Photocatalytic Activity Through Photogenerated Carriers in Anodized TiO₂ Films. (O) (IPPS KEN:03)
- L. Ongaki, C.M. Maghanga & K. Joash. Evaluation of the technical wind energy potential of Kisii region based on the Weibull and Rayleigh distribution models. (O) (IPPS KEN:03)
- Sawa Hezekiah Buay. Effects of Selenized DC Sputtered Precursor Stacking Orders on the Properties for Cu₂ZnSnSe₄absorber Layer for Thin Film Solar Cells (O) (IPPS TAN:01/2)
- Emmanuel Ollotu. Bifacial Kesterite Solar Cells Back Contact: Effects of Rapid Thermal Annealing (O) (IPPS TAN:01/2)
- John Paul Eneku, Tom Otiti & Julius M. Mwabora. Effect of substrate radial-position measured from the sputter-gun axis on the electrical, optical and structural properties of ZnO thin films deposited by reactive direct current magnetron sputtering. (O) (IPPS UGA:01)
- A. Okello, W. Okullo & D. Okello. Performance of selected silicon based photovoltaic solar cells found in the Ugandan market. (P) (IPPS UGA:01)
- Mwansa C., Hatwaambo S. & Munyati O. Optical, electrical and morphological surfactant doped PSS:PEDOT for solar cell applications. (O) (IPPS ZAM:01)
- 1st Ann. Conf. on Science for Development: Supporting Manufacturing, Affordable Housing, Universal Healthcare and Food Security, 24-25 Oct., Nairobi*
- N.M. Mwenze, Z. Birech Z. & K. Kaduki. Application of Butterfly Wing Iridescence, Reflection Spectroscopy and Chemometric Tools in Adulteration Sensing in Gasoline and Alcoholic Drinks. (O) (IPPS AFSIN) (IPPS KEN:04)
- I. Kibii, V. Omollo, A. Dehayem-Massop, P. Waweru, P. Sehmi, N. Nyaga & Z. Birech, Utility of EDXRF in Elemental Study of Herbal Extract Suspected to Induce Production of Oxytocin. (O) (IPPS AFSIN) (IPPS KEN:04)
- M.M. Ndunda, A. Dehayem-Massop & D. Waswa. Extending Usability of Old Fibre Optic Cables in Third-World Economic Zones. (O) (IPPS AFSIN) (IPPS KEN:04)

J.J. Okonda, H.K. Angeyo, A. Dehayem-Massop & A.E. Rogena. Early Diagnosis of Cancer Based on Chemometrics-Enabled X-Ray Fluorescence Analysis of Trace Biometals as Cancer Biomarkers. (P)
(IPPS AFSIN)
(IPPS KEN:04)

PACN Congress: Managing Resources Through Chemistry: Wealth not Waste, 6-8 Nov., Nairobi

Abiy Yenesew, T. Deyou, M. Heydenreich, A. Koch, C.M. Bosire, J. Kabar, S. Derese, J.O. Midiwo & M. Erdélyi. Rotenoids from East African Plants—Structure, Stereochemistry and Biological Activity. (O)
(IPICS KEN:02)

Souaibou Yaouba. Anti-inflammatory and cytotoxic phytochemicals from *Lannea rivae* and *Lannea Schweinfurthii*. (O)
(IPICS KEN:02)

Lesotho

2nd Africa-EU renewable energy Research and Innovation Symp. (RERIS) in occasion of the Int. Science and Technology Innovation Conf. and Expo (NULISTICE 2018), 23-27 Jan., Maseru

R.J. Musembi, S. Waita, A. Ogacho, J. Simiyu, J. Mwabora, & Bernard Aduda. Solar PV training kit, a novel community outreach programme in Kenya. (O)
(IPPS KEN:02)

Madagascar

Green Aquaculture in the South-West Indian Ocean Region: historical landmarks and prospects, 8-9 May, Antananarivo

Aviti John Mmochi, Flower E. Msuya & Arif Mazrui. Seaweed Farming in Zanzibar. Tanzania - History, Successes and Challenges. (O)
(IPICS ANCAP)

Malawi

2018 UK-Malawi Disaster Research Workshop, 6-10 Aug., Tyolo

Atalay Ayele. Recent seismicity and rapid response in Ethiopia. (O)
(IPPS ETH:02)

Morocco

African Seismological Commission, 2nd Assembly, 23-26 Apr., Al Hoceima

Atalay Ayele. Recent Seismicity and Earthquake Risk in Ethiopian Cities. (O)
(IPPS ETH:02)

Myanmar

SEAMS School 2018 on Partial Differential Equations and their Application, 5-15 Nov., Univ. Mandalay

Khin Than Sint. SEAMS School 2018 on Partial Differential Equations and their Applications. (O)
(IPMS SEAMaN)

Nambia

African Conference of Physics (ACP), 28 June - 4 July, Windhoek

M.T. Simiyu, F. Nyongesa, B. Aduda, Z. Birech & G. Mwebaze. Use of Diatomaceous Earth Wastes and Plant Derived Binders in Water Purification Systems (O) (IPPS KEN:02)

Rwanda

Gender Summit 14 - Africa, 19-20 Mar., Kigali

Margaret Samiji. Intervention Measures to Increase Number of Female Students Taking Science Subjects in High Learning Institutions in Tanzania. (P) (IPPS TAN:01/2)

EACO Regional Workshop on Sustainable E-Waste Management in the East African Region, 14-16 May, Kigali

C. Sekomo. Facilitating the development of sustainable strategies and initiatives for E-waste management in the region. (O) (IPICS RWA:01)

John WASSWA. E-waste Statistics: Regional and Global Perspectives. (O) (IPICS UGA:01)

11th Conference of the African Society of Human Genetics, 19-21 Sep., Kigali

A.M.S Abdalla, N.H.H. Bashir, A.O. Abdelbagi & Y.O.H. Assad. Determination of heavy metals concentration in drinking water, Nile sediment, fish and urine of renal failure patients in Dongola and Merowe, Northern State, Sudan. (O) (IPICS ANCAP)

E.O.M Ali, N.A Shakil, V.S Rana, DJ Sarkar, S. Majumder, P. Kaushik, B.B Singh & J. Kumar. Antifungal activity of nanoemulsions of neem and citronella oils against phytopathogenic fungi, *Rhizoctonia solani* and *Sclerotium rolfsii*. (O) (IPICS ANCAP)

A.L. Asfaw. Effect of cooking time on selected metals, oxalate and phytate contents of the raw and cooked lettuce from five farms in Ethiopia. (O) (IPICS ANCAP)

N.H.H. Bashir. Neonicotinoids. (O) (IPICS ANCAP)

I. Elteraifi & A. Hassanali. Oil and azadirachtin contents of neem (*Azadirachta indica* A. Juss) seed kernels collected from trees growing in different habitats in Sudan. (O) (IPICS ANCAP)

E. Gashugi & P. Nishimwe. From waste to energy: Modelling the methane landfill gases recycle for urban solid waste management in Rwanda. (O) (IPICS ANCAP)

D.T. Gweme, P. Chagonda & M.F. Zaranyika. Persistent organic pesticide footprint in Zimbabwe: A case study of the Bromley farming area, Mashonaland East Province. (O) (IPICS ANCAP)

G. Habarurema, T.I.A. Gerber, E.C. Hosten, R. Betz & T. Mukabagorora. Synthesis of rhenium-based pharmaceuticals that may find applications in the treatment of NCDs caused by heavy metals and other pollutants. (O) (IPICS ANCAP)

F.E.A. Hassan, N.H.H Bashir & Y.O.H. Assad. Levels of organochlorine pesticides in breast fat tissue taken from breast cancer, and non-breast cancer patients, Sudan. (O) (IPICS ANCAP)

A.S.A. Ishag1, A.O. Abdelbagi, A.M.A. Hammad, E.A.E. Elsheikh & J-H. Hur. Photodegradation of endosulfan and pendimethalin by sunlight in the Sudan. (O) (IPICS ANCAP)

- L.T. John. Determination of levels of selected polycyclic aromatic hydrocarbons, organochlorine pesticides and petroleum wastes in the aquatic environment: The case study of Lake Victoria Basin around Mwanza region. (O) (IPICS ANCAP)
- J.M. Kamau, D.N. Mbui, J.M. Mwaniki & F.B. Mwaura. Application of microbial fuel cells in the degradation of 2,4,5,6-tetrachloroisophthalonitrile (chlorothalonil). (O) (IPICS ANCAP)
- E. Kampire, G. Rubidge & J.B. Adams. Distribution of polychlorinated biphenyl residues in several tissues of fish from the North End Lake, Port Elizabeth, South Africa. (O) (IPICS ANCAP)
- C. Kayirangwa & T. Muhizi. Comparative study of nutrients and heavy metals content in two Rwandan wetland plants, *Cyperus Papyrus* and *Leersia Hexandra*. (O) (IPICS ANCAP)
- B. Kayirangwa, J.P. Nkurunziza & E. Bizuru. Ecology and distribution of medicinal plants used to treat HIV/AIDS and opportunistic diseases towards biodiversity conservation and protection: Case of Eastern Province, Rwanda. (O) (IPICS ANCAP)
- F. Kimbokota, P.G.N. Njagi & A. Hassanali. Towards development of environmental friendly tool in management of fruit flies: Electrophysiological and behavioural response of *Bactrocera Dorsalis* to a blend of compounds from three hosts. (O) (IPICS ANCAP)
- V.O. Madadi, E. Odada, S.O. Wandiga, D. Olago, G.A. Wafula, C. Galy-Lacaux & J. Mcglade. EADN measurements of atmospheric deposition and ambient gases distribution across Sub-Saharan Africa. (O) (IPICS ANCAP)
- A.I. Makaye, E.H.J. Lugwisha & R.P. Mtei. Levels of selected heavy metals in paints from selected industries in Dar es Salaam. (O) (IPICS ANCAP)
- A.J. Mmochi. ANCAP Proposal 2019-2021. (O) (IPICS ANCAP)
- B. Mukarunyana, J. van de Vossenberg, J.B. van Lier & P. van der Steen. Photo-oxygenation for nitrification and the effect of dissolved oxygen concentrations on anaerobic ammonium oxidation. (O) (IPICS ANCAP)
- B. Mukwawaya, E. Matimati & M.F. Zaranyika. Adsorption of DDT by a river sediment: Apparent thermodynamic properties. (O) (IPICS ANCAP)
- E. Ngendahayo, N. Rujeni and A. Rechenburg. Wetlands Pollution and Potential for Schistosomiasis Transmission in Nyabugogo Wetland. (O) (IPICS ANCAP)
- E.M. Osoro, S.O. Wandiga, V.O. Madadi & D.A. Abong'o. Polybrominated diphenyl ethers (PBDEs) in Nairobi River, Kenya. (O) (IPICS ANCAP)
- J.C. Safari. Speciation of selected heavy metals (Cd, Pb, Cu, and Zn) in sediment samples collected from Nyabugogo River, Kigali City, Rwanda. (O) (IPICS ANCAP)
- A.H. Said, M. Sandvik, J.L. Lyche, F.E. Msuya, M.S. Kyewalyanga, A.J. Mmochi & S. Hurem. Isolation of rotenoids in utupa (*Tefrosia vogelii*) from Zanzibar and their toxicity in zebra fish (*Danio rerio*). (O) (IPICS ANCAP)
- R. Sha'Ato. Science and Technology for Food Security in Africa. The Burden of Environmental Stewardship and ANCAP's Role. (O) (IPICS ANCAP)
- C.B. Sekomo, D.P.L. Rousseau & P.N.L. Lens. Use of Gisenyi volcanic rock for adsorptive removal of Cd(II), Cu(II), Pb(II) and Zn(II) from wastewater. (O) (IPICS ANCAP)

R.N. Vesuwe, G.O. Adewuyi & R. Sha'Ato. Identification and quantification of phthalate esters released from a hospital sewage plant into a receiving river in Ibadan Metropolis, Southwestern Nigeria. (O) (IPICS ANCAP)

T. Nagawa, F. Nantaba, J. Wasswa & K. Arinaitwe. The prevalence of selected pharmaceutical and personal care chemicals in fish and benthic invertebrates (oligochaetes) from Lake Victoria, Uganda. (O) (IPICS ANCAP)
(IPICS UGA:01)

F. Nantabaa, J. Wasswa, J.H. Kylin, W-R. Palm & K. Kummerer. Occurrence and distribution of selected pharmaceuticals in water from Murchison Bay, Waiya Bay, Napoleon Gulf and Thurston Bay of Lake Victoria, Uganda. (O) (IPICS ANCAP)
(IPICS UGA:01)

J.C.D. Tomani, O. Tchouate, M. Frederich, R. Muganga & J. Souopgui. Anti-inflammatory and antileukemic-like activities of R01Yob, a medicinal plant of the rwandese pharmacopeia. (P) (IPICS RWA:01)

8th Annual Meeting of AFROSAI WGEA, 24-28 Sep., Kigali

C. Sekomo. Good management of pollution and waste to ensure health and wellbeing in African countries. (O) (IPICS RWA:01)

11th ANCAP Symposium, 10-13 Dec., Kigali

E. Gashugi & P. Nishimwe. From waste to energy: Modelling the methane landfill gases recycle for urban solid waste management in Rwanda. (O) (IPICS RWA:01)

G. Habarurema, E.C. Hosten, R. Betz, T. Mukabagorora, K.C. Potgieter & T.I.A. Gerber. Synthesis of rhenium-based pharmaceuticals that may find application in the treatment of NCDs caused by heavy metals and other pollutants. (O) (IPICS RWA:01)

C. Kayirangwa & T. Muhizi. Comparative study of nutrients and heavy metals content in two Rwandan wetland plants, *Cyperus Papyrus* and *Leersia Hexandra*. (O) (IPICS RWA:01)

B. Mukarunyana. Nitrogen removal in a photo-bioreactor by nitrification and anammox under variations in dissolved oxygen concentration. (O) (IPICS RWA:01)

E. Ngendahayo & N. Urujeni. Chemical speciation of selected heavy metals in Nyabugogo River sediment. (O) (IPICS RWA:01)

C. Sekomo. Adsorptive removal of Cd(II), Cu(II), Pb(II) and Zn(II) from the aqueous phase using volcanic rock as adsorbent. (O) (IPICS RWA:01)

Teddy Nagawa, Florence Nantaba, John Wasswa & Kenneth Arinaitwe. The prevalence of selected pharmaceutical and personal care chemicals in fish and benthic invertebrates (oligochaetes) from Lake Victoria, Uganda. (O) (IPICS UGA:01)

Florence Nantaba, John Wasswa, Johan H. Kylin, Wolf-rich Palm & Klaus Kummerer. Occurrence and distribution of selected pharmaceuticals in water from Murchison bay, Waiya bay, Napoleon gulf and Thurston bay of Lake Victoria, Uganda. (O) (IPICS UGA:01)

John WASSWA. Persistent Organic Pollutants due to incongruous electronic waste management – Call for a regional approach. (O) (IPICS UGA:01)

South Africa

SASBMB-FASBMB conference, Life Begins here, 8-11 July, Potchefstroom

M. Mombeshora & S. Mukanganyama. Toxicity profile of the acetone, ethanol and DCM:methanol leaf extracts from *Triumfetta welwitschii*. (P) (IPICS ZIM:01)

W. Mozirandi, D. Tagwireyi & S. Mukanganyama. Isolation, antibacterial and antibiofilm activity of chondrillasterol from *Vernonia adoensis* (Asteraceae). (P) (IPICS ZIM:01)

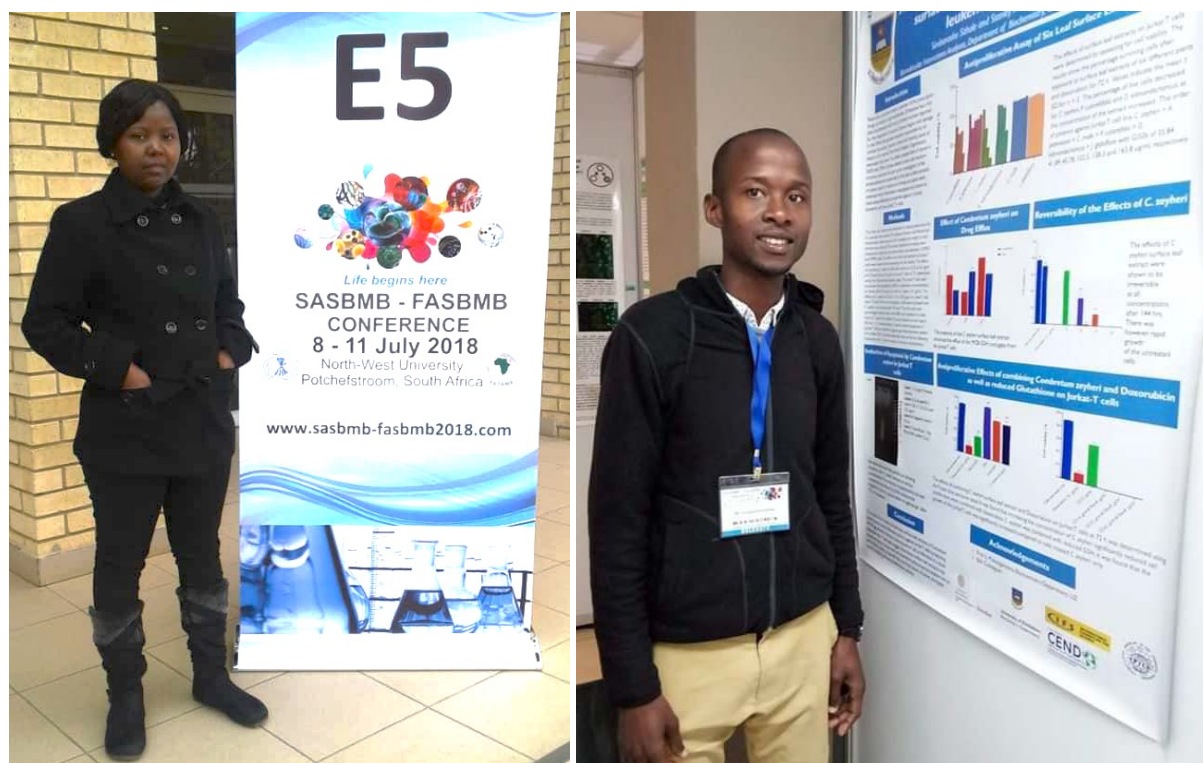
S. Mukanganyama, G. Zawanda, T. Mabuto, R. Mukuwe, T. Choto, C. Jonhera, E. Muza, S. Sithole, W. Mozirandi, & M. Mombeshora. Antimicrobial activity as a new frontier in the biological activities of the triterpenoids tormentic acid and betulinic acid isolated from *Callistemon citrinus*. (O) (IPICS ZIM:01)

S. Sithole & S. Mukanganyama. Antiproliferative effects of selected plant surface leaf extracts on a human leukemic cell line. (P) (IPICS ZIM:01)

S. Mnkandla, A.H. Siwela, N. Basopo. The effect of chronic exposure of mercury, on the glutathione dependent enzymes of *Lymnaea natalensis* freshwater snails. (P) (IPICS ZIM:02)

ARUA Center of Excellence Energy Funding Proposal Workshop, 20-24 Aug., Stellenbosch

Justus Simiyu. Novel Food and Energy Concept towards Electricity Generation & Food Security. (O) (IPPS MSSEESA) (IPPS KEN:02)



Ms Molly Mombeshora (PhD student) and Mr Simbarashe Sithole (PhD student, at his poster) at the SASBMB-FASBMB meeting. (Courtesy of IPICS ZIM:01)



From left, Prof. S. Mukanganyama, Prof. L. Bilbis (Nigeria), Prof. I. Parker (RSA) and Prof. K. Fares, the executive committee of FASBMB. Courtesy of IPICS ZIM:01.



Group photo from the SASBMB-FASBMB conference. Courtesy of IPICS ZIM:01.

Actuarial Society 2018 Convention, 28-29 Oct., Cape Town

M. Lombe. Update on the Profession in Zambia. (O) (IPMS EAUMP)

NANOSMART–Africa 2018 Conference 19-23 Nov., Cape Town

Margaret Samiji. Optimization of the Cu and Zn Deposition Power and Thickness on the Optical and Electrical Properties of CZTSe Absorber (O) Layer for Thin Film Solar Cells Prepared by DC Magnetron Sputtering. (O) (IPPS MSSEESA)
(IPPS TAN:01/2)

Delvina Japhet. Effects of Deposition and Annealing Conditions on Thermochromism of VO₂ Films. (O) (IPPS MSSEESA)
(IPPS TAN:01/2)

Mwansa C., Hatwaambo S. & Munyati O. Highly conductive sodium dodecyl sulfate treated PEDOT:PSS containing copper nanoparticles for flexible organic solar cells (O) (IPPS MSSEESA)
(IPPS TAN:01/2)

South Korea

SETAC – Asia Pacific Conference, 16-19 Sep., Daegu

M. Shoeb, M. M. Islam, R. Islam, A. Hossain & N. Nahar. Bioaccumulation and potential human health risk of heavy metals in fresh water and marine fish samples of Bangladesh. (P)
(IPICS BAN:04)
(IPICS NITUB)

N. Basopo & N.R. Musingwini. An investigation on potential use of biochemical markers in aquatic organisms in detection of personal care pollutants in water bodies. (P) (IPICS ZIM:02)



Mohammad Shoeb with International Students at SETAC-AP-2018, South Korea. Courtesy of IPICS BAN:04.

Sri Lanka

1st Sri Lankan ANRAP Regional Seminar on Herbal Approaches in Combating Diabetes and other Tropical Diseases, 17-19 Jan, Kandy

Liaquat Ali. Sodium and Diabetes: An Update. (O) (IPICS ANRAP)

M Iqbal Choudhary. Discovery of inhibitors of DPP-IV, α -glucosidase and protein glycation inhibitors-molecular approached towards the treatment of diabetes. (O) (IPICS ANRAP)

Banasri Hazra. 'New' surprises from 'old' plants: *Valeriana wallichii* - A case in point. (O) (IPICS ANRAP)

Noor Hadiani Ismail. *Ficus deltoidea*, a mysterious antidiabetic plant. (O) (IPICS ANRAP)

Jayasinghe L. Endophytic fungi: An ample source of structurally diverse bioactive compounds. (O) (IPICS ANRAP)

AK Azad Khan. Problem and prospects of medicinal plants research. (O) (IPICS ANRAP)

Savitri Kumar. Bioactive constituents from fruits of some indigenous medicinal plants of Sri Lanka. (O) (IPICS ANRAP)

B. Mukherjee. Current awareness on the development of antidiabetic drugs. (O) (IPICS ANRAP)

Begum Rokeya. Pathogenesis and management of postprandial hyperglycemia: current issues & emerging advances with plant materials. (O) (IPICS ANRAP)

Bisnu Prasad Sarma. Anti-diabetic activity of aqueous ethanolic extract of *Tamarindus indica* fruit pulp. (O) (IPICS ANRAP)

Bilge Sener. Evaluation of herbal medicine for rational phytotherapy and regulatory issues. (O) (IPICS ANRAP)

Khozirah Shaari. Applications of NMR- and MS-based metabolomics in natural products research. (O) (IPICS ANRAP)

Tanzania

5th International Conference on Mechanical & Industrial Engineering, 16-17 Aug., Arusha

Tusiime S., Kajumba P.K., Nyeinga K., Okello D. & Nydal O.J. A Model for charging oil based Thermal Energy Storage Systems. (O) (IPPS UGA:01)

Robert Lugolole, Ashmore Mawire, Denis Okello, Karidewa Nyeinga & Katlego Lentswe. Experimental de-stratification analysis of sensible thermal Energy Storage Systems during discharge cycles. (O) (IPPS UGA:01)

Kajumba P.K., Tusiime S., Nyeinga K., Okello D. & Nydal O.J. An Integrated Cooking Application for Thermal Energy Storage System. (O) (IPPS UGA:01)

Building Skills for Science in Africa, TWAS 2018 Research Grants Conf., 28-31 Aug., Dar es Salaam

Souleymane Sanogo. Evaluation the alternate wetting and drying approach for water saving in Rice production and climate change mitigation in Mali. (O) (IPPS MAL:01)

Margaret Samiji. Capacity Building in Research in Tanzania. (O) (IPPS TAN:01/2)

Int. Conf. on the East African Rift System and Commemorating 25 Years of ESARSWG, 8–10 Oct., Dar es Salaam

Helio Filemone. S-wave Receiver Function studies in African Sedimentary Basins. (O) (IPPS ESARSWG)

E. Saria. Geodetic Constraints in studying crustal deformation in Tanzania. (P) (IPPS ESARSWG)

Nyahili Ngabia. Geotechnical Characterization and Prediction of Squeezing Potential at Critical Strain of Ct Shaft- Tanzaniteone Mining Ltd. (P) (IPPS ESARSWG)

Mremi William. One Dimension Basin Modeling Of Mbuo-1 Well in Mandawa Salt Basin. (P) (IPPS ESARSWG)

Chonge Shekarata. Structural Interpretation of 2d Seismic Profiles in The Northern Part of East Pande Block, Southern Coast of Tanzania. (P) (IPPS ESARSWG)

Prisca Joseph. Assessment of the aquifer system performance from pumping test data for water wells in Zanzibar. (P) (IPPS ESARSWG)

Grace Godfrey. Sediments Thickness and Structural Framework of Lake Natron Basin and their Implications for Hydrocarbon Potentiality. (P) (IPPS ESARSWG)

- John Mahwa. Structural Framework and Its Effects on Traps Formation in the South-Eastern Part of Rukwa Basin. (P) (IPPS ESARSWG)
- Isack Marobhe. Regional Geological Structures of Tanzania based on Satellite Gravity Data. (P) (IPPS ESARSWG)
- Michael Msabi. Determination of local seismicity in North Tanzanian Area. (P) (IPPS ESARSWG)
- Michael Msabi. Lessons Learnt from Kagera Earthquake Event (Mw 5.9) of 10th September 2016: Implications for Seismic Hazard and Risk Assessment. (P) (IPPS ESARSWG)
- Michael Msabi. The updated and extended Homogeneous Earthquake Catalogue for Northern Tanzania Divergence and adjacent areas since 1955 to 2011. (P) (IPPS ESARSWG)
- Joseph Nyago. Testing IMS/CTBT Verification Capability Using Lake Albert Seismic Activity in South Western Uganda. (O) (IPPS ESARSWG)
- Lostina Chapola. Peak Ground Acceleration Estimates for Malawi and the Adjacent Regions. (P) (IPPS ESARSWG)
- Ghebrebrhan Ogubazghi. Capabilities and Potential of the ESARSWG Seismological Stations Network. (O) (IPPS ESARSWG)
- Ghebrebrhan Ogubazghi. A New Laboratory Demonstrator System Applicable for the Electrical Resistivity Method: System Description and Preliminary Results (O) (IPPS ESARSWG)
- R.W. Ferdinand. The September 2016, Mw - 5.9 Kagera Earthquake (O) (IPPS ESARSWG)
- Richard Wambura Ferdinand. Evaluation of the Ground Response of the King Mohamed VI Stadium Dodma, Tanzania. (O) (IPPS ESARSWG)
- Fred Tugume. The 2016 10th September Bukoba Earthquake Impact in Mutukula Town of Uganda. (O) (IPPS ESARSWG)
- R.K. Chipampe. Real-Time Earthquake Monitoring at Lsz 119 in Zambia. (O) (IPPS ESARSWG)
- Nelson Boniface. Relics of an Ancient Rift along the Southern and Western Margins of the Tanzania Craton. (O) (IPPS ESARSWG)
- E. Saria. Geodetic Constraints on Crustal Deformation in East African Rift. (O) (IPPS ESARSWG)
- Patrick Rafiki Chindandali. Active Intrabasin Faulting in The Northern Basin of Lake Malawi from Seismic Reflection Data. (O) (IPPS ESARSWG)
- Charles Kasanzu. Apatite Fission Track and (U-Th)/He Thermochronology. (O) (IPPS ESARSWG)
- Elisante Mshiu. Application of Remote Sensing in Exploration Earth Resources: A Case Study from Ngualla REE-Carbonatite Deposit, SW Tanzania. (O) (IPPS ESARSWG)
- Emmanuel Kazimoto. The Age of Au-Cu-Pb Bearing Veins in the Poly Orogenic Ubendian Belt. (O) (IPPS ESARSWG)
- Mwita Maswi. Investigation of The Geothermal Resource Potential Sites in Areas around Lake Natron in the East African Rift System by Using Remote Sensing Satellite Data. (O) (IPPS ESARSWG)

- Emily Kiswaka. The Norwegian Sea Area Permo-Triassic Organic-Carbon-Rich Deposits from Seismic. (O) (IPPS ESARSWG)
- Lugangizya Chone. Geology and Architecture of the Onshore Ruvuma Basin of Tanzania. (O) (IPPS ESARSWG)
- John Gama. Geochemical Characterization of Oil Seeps in The Coastal Sedimentary Basins of Tanzania: Implications on Different Oil Families. (O) (IPPS ESARSWG)
- Ernest Mulaya. Diagenesis and Reservoir Modelling of Rukwa Rift Basin, Southwestern Tanzania: Implication for Helium Potential. (O) (IPPS ESARSWG)
- Isaiah Tumwikirize. Application of Radiometric and Infrasond Data in Geological Mapping. (P) (IPPS ESARSWG)
- Cassy Mtelela. Synrift Stratigraphy and Nomenclature of the Late Cenozoic Lake Beds Group, Rukwa Rift Basin, Tanzania. (O) (IPPS ESARSWG)
- Kennett Lupogo. Structure Controlled Gully Development Along the Mozambique Orogenic Belt; Mafinga, Tanzania. (O) (IPPS ESARSWG)
- Woldegebriel Genzebu. Recent Occurrences of Sinkholes in Central Dankalia, South Eastern Eritrea. (O) (IPPS ESARSWG)
- Michael Msabi. Probabilistic Seismic Hazard Analysis for the Northern Tanzania Divergence. (O) (IPPS ESARSWG)
- K. Marimira. Assessment of Seismic Hazard Potentials in Zimbabwe. (O) (IPPS ESARSWG)
- Hassan Mdala. Mapping Active Lineaments Using Geophysical Data and Satellite Imagery: A Case Study of Karonga Area, Northern Malawi. (O) (IPPS ESARSWG)
- Atalay Ayele. Seismic Hazard Assessment in the East African Rift System: gaps and the way forward. (O) (IPPS ESARSWG)
(IPPS ETH:02)
- Atalay Ayele. ESARSWG Seismic Database. (O) (IPPS ESARSWG)
(IPPS ETH:02)
- Atalay Ayele. Seismic Hazard Assessment in The East African Rift System: Gaps and The Way Forward. (O) (IPPS ESARSWG)
(IPPS ETH:02)
- Jima Asefa Seyoume. Regional Waveform Inversion for 2014 Earthquakes Near Dodoma and Kondo, Tanzania. (O) (IPPS ESARSWG)
(IPPS ETH:02)
- Sisay Alemayehu. Preliminary Results from Ambient Noise Tomography of the Western Ethiopian Plateau. (O) (IPPS ESARSWG)
(IPPS ETH:02)
- Birhanu. A. Kibret. Crustal thickness estimates beneath four seismic stations in Ethiopia inferred from p-wave receiver function studies. (P) (IPPS ESARSWG)
(IPPS ETH:02)

Gladys Kianji. An Updated Seismicity and Seismic Zonation for Kenya 1892 To 2018. (O)
(IPPS ESARSWG)
(IPPS KEN:05)

B. Onguso. Crustal Evolution of The Magadi Basin Using 3d Tomography. (O) (IPPS ESARSWG)
(IPPS KEN:05)

Sophie Kipkwony. Seismic Hazard Assessment of Kenya. (O) (IPPS ESARSWG)
(IPPS KEN:05)

Anesu G. Chibi. Integrating Earthquake Risk into Provincial Disaster Risk Plans in Zimbabwe. (O)
(IPPS ESARSWG)
(IPPS ZIM:01)

Luba G. Thwala. Seismic Risk Awareness and Emergency Preparedness in Zimbabwe: A case study
of Harare Metropolitan City. (P) (IPPS ESARSWG)
(IPPS ZIM:01)

Sounthone Singsoupho. Application of 2d-Ert And Seismic Refraction for Delineation of Gypsum at
Nadone Village, Thakhek District, Khammouane Province, Lao PDR. (O) (IPPS LAO:01)

Togo

19^{èmes} Journées Scientifiques Annuelles de la SOACHIM, 7-10 Aug., Lomé

Yacouba Sanou, N. Kwamivi N. Segbeaya, Samuel Pare, Gnon Baba L. & Yvonne Bonzi-Coulibaly
(2018). Etudes expérimentale et cinétique de l'adsorption du calcium sur des charbons actifs
mésoporeux dans les eaux usées. (O) (IPICS BUF:01)

C. BAKOUAN, B. GUEL & A-L. HANTSON. Élimination de l'arsenic de l'eau souterraine à l'aide de
latérites naturelles-mécanisme d'adsorption. (O) (IPICS BUF:02)

I. Garikoé B. Sorgho, B. Guel & I. Persson. Synthèse à l'état solide et caractérisation physico-
chimique d'organo-argiles à base d'argiles naturelles du Burkina Faso. (O) (IPICS BUF:02)

D.R. Ouedraogo, C. Bakouan, B. Sorgho, B. Guel & L.D. Bonou. Étude des phénomènes
d'adsorption de l'arsenic sur une latérite naturelle de Dano (Burkina Faso). (O) (IPICS BUF:02)

O.R. Kam, C. Bakouan, I. Zongo, T. Ramde, B. Guel & L.D. Bonou. Source de contamination par le
thallium dans le village de YAMTENGA (Burkina-Faso). (O) (IPICS BUF:02)

O. TAPSOBA, Tambi RAMDE, Boubié GUEL & Lucien BONOU. Étude d'une monocouche hybride
organique-inorganique respectueuse de l'environnement pour la protection d'un alliage d'aluminium
contre la corrosion. (O) (IPICS BUF:02)

TAMBOURA M., DOUMBIA A.S., DIALLO A.N., DIOP M. Amélioration de la solidité à la lumière
du colorant naturel de *Lannea microcarpa* sur les fibres de coton. (O) (IPICS MAL:01)

Tunisia

5th African Regional Congress on Radiation Protection, 6-9 Sep., Tunis

Angeyo K.H. Forensics Research Inspired Development of Nuclear Security Education at Nairobi. (P)
(IPPS AFSIN)
(IPPS KEN:04)

Uganda

1st Regional Workshop for Gender Equity in Basic Sciences, 28 June - 1 July, Kalangala

A. Dehayem-Massop. Gender and Science activities in Kenya. (O) (IPPS AFSIN)
(IPPS KEN:04)

3rd Network Meeting for Sida- and ISP-Funded PhD Students and Postdocs in Mathematics, 20-24 Aug., Entebbe



Bernard K Bonzi and Hamidou Toure. The Network PDE, Modeling and Control 1999-2017. (O) (IPMS BURK:01)

Eunice Mureithi. Mathematical modelling – inverse problems/PDEs 20-24. (O) (IPMS EAUMP)

Slyvester Rugeihyamu. Research in complex analysis. (O) (IPMS EAUMP)

David Koloseni. Multi-criteria decision analysis in agricultural decision making for developing countries. (O) (IPMS EAUMP)

Allen Mushi. Operations Research. (O) (IPMS EAUMP)

J. Musonda. Reordering in a multi-parametric family of algebras. (O) (IPMS EAUMP)

JUAMI 2018: Materials for Sustainable Energy, 10-12 Dec., Kampala

B.A. Abdulahi. Open circuit voltage modulations on all-polymer solar cells. (P) (IPICS ETH:01)

Delvina Japhet. Effect of Annealing Temperature in oxygen ambient for VO₂ films. (P) (IPPS MSSEESA)
(IPPS TAN:01/2)

US-Africa Materials Institute Initiative School on Materials for Solar Energy, 10-21 Dec., Kampala

Justus Simiyu & Elijah Ayieta. Opportunities in Research & Applications for Sustainable Energy: Case of Solar PV. (O) (IPPS MSSEESA)
(IPPS KEN:02)

USA

American Physical Society March Meeting, 5-9 Mar., Los Angeles, CA

Mulugeta Bekele. Teaching of Introductory Physics Courses to Freshmen and Sophomores at Addis Ababa University. (O) (IPPS ETH:01)

Tatek Yergou & Mesay Tilahun. Driven Translocation of a Star Polymer from a Confined Cylindrical Cavity with a Finite Volume. (P) (IPPS ETH:01)

Seyfan Kelil & Lemi Demeyu. Monte Carlo simulations of density effects on charge transport in disordered organic semiconductors. (P) (IPPS ETH:01)

Vietnam

Seminar on separation science for the prosperity community in a time of brilliant technologies (Hanoi Symposium), 22 Feb, Hanoi University of Pharmacy, Hanoi.

P. Deevanhxay, X. Noulorsaytour, A. Souvinkham, D. Ladbervone, S. Keoinpang & K. Phomkeona. Quantification of some organochlorine pesticides in water samples from lake and river in Vientiane's agriculture areas by gas chromatography mass spectrometry. (O) (IPICS LAO:01)

National/Local

ISP partners reported 109 contributions to national/local conferences (85% oral; Table 26). IPICS partners reported 67 (81% oral), IPMS partners 11 (all oral), and IPPS partners 31 (90% oral).

Table 27. Number of poster (P) and oral (O) contributions to national/local scientific meeting.

Region	Country	IPICS		IPMS		IPPS		Total	
		P	O	P	O	P	O	P	O
Africa	Benin		1						1
Africa	Burkina Faso		6				15		21
Africa	Cameroon	1	1					1	1
Africa	Ethiopia	1	1				1	1	2
Africa	Kenya		1		8	3	8	3	17
Africa	Rwanda		4						4
Africa	Tanzania						2		2
Africa	Zambia		1						1
Africa	Zimbabwe		7						7
Africa	Total	2	22		8	3	26	5	56
Asia	Bangladesh	10	26				1	10	27
Asia	Cambodia		3						3
Asia	Laos		1						1
Asia	Myanmar				1		1		2
Asia	Thailand	1	1		1			1	2
Asia	Total	11	31		2		2	11	35
Europe	Sweden		0		1				1
Europe	Total		0		1				1
South America	Chile		1						1
South America	Total		1						1
All countries		13	54		11	3	28	16	93

Bangladesh

Robolution-2018, Military Institute of Science & Technology (MIST), 24 Mar., Dhaka

K Siddique-e Rabbani. Addressing the young technological enthusiasts of Robolution-2018. - Sharing my thoughts (O) (IPPS BAN:04)

Strategy to Improve Food Safety Seminar, 21 Apr., Dept. Chemistry, Univ. Dhaka

S. Akter Mou. Analysis of Sulfa drugs and Chloramphenicol in different meat samples collected from different markets of Dhaka city. (O) (IPICS BAN:04)

M. Hossain. Analysis of Preservatives and Artificial Sweeteners in Fruit Juice using HPLC. (O) (IPICS BAN:04)

S. Islam Bhuiyan. Method Development and Validation for Determination of selective Antibiotics in different Food Samples by HPLC. (O) (IPICS BAN:04)

M. Mofizul Islam. Analysis of Artificial Preservatives, Sweetening and Stimulating agents in Carbonated Beverages by HPLC. (O) (IPICS BAN:04)

M. Shahed Reza. Challenges for a Competent Food Testing Laboratory. (O) (IPICS BAN:04)

M. Shoeb. Strategy to Improve Food Safety in Bangladesh. (O) (IPICS BAN:04)
(IPICS NITUB)

Seminar on World Environment Day 2018, 5 Jun., Dept Chemistry, Univ. Dhaka

M. Shoeb. Beat Plastic Pollution. (O) (IPICS BAN:04)
(IPICS NITUB)

13th ANRAP National Seminar, BUHS, Dhaka, 15 Sep.

Md Shahinul Haque Khan. Extraction, isolation and characterization of chemical compounds from plant materials. (O) (IPICS ANRAP)

Nilufar Nahar. Multidisciplinary Approaches in Diabetes Management. (O) (IPICS ANRAP)

Begum Rokeya. Screening of some antidiabetic herbal medicines and a preliminary exploratory clinical trial. (O) (IPICS ANRAP)
(IPICS NITUB)

8th ANRAP Workshop, BUHS, Dhaka, 16-20 Sep.

Nasim A. Hands on training on histo-and histopathology sample processing. (O) (IPICS ANRAP)

Ranzu A. Plant selection, collection and extraction of plant materials. (O) (IPICS ANRAP)

AK Azad Khan. Diabetes: etiology, pathophysiology and complications. (O) (IPICS ANRAP)

S.H. Khan. Fractionation and isolation of pure compounds from active extracts. (O)
(IPICS ANRAP)

N. Nahar. Chemical studies of plant materials used in the treatment of diabetes. (O)
(IPICS ANRAP)

ASMH Rahman. Care & use of laboratory animals for biomedical research. (O) (IPICS ANRAP)

Begum Rokeya. Animal models of diabetes mellitus. (O) (IPICS ANRAP)

Begum Rokeya. Experimental design for screening of antidiabetic extracts for hypoglycemic/ antihyperglycemic properties (*in vivo* & *in vitro* & technique). (O) (IPICS ANRAP)

Begum Rokeya. Design for toxicity testing of antidiabetic plant extracts. (O) (IPICS ANRAP)

39th Bangladesh Chemical Congress 2018, 17-19 Oct., Dhaka

Md Altaf Hossain. Comparative study between selective ARB and beta blocker among the diabetic population of chronic kidney disease in northern region of Bangladesh. (O) (IPICS ANRAP)

Forkan Saroar, Mohammad Shoeb, Shatabdi Roy, Md Kamrul Hasan and Nilufar Nahar, Study of Synthetic Coloring Agents in Laddu. (P) (IPICS BAN:04)

M. Hossain, M. Shoeb, N. Parvin & N. Nahar. Method Development and Validation for Determination of Preservatives and Artificial Sweeteners in Fruit Juices. (O) (IPICS BAN:04)

M.M. Islam, M. Shoeb, R. Islam & N. Nahar. Bioaccumulation and Potential Human Health Risk of Heavy Metals in Marine Fish Samples of Bangladesh. (P) (IPICS BAN:04)

M.M. Islam, M. Shoeb, R. Islam, M. Rahman & N. Nahar. Organochlorine Compounds in Marine Fish Samples of Bangladesh. (P) (IPICS BAN:04)

R. Islam, M. Shoeb & N. Nahar. Analysis of Antibiotics in Food Producing Animal by LC-MS/MS. (O) (IPICS BAN:04)

T. Islam, A.H. Khandakar, K. Hasan, M. Shoeb & N. Nahar. Development of an Easy, Quick, Cheap Method to Analyze Red Dyes in Watermelon for Consumer's Safety. (P) (IPICS BAN:04)

S.A. Mou, R. Islam, M. Shoeb & N. Nahar. Sulfa Drugs in Poultry and Beef Samples of Bangladesh. (O) (IPICS BAN:04)

Z.S. Munia, M. Shoeb & N. Nahar. Dissipation Pattern of Quinalphos in Vegetable Samples. (P) (IPICS BAN:04)

N. Nahar. Green Food for Better Human Health. (O) (IPICS BAN:04)

M.R.A. Refat, P.C. Nandi, A. Sultana, M. Shoeb & Nilufar Nahar. Composition of Energy Drinks Commonly Available in Bangladesh. (P) (IPICS BAN:04)

F. Sharmin, M. Shoeb, S. Akhter & N. Nahar. Water Quality Parameters and Environment Contaminants in the Aquatic Ecosystem of Kuakata Sea Beach. (P) (IPICS BAN:04)

M. Shoeb. Emerging Contaminants in Marine Environment of the Bay of Bengal. (O) (IPICS BAN:04) (IPICS NITUB)

M. Shoeb, Z.S. Munia & N. Nahar. Pesticides and their Dissipation Pattern in Vegetable Cultivation. (P) (IPICS BAN:04)

S. Sultana, N. Jahan, N. Islam, M. Shoeb & N. Nahar. Assessment of Chemical Constituents of some Pesticides Treated and Untreated Vegetable Samples. (P) (IPICS BAN:04)

M. Rausan Zamir, A.B.M. Nazmul Islam, Shipra Sarker, Rajib Kanti, M. Safiur Rahman & M. Omar Faruque. Quantification and health safety assessment of major heavy metals in anti diabetic herbal preparations available in Bangladesh. (P) (IPICS BAN:05)

Shamshad B. Quraishi. Quality control practices in analytical measurement. (O) (IPICS NITUB)



Staff and students of IPICS BAN:04 at the Bangladesh Chemical Congress 2018. Courtesy of IPICS BAN:04.

Benin

Workshop on proposal writing, 27 Aug. - 1 Sep., Cotonou

Y. L. Bonzi-Coulibaly. Research impact and gender approach integration. (O) (IPICS BUF:01)

Burkina Faso

72 h de l'association des étudiants en chimie, 23 Feb., Ouagadougou

Y. L. Bonzi-Coulibaly. La chimie au quotidien. (O) (IPICS BUF:01)

Seminars for MT180 candidates' preparation., Apr.-June, Ouagadougou and Bobo-Dioulasso

Y. L. Bonzi-Coulibaly. La recherche scientifique. (O) (IPICS BUF:01)

Journées scientifiques de l'AFSCIB, 5 June, Ouagadougou

Y. L. Bonzi-Coulibaly. Communication water international day: la qualité de l'eau en Afrique. (O) (IPICS BUF:01)

72 heures de l'élève professeur, Institut des sciences, 14 July, Ouagadougou

Y. L. Bonzi-Coulibaly. La chimie et vie quotidienne. (O) (IPICS BUF :01)

Journées de l'OAIC 17-18 July, Ouagadougou

L. Bonzi-Coulibaly. Généralités sur la chimie et les armes chimiques: les diversités et des exemples de relation structure-activité. (O) (IPICS BUF:01)

12^{ème} édition du FRSIT, 20-25 Oct., Ouagadougou

B. Ouédraogo. Valorisation de plantes à propriétés antihypertensives: profil phytochimique et activité antioxydante de six plantes utilisées dans la prise en charge de l'hypertension. (O) (IPICS BUF :01)

6th Workshop of Scientific Exchanges, 20-22 Dec., Ouagadougou

Thierry KY. New natural convection system. Collector designed from spherical concentrators: drying applications (O) (IPPS BUF:01)

Martial Zoungrana. Nuclear security. (O) (IPPS BUF:01)

Béwontoré Sawadog. Statistics of non-stationary extremes. Application to climate data in Burkina Faso. (O) (IPPS BUF:01)

Abdoul Fayçal. Experimental characterization of briquettes based on paper / cardboard waste: study of the impact of the binder on compaction. (O) (IPPS BUF:01)

Ulrich Combari. Evaluation of the performance of a PV module under the influence of an external magnetic field. (O) (IPPS BUF:01)

Boukari Beyi. Modeling, mathematical analysis and numerical simulation of HIV-AIDS dynamics with clinical control: determination of the basic reproduction rate (R0) and impact of the control. (O) (IPPS BUF:01)

M. Issoufou Ouarma. Urban Air Pollution in Ouagadougou (Burkina Faso): Estimated Hourly Carbon Monoxide (CO) Emissions for a Business Day with a Numeric Code. (O) (IPPS BUF:01)

Hay Yoba Talkibing. Stochastic Spatial Approach in Epidemiology of Tropical Diseases. (O) (IPPS BUF:01)

Wilfried Bado. Intra-seasonal and annual variation of aerosols and their radiative impact in the Sahelian zone in Burkina Faso. (O) (IPPS BUF:01)

Abdoul Kader Segda. Mathematical formalization of the monthly variation of the critical frequencies foF2 and establishment of the eigen profiles foF2 and the different mechanisms of transformations of these specific profiles observed at the station of Ouagadougou. (O) (IPPS BUF:01)

Adama OUEDRAOGO. Improvement of the silicon solar cell system. (O) (IPPS BUF:01)

Boureima KABORE. Numerical study of heat diffusion in three phases under the influence of hot air flow in the sahelian zone: air-to-soil heat exchanger. (O) (IPPS BUF:01)

Vinci BOKOYO. Three-dimensional 3D modeling of the electrical parameters of a polycrystalline silicon solar cell under multispectral illumination. (O) (IPPS BUF:01)

Amadou KONFE. Simulation of the thermal behavior of an adsorption solar refrigerator in Sahelian climate. (O) (IPPS BUF:01)

Bernard NANA. Modeling dust emissions in West Africa. (O) (IPPS BUF:01)

Cambodia

CCS Annual Symposium on "Chemistry and Life", 20-21 Sep., Natl. Inst. Edu., Phnom Penh

Cheng Kley. Enhancement of photocatalytic activity of mixed metaloxides $Zr_xTi_{1-x}O_2$. (O) (IPICS CAB-CCS)

Phan Kongkea. Assessing water quality in the coastal area of Cambodia. (O) (IPICS CAB-CCS)

Phoeuk Chanrith. Three novel mutations in α -galactosidase gene involving in galactomannan degradation in endosperm of curd coconut. (O) (IPICS CAB-CCS)

Cameroon

The 6th Day of Life Sciences, Cameroon Forum for Biological Sciences, Univ. Dschang, 6-8 Aug.

S. MBOKOU FOUKMENIOK, Y. KARANGA R. BABINE, F. R. BAKO, A. TALL, I. TAPSOBA, M. PONTIÉ, E. NJANJA, I.K. TONLE & E. NGAMENI. Electroanalytical performance of a carbon paste electrode modified by nanocrystalline cellulose for the quantification of diuron in soil sample. (P) (IPICS ANEC)

E. Ngameni. Recherche scientifique nationale pourquoi l'important savoir savant accumule peine-t-il a se transformer en savoir faire? (O) (IPICS ANEC)

Chile

XXI Congreso Nacional de Arqueología Chilena, 3-7 Dec., Santiago

Quirgas, A., Echeverría, J., Niemeyer, H.M. Evidencia química del uso de tabletas de inhalación para la administración de plantas psicoactivas en San Pedro de Atacama. (O) (IPICS LANBIO)

Ethiopia

Ethiopian Physical Society February Meeting, 15-16 Feb., Adama

Seyfan Kelil & Lemi Demeyu. Monte Carlo simulations of disorder, temperature, and density effects on charge transport in disordered organic semiconductors. (O) (IPPS ETH:01)

2nd Scientific Conf. on Renewable Energy Systems for Sustainable Future, 20-21 June, Addis Ababa

Birhan A. Abdulahi. Synthesis of D-A conjugated polymers for solar cell application. (P) (IPICS ETH :01)

Shimelis Admassie. Biopolymer-conducting polymer-metal-ceramic-composites for energy conversion, storage and wastewater treatment. (O) (IPICS ETH :01)

Kenya

World Metrology Day, 18 May, Kenya Bureau of Standards, Nairobi

J.M. Mwabora. Constant Evolution of the International System of Units (S.I.) (O)(IPPS MSSEESA) (IPPS KEN:02)

Air pollution in Emerging Mega-Cities: Sources, Evolution, Impacts, 16-20 Apr., Nairobi

Gatari M.J. Overview of Air Pollution in African Mega-Cities: Causes, Impacts and Trends. (O) (IPPS KEN:01/2)

Ng'ang'a D. & Gatari M.J. Preliminary Measurements of PM_{2.5} in Nairobi: IAEA Regional Project in Africa. (P) (IPPS KEN:01/2)

Kirago L.M., Gatari M.J. & Mwangi N.N. A Short Review of Black Carbon Measurements in PM_{2.5}, in Nairobi, Kenya. (P) (IPPS KEN:01/2)

Mutahi A.W., Borgese L., Gatari M.J., Zacco A., Bilo F., Marmai S., Volante M., Bontempi E. & Depero L.E. A New Approach for Indoor Air Sampling and Chemical Characterization Using TXRF. (P) (IPPS KEN:01/2)

Panchal R., Hey J.V., Ogot M., Gatari M. & Nyangaya J. Development of an Air Quality Monitoring Programme for Nairobi. (O) (IPPS KEN:01/2)

The First Science Conference, College of Biological and Physical Sciences, UoNBI, 1-5 Oct., Nairobi

A. Yenesew, N. Abdissa, M. Endale, H.M. Akala & M. Erdélyi. Phytochemical investigation of Kenyan plants towards management of malaria: A case study of *Pentas* species (Rubiaceae). (O) (IPICS KEN:01)

1st Annual Architecture and Engineering Conf. (AEC2018), 22-24 Oct. Nairobi

Kiriinya L.K., Mailu M., Njoroge D. & Gatari M. J. Quality Control in the Solar Energy Sector: The case of Solar Lighting. (O) (IPPS KEN:01/2)

Ng'ang'a D., Maina L.K. & Gatari M.J. EDXRF and Multivariate Statistics in Source Identification of PM_{2.5}. (O) (IPPS KEN:01/2)

Mazzeo A., Burrow M., Quinn A., Singh A., Bakare H., Wodajo B.T., Rubarenzya M., Mbujje J., Gatari M. & Pope F. Modelling the impact of road transport emissions on the air quality of different East African urban areas. (O) (IPPS KEN:01/2)

2nd Annual solar energy workshop and exhibition, 22-26 Oct., Kabarak University, Nakuru

Mghendi Mwamburi. Pathway to renewable energy harnessing – Challenges and opportunities (O). (IPPS MSSEESA) (IPPS KEN:03)

Justus Simiyu. Solar Energy utilization – success stories. (O) (IPPS MSSEESA) (IPPS KEN:03)

1st Annual Conference on Science for Development, 24-25 Oct., Nairobi

J.A.M. Otieno. A comparison of Parametric Methods for Modeling Mosquito Survival Using Temperature and Age-Dependent Survival Data. (O) (IPMS EAUMP)

M.M. Manene. Modelling Rainfall Patterns in Meru and Embu Regions Using Time Series Models. (O) (IPMS EAUMP)

G.P. Pokhariyal. Role of Science in Development of Various Sectors. (O) (IPMS EAUMP)

W. Ogana. Using Mosquito Vector Density and Entomological Inoculation to Assess Climate Change Effect on Malaria in Epidemiological Zones in Kenya. (O) (IPMS EAUMP)

N. Owuor & R. Sarguta. Application of random survival forests and accelerated failure time shared frailty models in understanding under-five child mortality in Kenya. (O) (IPMS EAUMP)

N. Owuor. Multiple Imputation for Missing Covariate Data for Under-Five Child survival in the Demographic and Health Surveys. (O) (IPMS EAUMP)

J.I. Mwaniki. Application of Ordinal Logistic Regression in Analyzing Students' Performance at Kenya Certificate of Secondary Education Level in Kiambu County. (O) (IPMS EAUMP)

P. Ngare. Analysis of the Coexistence of Conventional and Unconventional Credit Markets in the Agribusiness Sector in Kenya. (O) (IPMS EAUMP)

Laos

Annual Scientific Festival, 15 Nov., NUOL, Vientiane

S. Kongmany, V. Chounlamany, P. Keobountham, S. Khanthavong, Hongxeng & Huay-Mark-Heiw. Domestic wastewater quantity surveillance in Vientiane Capital of Lao PDR. (O) (IPICS LAO :01)

Myanmar

Science and Technology Fair 2018, Feb.

Htet Aung Khaing. Analysing Soccer Playing Styles and Performance between Myanmar National Team and Thailand National Team by Using Network Theory. (O) (IPMS SEAMaN)

Conference on Science and Technology Development, 30-31 Oct., Pyin Oo Lwin

Kalyar Thwe. Natural Radioactivity Level and Hazard of Sediments in Ayeyarwaddy River near Mandalay. (O) (IPPS MYA:01)

Rwanda

2nd Workshop in Chemistry, 18-21 Dec., Univ. Rwanda, Coll. Sci. Tech., Kigali.

B. Mukarunyana. Rwanda coffee washing stations and pollution. (O) (IPICS RWA:01)

C. Kayirangwa & T. Muhizi. Assessment of the removal efficacy of nutrients and heavy metals from wetlands by *Cyperus Papyrus* and *Leersia Hexandra*. (O) (IPICS RWA:01)

J. Ntaganda, J.D. Samvura & T. Nkurunziza. Laboratory scale biogas production from geranium distilled leaves. (O) (IPICS RWA:01)

C. Sibosiko. Positive impact of land consolidation to environmental removal of carbon dioxide. (O) (IPICS RWA:01)

Sweden

1st Meeting of the Swedish Network for Algebra and Geometry (SNAG 2018), 27-28 Sep., Linköping

J. Musonda. Orthogonal polynomials, operators and commutation relations. (O) (IPMS EAUMP)

Thailand

Seminar Science & Innovation in Thailand 4.0, 3-4 July, Kampaengphet Rajabhat Univ.

S. Kongmany, K. Phomekona, L. Phomphong & P. Keobounthum. Investigation of chlorpyrifos and cypermethrin pesticide residue in some vegetable in Laos PDR. (O) (IPICS LAO:01)

K. Phomkeona, P. Phommaly, L. Mitsouphoun, V. Phouthavong & K. Phomkeona. Development of A Simple and Cost-effective Colorimetric Detection of Ammonium Using Membraneless-Vaporization (MB-LVP) Technique. (P) (IPICS LAO:01)

Workshop: Science and Innovation, 3-4 Nov., Khamphengphet Univ.

Thongsouk Saybounheang, Khankham Vongsavang, Bounkeaut & Nan Chanthalath. Three Dimensional Visualization of the Optimal Value of Quadratic Equations from Activities (O) (IPMS SEAMaN)

Tanzania

4th College Research week 11-13 Apr., Dar es Salaam

Margaret Samiji. Development of Kesterite (CZTSe) Solar Cells from DC Magnetron Sputter Precursors. (O) (IPPS MSSEESA)
(IPPS TAN:01/2)

Mbozi Kimondo Conference, 29 June, Mbozi

Nuru Mlyuka. Astronomy Curriculum in Higher Education. (O) (IPPS TAN:01/2)

Zambia

NSTC Fund Management Committee Meeting, 25 Jul., Lusaka

M.O. Munyati & Isabel Chisulo. Enhancement of photo-conversion efficiency in PCBM:P3HT:SQ3 ternary system using plasmonic copper nanoparticles. (O) (IPICS ZAM:01)

Zimbabwe

The Zimbabwe Chemistry Society Inaugural Conference, 16-17 Aug., Harare

R. Mapfumo & M.F. Zaranyika. Development of a high precision ICP-OES method for the determination of platinum in platinum ore floatation concentrates based on the full factorial experimental design and response surface methodology. (O) (IPICS ANCAP)

L. Maposa & M.F. Zaranyika. Footprint of persistent pesticides and other organic pollutants in Mazowe Dam. (O) (IPICS ANCAP)

4th NAPRECA-Zimbabwe Symposium on Natural Products Research: Contribution to Health by Medicinal Plants in Zimbabwe, 14 Dec., Harare.

C. Kapondoro, S. Sithole & S. Mukanganyama. Use of the water hyacinth (*Eichhornia crassipes*) for active chromium phytoremediation. (O) (IPICS ZIM:01)

M. Manyawi, W. Mozirandi, D. Tagwireyi & S. Mukanganyama. Fractionation and antibacterial evaluation of the surface compounds from the leaves of *Combretum zeyheri*. (O) (IPICS ZIM:01)

W. Mozirandi, D. Tagwireyi & S. Mukanganyama. Evaluation of antimicrobial activity of a pure compound isolated from *Vernonia adoensis* (Asteraceae). (O) (IPICS ZIM:01)

L. Mugayi, M. Mombeshora & S. Mukanganyama. Evaluation of *Eichhornia crassipes* (water hyacinth) leaves and roots as a source of antimicrobial agents. (O) (IPICS ZIM:01)

S. Sithole, M. Wende & S. Mukanganyama. Effects of combining cancer drugs with compounds isolated from Combretaceae species on the viability of human leukemic cells. (O)(IPICS ZIM:01)

Other Communications

This section lists other scientific communication activities such as internal seminars, invited talks at other institutions, participation in panels, and media communication.

Bangladesh

Begum Rokeya. How to edit a scientific manuscript, and Substantial editing, copy editing & proofreading. Workshop on Scientific Writing, 4-28 June, BMRC, Dhaka. (IPICS ANRAP)
(IPICS NITUB)

M. Mafizul Islam. Method Development and Validation for the Analysis of Artificial Preservatives, Stimulating and Sweetening Agents of Carbonated Beverages by HPLC. Univ. Dhaka, 24 Feb., MSc seminar. (25 part.) (IPICS BAN:04)

M. Hossain. Quantitative analysis of preservatives and artificial sweeteners by HPLC in commercial fruit juice available in Bangladesh. Univ. Dhaka, 24 Feb., MSc seminar (25 part.) (IPICS BAN:04)

S. AkterMou. Analysis of Sulfa Drugs and Chloramphenicol in Meat Samples by LC-MS/MS. Univ. Dhaka, 24 Feb., MSc seminar. (25 part.) (IPICS BAN:04)

T. Ahmed. Isolation of Secondary Metabolites from *Morus alba* L. Univ. Dhaka, 24 Feb., MSc seminar (25 part.) (IPICS BAN:04)

F. Sharmin. Water quality parameters and environmental contaminants at the Southern part of Bangladesh. Univ. Dhaka, 24 Feb., MSc seminar. (25 part.) (IPICS BAN:04)

S. Islam Bhuyian. Method development and validation for the determination of selected antibiotics in different food samples by HPLC. Univ. Dhaka, 24 Feb., MSc seminar. (25 part.) (IPICS BAN:04)

F. Saroar. Phytochemical Investigation and Biological Activity Studies of *Sargassum flavicans*. Univ. Dhaka, 27 Dec., MSc seminar. (28 part.) (IPICS BAN:04)

T. Rahman. Study of Water Quality Parameters in Saint Martin's Island. Univ. Dhaka, 27 Dec., MSc seminar. (28 part.) (IPICS BAN:04)

T. Islam. Study of Marine Fish Samples from Saintmartin's Island, University of Dhaka, 27 Dec., MSc seminar. (28 part.) (IPICS BAN:04)

E. Ahmed. Chemical and Biological Activity Studies of *Enteromorpha flexuosa*. Univ. Dhaka, 27 Dec., MSc seminar. (28 part) (IPICS BAN:04)

M. Shoeb. Anticancer Agents from Endophytic Microorganisms. Evaluation of Annual Report by Ministry of Education, 9 Feb, Dept. Microbiology, Univ. Dhaka. (IPICS BAN:04)
(IPICS BAN:04)

Mahjabin Sultana (F). Herbal Plant isolation, Biochemical parameter analysis, 20 Sep., BUHS, Dhaka. (8 pp.) (IPICS BAN:05)

Burkina Faso

Guiro Aboudramane. Contrôle optimal des EDO. Univ. Nazi Boni, Bobo-Dioulasso. (MSc course) (IPMS BURK:01)

- Guiro Aboudramane. Système dynamique et comportement asymptotique des EDO. Univ. Nazi Boni, Bobo-Dioulasso. (MSc course) (IPMS BURK:01)
- OUARO Stanislas. Optimisation de forme. Univ. Ouaga 1. (MSc course) (IPMS BURK:01)
- OUARO Stanislas. Analyse convexe. Univ Ouaga 1. (MSc course) (IPMS BURK:01)
- OUARO Stanislas. EDP non linéaires. Univ. Nazi Boni, Bobo-Dioulasso. (MSc course) (IPMS BURK:01)
- Bonzi K Bernard. Systèmes dynamiques. Univ Ouaga 1. (MSc course) (IPMS BURK:01)
- Bonzi K Bernard. Théorie des distributions. Univ Ouag 1. (MSc course) (IPMS BURK:01)
- Bonzi K Bernard. Histoire des mathématiques. Univ Ouaga 1. (MSc course) (IPMS BURK:01)
- Hamidou TOURE. EDP Elliptique du Second ordre. Univ Ouag 1. (MSc course) (IPMS BURK:01)
- Hamidou TOURE. Modèle Mathématique des Milieux poreux. Univ Ouaga 1. (MSc course) (IPMS BURK:01)
- Hamidou TOURE. EDP non linéaire. Univ Ouaga 1. (MSc course) (IPMS BURK:01)
- Hamidou TOURE. Analyse fonctionnelle I et II. Univ Ouaga 1. (MSc course) (IPMS BURK:01)
- Regular seminar series at Univ Ouagadougou 1 (IPMS BURK:01)

Cambodia

- M. Shoeb. Analytical Techniques to Study Chemical Contaminants in Food and Environment. Seminar, 28 Jan, Dept. Chemistry, RUPP, Phnom Penh. (IPICS BAN:04) (IPICS NITUB)



Mohammad Shoeb giving lecture at RUPP, Cambodia. Courtesy of IPICS BAN:04.

Proum Sorya & San Rotanak. Seasonal variation of metals (Cd, Cu, Fe, and Zn) in surface water of Mekong River, Cambodia. Presentation of results from the STEM 2018 project RUPP to Ministry of Education, and academic and administrative staff (about 50 part.), 22 Oct., Kompong Cham Province. (IPICS CAB:01)



Results presentation to Ministry of Education, STEM 2018 project. Courtesy of IPICS CAB:01.

Ethiopia

M. Zinabu. Bioactive Compounds from Marine Microbes. MSc sem. (20 part.) (IPICS ETH:02)

Dr Kidist Bekele-Maxwell (M). The complex-step derivative technique for sensitivity analysis, Dept. Math., AAU, 14 Sep. (10 Part) (IPMS ETH:01)

France

Mamadou Sy. Modèles Mathématiques d'écoulement. Séminaire Hebdomadaire du Dépt. Math., Univ. Paris Descartes. (IPMS BURK :01)

Germany

A. Yenesew, N. Abdissa, M. Induli, M. Gebru, M. Heydenreich, E. Dagne, J.O. Midiwo & G. Bringmann. Red Hot Compounds from the Red Hot Poker Plant, *Kniphofia*, and Related Taxa. Guest lecture by A. Yenesew at Univ. Potsdam, 27 June. (IPICS KEN:02)

Kenya

Gatari M. J. gave an oral presentation: "Overview of Air Pollution in African Mega-Cities: Causes, Impacts and Trends" at Air pollution in Emerging Mega-Cities: Sources, Evolution, Impacts, 16–20 Apr., Nairobi. (IPPS KEN:01/2)

Kiriinya L.K. and Gatari M.J. gave an invited talk, History and Activities of the Institute of Nuclear Science & Technology, University of Nairobi, at the IAEA Expert mission of Capacity building and Technical Service organization initiative, 2-3 Oct., Nairobi. (IPPS KEN:01/2)

A. Yenesew. Determination of Absolute Stereochemistry. Three days of lectures at the BMBF/DAAD Phytochem Project Summer School, July-Aug., Egerton University. (IPICS KEN:02)

Mali

A. Samaké & A. Maiga. PDE Numerical analysis, Bamako. (MSc course) (IPMS BURK:01)

Amadou Mahamane. Methode of finite volume, Bamako. (MSc course) (IPMS BURK:01)

Yaya Koné. Modeling and dynamical systems, Bamako. (MSc course) (IPMS BURK:01)

Rwanda

R. Sha'Ato gave a lecture on "Environmental analysis: techniques and sample preparation methods" at a Summer School associated with the 11th Symposium of the African Network for Chemical Analysis of Pesticides and other Pollutants (ANCAP), 10 Dec., Univ. Rwanda, Kigali. (IPICS ANCAP)

Valens Habimana. Problem of pesticide residues in Rwandan Lakes, Rubavu. UR Dept. Chem., 14 June. (65 part.) (IPICS RWA:01)

Consolee Sibosiko. Potential impact of cropping system for carbon dioxide capturing, case study of Vision Agribusiness Farm in Rwanda. UR Dept. Chem., 25 Apr. (12 part.) (IPICS RWA:01)

Christian Sekomo. Heavy metal removal by combining anaerobic upflow packed bed reactors with water hyacinth ponds. UR Dept. Chem., 14 Feb. (30 part.) (IPICS RWA:01)

Hubert Rudakemwa. The role of interactive software as educational and analytical tools. Casestudy: The development of the program ETHAN. UR Dept. Chem., 28 Feb. (15 part.) (IPICS RWA:01)

Emmanuel Ngendahayo. Wetlands pollution and potential for *Schistosomiasis* transmission in Nyabugogo wetland. UR Dept. Chem., 18 Apr. (37 part.) (IPICS RWA:01)

Adrien Rutikanga. Mineral composition and antioxidants of freshwater algae. UR Dept. Chem., 16 May. (15part.) (IPICS RWA:01)

Brigitte Mukarunyana. Nitrogen removal in a photo-bioreactor by nitrification and anammox under variations in dissolved oxygen concentration. UR Dept. Chem., 20 June. (40 part.) (IPICS RWA:01)

Janvier Habinshuti. Functional Analysis of *Arabidopsis thaliana* TETRASPANIN Genes in Plant Development. UR Dept. Chem., 14 Mar. (25 part.) (IPICS RWA:01)

Elisee Gashugi. Rwanda Greenhouse gases inventory in waste sector for the period 2006-2015, by using the IPCC 2006 guideline. UR Dept. Chem., 21 Mar. (23 part.) (IPICS RWA:01)

Senegal

Guirou Aboudramane. Système dynamique et comportement asymptotique des EDO. Univ. Assane Seck de Ziguinchor, Sénégal. (MSc course) (IPMS BURK:01)

Regular seminar series at Univ. Gaston Berger, Saint Louis, Senegal. (IPMS BURK:01)

South Africa

S. Mukanganyama. A synopsis of some antimicrobial and antiploriferative activities of phytochemicals isolated from some medicinal plants from Zimbabwe. Seminar Presentation, 8 Aug., Horticultural Science Dept., University of Technology, Cape Town. (IPICS ZIM:01)

South Korea

M. Shoeb. Strategy to improve food safety and reduce environmental pollution in Bangladesh. Departmental Seminar for Guest Speaker, 18 Sep., Kyungpook Natl Univ. (IPICS BAN:04)
(IPICS NITUB)



M. Shoeb with staff and students of Dept Chem., Kyungpook Natl Univ. Courtesy of IPICS BAN:04.

Sudan

Sami Khalid. Revisiting mycetoma treatment gaps within the context of current research priorities. The Mycetoma Consortium – Mycetoma Research Gaps Seminar, 13 July, Khartoum.

(IPICS NAPRECA)

Sweden

Proum Sorya. The metal pollutants (Cd, Cu, Fe, Pb and Zn) in surface water of tropical riverine system, 28 Sep., BMC, UU, Uppsala.

(IPICS CAB:01)

Sreng Soknet. Seasonal Variation of Nitrate Concentration in Leachate and in Groundwater in the Vicinity of the Municipal Solid Waste Landfill, Phnom Penh, Cambodia, 10 Oct., BMC, UU, Uppsala.

(IPICS CAB:01)

Ruth Mbabazi, Copolymerization of CO₂ with epoxides using supported zinc catalysts, Nov., Lund University.

(IPICS UGA:02)

Fiona Nakibuule. Catalytic fixation of CO₂ into epoxides using zeolite-based catalysts, 28 July, Lund University.

(IPICS UGA:02)



Sorya Proum presenting her research at BMC, Uppsala University. Courtesy of ISP.

Thailand

Than Zaw Oo gave an invited lecture, Potential of Plasmonics in Photovoltaics (3P's), at the Student Colloquium, Dept. Physics, King Mongkut's Univ. Technol. (KMUTT), 29 Mar. (IPPS MYA:01)

Than Zaw Oo gave an invited lecture, Plasmonics for Photovoltaics, Electrochromics and Photocatalysis, within the Physics Seminar, Prog. Physics, Fac. Science Technol. and Centre of Excellence on Alternative Energy, Sakon Nakhon Rajabhat Univ., 30 Mar. (IPPS MYA:01)

Uganda

Ms Fiona Nakibuule. Catalytic fixation of carbon dioxide into epoxides using zeolite based catalysts, 2 Dec., Dept. Chem., Makerere Univ. (21 part.) (IPICS UGA:02)

Ms Ruth Mbabazi. Carbon dioxide epoxide co-polymerization using supported zinc catalysts, 13 Dec., Dept. Chem., Makerere Univ. (25 part.) (IPICS UGA:02)

Mr Mugaya Samson. An Extension of a generalization of the Bolzano Theorem for 2-simplices. 3 Oct. (IPMS EAUMP)

Mr Muhumuza Cosmas. A Mathematical Model for the Transmission Dynamics and Optimal Control Strategy of Coffee Wilt Disease in Uganda. 12 Sep. (IPMS EAUMP)

Brian Makonzi. Derived Categories. 31 Jan. (IPMS EAUMP)

Mr Mugabi Francis. Mathematical Modeling and Optimal Control of Corruption Dynamics. 18 Apr. (IPMS EAUMP)

Ms Caroline Namanya. Introduction to Braid Groups. 31 Oct. (IPMS EAUMP)

Mr James Kyanda. Mathematical Model for HBV: Quantifying Disease Burden & Economic Evaluation of Intervention Programmes in Uganda. 31 Oct. (IPMS EAUMP)

Mr William Kirabo. On Completely Prime Ideals. 10 Oct. (IPMS EAUMP)

Mr Makonzi Brian. Localization of Categories. 17 Oct. (IPMS EAUMP)

Mr Mugabi Francis. Parameter Dependent Transmission Dynamics of Foot and Mouth Disease in a Contaminated Water and Pasture Environment. 7 Mar. (IPMS EAUMP)

Mr Mugaya Samson. An Extension of a generalization of the Bolzano Theorem for 2-simplices. 26 Sep. (IPMS EAUMP)

Mr Muhumuza Cosmas. A Stochastic Tick-Borne Model: Exploring the Probability of Pathogen Persistent. 29 Aug. (IPMS EAUMP)

Mr Mustafa Ahmed. On projective modules. 21 Mar. (IPMS EAUMP)

Mr Walter Okongo. A Cost-Utility Model for Pre- and Post-Infection Dynamics of Foot-and-Mouth Disease in Selected Districts of Uganda. 5 Sep. (IPMS EAUMP)

Zambia

Themba Dube. Looking at the Stone-Cech Compactification algebraically, UNZA, 4 June. (30 part.) (IPMS EAUMP)

Inderasan Naidoo. Ideal convergence in posets UNZA, 4 June. (30 part.) (IPMS EAUMP)

Partha Pratim Ghosh. Internal Neighbourhood Spaces, UNZA, 5 June. (30 part.) (IPMS EAUMP)

Oghenetega Ighedo. On the parallelism between complete regularity and zero-dimensionality, UNZA, 5 June. (30 part.) (IPMS EAUMP)

Ronalda Benjamin. Fredholm Spectral Theory UNZA, July. (25 part) (IPMS EAUMP)

Zimbabwe

S. Mukanganyama. Glutathione-based skin whitening agents: biochemical basis and possible risk to health. Univ. Zimbabwe, 19 Apr., student seminar. (50 part.) (IPICS ZIM:01)

M. Mombeshora. Purification of the crude leaf extracts from *Triumfetta welwitschii* using column chromatography. Univ. Zimbabwe, 3 July, postgraduate seminar. (35 part.) (IPICS ZIM:01)

W. Mozirandi. Antibiofilm evaluation of phytochemicals from *Vernonia adoensis*. Univ. Zimbabwe, 3 July, postgraduate seminar. (35 part.) (IPICS ZIM:01)

R. Makurira. Scientific evaluation of selected medicinal plants used for treating meningitis. Univ. Zimbabwe, 22 Oct., postgraduate seminar. (35 part.) (IPICS ZIM:01)

Molly Mombeshora. Antibacterial activity of fractions from *Triumfetta welwitschii*. Univ. Zimbabwe, 22 Oct., postgraduate seminar. (35 part.) (IPICS ZIM:01)

W. Mozirandi. Evaluation of antibacterial activity of chondrillasterol from *Vernonia adoensis*. Univ. Zimbabwe, 22 Oct., postgraduate seminar. (35 part.) (IPICS ZIM:01)

D. Tapfuma. Effects and distribution of mercury species in areas surrounding gold panning activity. Mar., NUST, Bulawayo, PhD seminar. (20 part.) (IPICS ZIM:02)

D. Tapfuma. Chromium biogeochemistry in freshwater ecosystems in areas surrounding gold panning activity: A case study of Fetete dam in uMzingwane district. Mar., NUST, Bulawayo, PhD seminar. (17 part) (IPICS ZIM:02)

Lydia Bhebe. Investigation on the effect of chromium VI from tanning industries on bream fish (*Oreochromis mossambicus*). 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)

L L.Z. Gumpo. Effect of polluted drinking water sources on liver tissue of cattle. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)

Walter Kamabasiya. Effects of mining activity on *Achatin fulica* and *Eisenia fetida* in a mining area. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)

T.N. Kayeye. Assessment on the effects of agrochemicals on non-target soil organisms: A study using the earthworm *Eisenia fetida* as the model of evaluation. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)

N. Kutwayo. Effects of mining activities in Matebeleland South on aquatic biota using the freshwater snail *Helisoma duryi* as a model of study. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)

Yovencio Mashiri. Assessing polycyclic aromatic hydrocarbons pollution in coal mining areas using land snails and earthworms as bioindicators. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)

- C. Masiye. The phytoremediation capabilities of *Brassica oleracea* (kale) and *Helianthus annuus* (sunflower) on heavy metal contaminated landfill soil of Matshobane in Bulawayo, Zimbabwe. 7 May, NUST, Bulawayo. (22 part) (IPICS ZIM:02)
- Nomathemba Moyo. Effects of atrazine on reproduction of snails, hatching of eggs and growth of juvenile snail. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)
- S.L. Moyo. Comparing the effects of two different pesticides on two different fish species. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)
- T.E. Mpfu. Aflatoxin carryover from feed in chicken egg production. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)
- D. Musukutwa. Prevalence of nematodes in small ruminants and their effect on stress enzymes. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)
- N.T. Ndlovu. Effects of heavy metal contamination from mining activity on *Eisenia fetida* at a mining area. 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)
- T. Nsingo. An investigation on the toxicological effect of detergents on enzymatic activities of bream fish (*Oreochromis mossambicus*). 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)
- Y. Wilson. Comparing the effect of Copper Oxychloride sub-lethal exposure on *Helix aspersa* and *Achartina fulica*. 7 May, NUST, Bulawayo. (22 part) (IPICS ZIM:02)
- P. Zinyeredzi. Phytoremediation of pharmaceutical waste water using water hyacinth (*Eichhornia crassipes*). 7 May, NUST, Bulawayo. (22 part.) (IPICS ZIM:02)

Arranged Meetings

ISP partners arranged 126 scientific meetings 2018, attracting more than 8 300 participants (Table 27). IPICS partners arranged 75 meetings, attracting more than 4 000 participants, IPMS partners arranged 17 meetings attracting more than 2 500 participants, and IPPS partners arranged 34 meetings attracting more than 1 600 participants.

Table 28. Countries where meetings and courses were arranged, with research groups or scientific networks as organizers or co-organizers. Number of meetings (No) is indicated, as well as total number of participants (part.) reported. (S.Am. – South America)

Region	Country	IPICS		IPMS		IPPS		Total	
		No	part.	No	part.	No	part.	No	part.
Africa	Burkina Faso	13	392	1	140			14	532
Africa	Cameroon	1	20					1	20
Africa	Egypt	2	43					2	43
Africa	Ethiopia	3	31	2	210	1	>10	6	>251
Africa	Ivory Coast					1	10	1	10
Africa	Kenya	5	>457	6	1 685	17	508	28	>2 650
Africa	Rwanda	4	114					4	114
Africa	Senegal			2	71			2	71
Africa	South Africa	1	31					1	31
Africa	Sudan	1	>10					1	>10
Africa	Tanzania	2	410	2	90	1	62	5	562
Africa	Togo					1	85	1	85
Africa	Uganda			1	109	6	159	7	268
Africa	Zambia	3	135					3	135
Africa	Zimbabwe	4	181					4	181
Africa	Total	39	1 824	14	2 305	27	850	80	4 979
Asia	Bangladesh	16	999			2	212	18	1 211
Asia	Cambodia	7	672	1	70	2	250	10	992
Asia	Laos	1	25	2	260	1	13	4	298
Asia	Myanmar					1	275	1	275
Asia	Sri Lanka	3	100					3	100
Asia	Total	27	1 796	3	330	6	750	36	2 876
Europe	Germany					1	10	1	10
Europe	Total					1	10	1	10
L.Am.	Bolivia	9	>450					9	>450
L.Am.	Total	9	>450					9	>450
All countries		75	>4 070	17	2 635	34	>1 610	126	>8 315

Bangladesh

13th ANRAP National Seminar, BUHS, Dhaka, 15 Sep. (80 part.) (IPICS ANRAP)

8th ANRAP Workshop, BUHS, Dhaka, 16-20 Sep. (19 part.) (IPICS ANRAP)

Annual Meeting followed by Dinner, Four Seasons Restaurant, Dhaka, 17 Feb. (60 part.; Co-organized with Sweden Alumni Network in Bangladesh) (IPICS BAN:04)

Seminar on Strategy to Improve Food Safety, Dept. Chem., Univ. Dhaka, 21 Apr. (150 Part.; Co-organized with Sweden Alumni Network in Bangladesh) (IPICS BAN:04)

National Seminar on Beat Plastic Pollution on the occasion of World Environment Day 2018, Dept. Chem., Univ. Dhaka, 5 June (150 part.) (IPICS BAN:04)

Condolence meetings in memory of Professor Dr Rune Limiga, Dept. Chem., Univ. Dhaka, 29 Sep. (55 part.) (IPICS BAN:04)

Workshop on Study in Sweden, Dept. Bot., Univ. Dhaka, Dhaka, 30 Sep. (130 part.; Co-organized with Embassy of Sweden in Bangladesh) (IPICS BAN:04)

Seminar “ECO-FIKA”, California Fried Chicken restaurant, Dhanmondi, Dhaka, Bangladesh, 17 November (60 part.; Co-organized with Sweden Alumni Network in Bangladesh) (IPICS BAN:04)

Seminar on Applying for Commonwealth Commission Scholarships, supported by the Dean of Fac. Sci., Dhaka Univ. and British Council, Dhaka. (110 part.) (IPICS BAN:04)



Members of Sweden Alumni Network in Bangladesh with ISP supported Research Group and Network Leaders at the Annual Meeting of the Network. Courtesy of IPICS BAN:04.



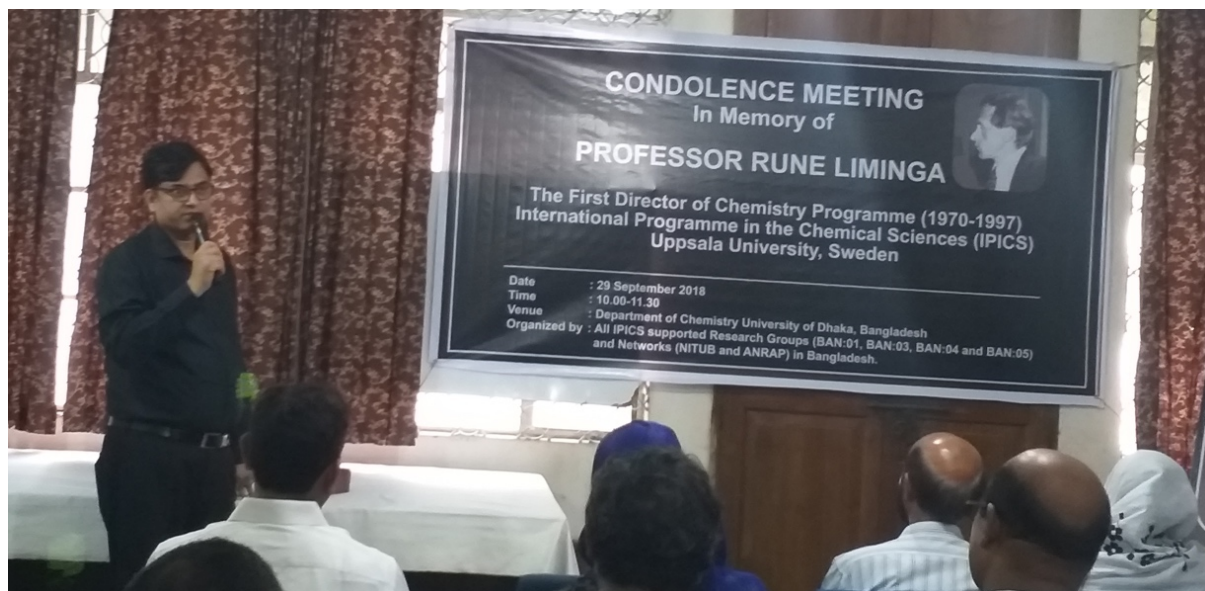
BAN:04 Research Group members with H.E. Charlotta Schlyter, Ambassador of Sweden in Bangladesh at the Food Safety Seminar in Dhaka. Courtesy of IPICS BAN:04.



Group members and participants are at the Food Safety Seminar in Bangladesh. Courtesy of IPICS BAN:04.



Professor Nilufar Nahar addressing at the Inaugural Session of Seminar on World Environment Day 2018. Courtesy of IPICS BAN:04.



Mohammad Shoeb speaking at the Condolence Meeting in memory of Professor Rune Liminga, Former IPICS director. Courtesy of IPICS BAN:04.



BAN:04 Research Group members are at the ECO-FIKA meeting in Dhaka. Courtesy of IPICS BAN:04.



Staff and students of IPICS BAN:04 are at the Seminar for Commonwealth Commission. Courtesy of IPICS BAN:04.

Workshop on Enhancing Research Activities among GED Faculty Members. (20 part.)
(IPICS BAN:05)

The Annual General Meeting of NITUB of the year 2017 was held 3 Mar. at 4 p.m. at the NITUB office, Dhaka. (62 part.)
(IPICS NITUB)

NITUB's 68th training programme, on the Use, maintainance, trouble-shooting and application of AAS, AECD, 21-26 Jul. (17 part.)
(IPICS NITUB)

NITUB's 69th training programme on the Use, maitainance and trouble-shooting of UV-VIS and IR, BCSIR, 8-13 Sep. (13 part.)
(IPICS NITUB)

NITUB's 70th training programme on the theUse, maitainance and trouble –shooting of Common Medical Instruments, BUHS, 14-19 July. (19 part.)
(IPICS NITUB)

NITUB's 71st training programme the Use, maitainance and trouble-shooting of Common Laboratory Equipment, HSTU, 27 Oct. - 1 Nov. (36 part.)
(IPICS NITUB)

Training programme on Installation, use, maintenance and trouble-shooting of laboratory equipment of the Fac. Veterinary Science, BAU, Dhaka, 17-19 Sep. (18 part.)
(IPICS NITUB)



Pictures from the 68th training programme of NITUB. Courtesy of IPICS NITUB.



Pictures from the 68th training programme of NITUB. Courtesy of IPICS NITUB.



Pictures from the 69th training programme of NITUB. Courtesy of IPICS NITUB.



Pictures from the 70th training programme of NITUB. Courtesy of IPICS NITUB.



Pictures from the 71st training programme of NITUB. Courtesy of IPICS NITUB.



Pictures from the NITUB training programme at Fac. Veterinary Science, BAU. Courtesy of IPICS NITUB.

Summer camp on “Measurement of Bioelectrical signals from the human body”, 8-12 July. In collaboration with Dhaka University Science Society (DUSS) and Relevant Science & Technology Society-Bangladesh (RSTS). (12 part.) (IPPS BAN:04)

Exhibition of the R&D outcome of the Department, at the Dept. Biomedical Physics & Technology on the auspices of Dhaka University Day, 1 July. (200 part.) (IPPS BAN:04)

Bolivia

Course on Importance of scientific research and publications for public universities in Bolivia. June - Oct. Nine small courses of five hours repeated weakly in different faculties and institutes at USFX, Sucre. (>450 part.) (IPICS BOL:01)

Burkina Faso

Day event addressing master students of the Dept. Chem., Univ. Ouaga 1: Pr Joseph KI/ZERBO, 25 July. (20 part.) (IPICS ANEC)

Thesis committee, Univ. Ouaga 1 Pr. KI Zerbo, 18 Jan. (8 part.) (IPICS BUF:01)

Course on mass spectrometry by Pascal Gerbaux. Ouaga I Univ. 30 Jan. & 1 Feb. (12 part.) (IPICS BUF:01)

Research Management, Evaluation Planning, ROPE-Sci, Workshop. Hotel Palm Beach, Ouagadougou, 3-5 Apr. (30 part.) (IPICS BUF:01)

Mass spectrometry. Ouaga I University, May 2018, MSc I course. (15 part.) (IPICS BUF:01)

Bioactive molecules: structure, synthesis, biosynthesis. Univ. Ouaga 1 Pr. KI Zerbo, Oct. 2018, MSc I course. (10 part.) (IPICS BUF:01)

Journées d'expérimentation des doctorantes, IDS, Ouagadougou, 22 Nov. (22part.) (IPICS BUF:01)

Proposal writing seminar. Ouaga I Univ, 10-17 Feb. (42 part.) (IPICS BUF:01)

Générateurs électrochimiques, MSc level 2 course given at the Dept. Chem., Univ. Ouaga 1 Pr. KI Zerbo, Apr. (15 participants) (IPICS BUF:02)

Stockage électrochimique, MSc level 2 course given at the Dept. Chem, Univ. Ouaga 1 Pr. KI Zerbo, Apr. (5 participants) (IPICS BUF:02)

Méthodes électrochimiques, MSc level 1 course given at the Dept. Chem, Univ. Ouaga 1 Pr. KI Zerbo, Oct. (15 participants) (IPICS BUF:02)



Workshop on Research Management, Hotel Palm Beach, Ouagadougou, 3-5 April. Courtesy of IPICS BUF:01.



Journées d'expérimentation des doctorantes, 22 Nov. Courtesy of IPICS BUF:01.

“Doctoral School Days” for international presentation of midterm PhD works performed by the students, 23-25 Jan., Ouagadougou. (56 part.) (IPICS RABiotech)

"Biotechnologies for the valorization of local products and the Control of Intellectual Property for Industrial Applications in West Africa", 25-26 Feb., Ouagadougou. (142 part.) (IPICS RABiotech)

Colloque en l’honneur du Pr Hamidou, 5-9 Nov., UFR/SEA, Univ. Ouaga. (140 part.) (IPMS BURK :01)



Courtesy of IPMS.

Cambodia

Annual Committee Meeting, 29 Jan., Cam Control, Phnom Penh (4 part.) (IPICS ANFEC)

5th ANFEC training/workshop in chromatography (GC/MS), quantification and quality assurance, 27 Jan. - 16 Feb., Camcontrol, Phnom Penh. (18 part.) Some Cambodian governmental staff members, from Ministry of Agriculture, Ministry of Health, Ministry of Defense, Champasak University, and Khang Khai Pedagogy Collage, participated without fee. (IPICS ANFEC) (IPICS CAB:01)



ANFEC Workshop at Camcontrol. Phnom Penh. Courtesy of IPICS BAN:04 (left), IPICS CAB:01 (right).



ANFEC Workshop: Participants, teacher, network members and IPICS director. Courtesy of IPICS ANEC/ BAN:04.

Advance Analytical Chemistry. MSc course, Dept. Chem., RUPP, Dec. 2017- Feb. 2018. (20 part.)
(IPICS CAB:01)

ICPAC 2018, 7-10 Mar., Siem Reap. Coorganized with IKM, Malaysia, together with FIST and ACC, Japan. (120 part.)
(IPICS CAB-CCS)

Training of high school teachers on “Small Scale Chemistry” in cooperation with Chemistry Society of Thailand (CST), 22-23 June, National Institute of Education, Phnom Penh City. (100 part.)
(IPICS CAB-CCS)

CCS Annual Symposium on “Chemistry and Life”, 20-21 Sep., Natl. Inst. Edu., Phnom Penh (350 part.)
(IPICS CAB-CCS)

Teacher training in Pursat province in cooperation with the Provincial Department of Education Youth and Sports, 20-21 Nov. (60 part.)
(IPICS CAB-CCS)

The 2nd Angkor International Conference on Applied Mathematics and Statistics, 19-21 Nov., Siem Reap, partially supported by ISP and Sogang Univ., S. Korea. (70 part.)
(IPMS SEAMaN)

Applications of Nuclear Sci. & Technol., CJCC, RUPP, 29 June (200 part.)
(IPPS CAM:01)

NARIT-RUPP Human Capacity Training in Astronomy for Development 2018, RUPP, 6-7 Dec. (50 part)
(IPPS CAM:01)



Participants in ICPAC 2018 visiting Angkor Vat. Courtesy of IPICS CAB:01.



CCS Annual Symposium on "Chemistry and Life". Courtesy of IPICS CAB-CCS



CCS Annual Symposium on "Chemistry and Life". Courtesy of IPICS CAB-CCS



Teacher training in Pursat province, Cambodia. Courtesy of IPICS CAB-CCS.



Training on “Small Scale Chemistry”, Natl. Inst. Chem., Phnom Penh. Courtesy of IPICS CAB-CCS.

Cameroon

The 6th Day of Life Sciences, Cameroon Forum for Biological Sciences, Univ. Dschang, 6-8 Aug. (20 part.) (IPICS ANEC)

Egypt

NAPRECA Future Governance Workshop, 1-2 Sep., Cairo. (35 part.) (IPICS NAPRECA)

18th NAPRECA Board meeting, 2 Sep., Cairo. (8 part.) (IPICS NAPRECA)

Ethiopia

Special topics in organic chemistry. PhD course, Dept. Chem., AAU, Addis Ababa, Feb. - June. (3 part.) (IPICS ETH:01)

Research group seminars. Dept. Chem., AAU, Addis Ababa, Feb. - June and Oct. - Dec. (13 part.) (IPICS ETH:01)

Research Methods. MSc course, Dept. Chem., AAU, Addis Ababa, Oct. - Dec. (15 part.) (IPICS ETH:01)

A national conference with the theme "Mathematics for the Advancement of Science and Technology" was organized in Addis Ababa, 24-25 May 24-25, co-organized with Addis Ababa Science and Technology Univ. (AASTU). (110 part.) (IPMS ETH:01)

An international workshop with the theme "Inviting girls to appreciate Mathematics; Mathematics, the indispensable tool for science and technology", 6-7 Dec., co-organized with African Woman in Mathematics Association (AWMA). (100 part.) (IPMS ETH:01)

Workshop: Carbon nanotubes for removal of water contaminants, 12 July, Dept. Phys., AAU. Co-organized with Prof Mesfin Tsige from Univ. Akron, USA. Attended by AAU Physics Department staff and graduate students. (>10 part.) (IPPS ETH:01)

Germany

Meeting on the mobility for teaching/training between PROGRAMME and PARTNER COUNTRIES, Dresden, 2-5 Nov. (10 part.) (IPPS CAM:01)

Ivory Coast

AFSIN Doctoral Program. National Polytechnic Institute of Yamoussoukro. 23 May - 31 July. (26 part.) (IPPS AFSIN)

Kenya

East and Southern Africa Environmental/Analytical Chemistry & Theoretical Chemistry Conference in Africa (ESAEC-TCCA); 3-7 Sep., Mombasa. (27 part.) (IPICS ANCAP)
(IPICS KEN:01)

International Inorganic Chemistry Conference, 22-24 May, Nairobi. (70 part.) (IPICS KEN:01)

The 1st Annual Conf. on Science for Development: Supporting Manufacturing, Affordable Housing, Universal Healthcare and Food Security, 24-25 Oct., Nairobi. (160 part.) (IPICS KEN:01)

PACN Congress: Managing Resources Through Chemistry: Wealth not Waste, 6-8 Nov., Nairobi. (160 part.) (IPICS KEN:01)
(IPICS KEN:02)

International Conference of Natural Products, NAPRECA - Kenya, 8-10 Feb., Nairobi. (>40 part.) (IPICS NAPRECA)
(IPICS KEN:01)

Introduction to Survival Analysis using R: Theory and Practice, Nairobi, 15-19 Jan., Masters Level and PhD. (42 part.) The workshop was co-organized with VLIR-UOS. (IPMS EAUMP)

The 26th Pan African Mathematical Olympiad and the 4th Pan African Mathematical Olympiad for Girls, (PAMO2018 and PAMOG 2018), 23-30 June, Nairobi, coorganized with AMU. (74 part.) (IPMS EAUMP)

The 4th Nairobi Pre-workshop on Algebraic Geometry School for Master and PhD students, Nairobi, 21-24 Aug. (26 part.) (IPMS EAUMP)

The 4th Nairobi workshop on Algebraic Geometry, Nairobi, 27-31 Aug. (38 part.) (IPMS EAUMP)

The 9th Kenya Mathematical Olympiad, School of Math., UoNBI, Nairobi, 21 Sep. (1457 part.) (IPMS EAUMP)

The International Biometric Society (IBS) Kenya Chapter Meeting, School of Math., UoNBI, Nairobi, 21 Sep. (48 part.) (IPMS EAUMP)

Remote Sensing Seminar for the Postgrad. Course in Space Mission Design and Management, Univ. Nairobi, 1-5 Oct. Co-organized with Univ. Rome 'La Sapienza', Italy (12 part.) (IPPS AFSIN)
(IPPS KEN:04)

Training Workshop on Use of Raspberry PI, Single-Board-Computer in Experimental, Instrument and robots (etc.) control, by Dr Chris Hendrik, INST Conference Room, Nairobi, 13-15 February, Co-organized with SOZ Foundation, the Netherlands. (30 part.) (IPPS KEN:01/2)

Training workshop, by Michael J. Mangala on Designing Quality IAEA Technical Cooperation Projects: Application of Logical Framework Matrix, 22 Mar., INST Conference Room, Nairobi. (15 part.) (IPPS KEN:01/2)

Symposia on Urban Resilience, Co-organized with Univ. Birmingham, UK. 18 Sep., Nairobi. (40 part.) (IPPS KEN:01/2)

Workshop on Air Quality Driver and Policy coherence and actions to address air pollution and human health in urban areas, Co-organized with Stockholm Environment Institute (SEI), and Center for Ecology and Hydrology (CEH) in UK, 20 Nov., Nairobi. (50 part.) (IPPS KEN:01/2)

Workshop on Road map to implementation of ISO 17025:2015, by Kiriinya and Njoroge, 22 Jan. (25 Part.) (IPPS KEN:01/2)

Training by assessed Presentation by 2017/2018 Academic Year Students, 14 Nov. (15 Part.) (IPPS KEN:01/2)

Training on HDM-4 Model, by Dr Andrea Mazzeo. Co-organized with Univ. Birmingham, UK, 3-8 Dec. (8 part.) (IPPS KEN:01/2)

Meeting of Medical Physics Stakeholde, 11 Dec. (12 part.) (IPPS KEN:01/2)

Medical Physics Syllabus, and Academic and Resident Components' Requirements, by Prof. Jacob Van Dyke (M), founder of Medical Physics for World Benefit, 11 Dec. (11 part.) (IPPS KEN:01/2)

Training on Radiotracers in Industry, Co-organized with International Atomic Energy Agency, 14-18 Dece. (8 part.) (IPPS KEN:01/2)

Seminar on ISO17025:2017 Overview and awareness: Transition from 1725:2015, by Ms Kiriinya and Mr Njoroge., 25 Apr. (40 part.) (IPPS KEN:01/2)

Meeting with International Atomic Energy Agency (IAEA) Programs Evaluation Team, 11 Sep. (9 part.) (IPPS KEN:01/2)

Seminar & Stakeholders Open Forum: Industrial Applications of NDT, Co-organized with IAEA Program Evaluation Team, 4 Oct. (45 Part.) (IPPS KEN:01/2)

Training of Solar Photovoltaic Technicians on solar Design, Sizing, Installation and Maintenance. Dept. Physics, UoNBI, Nairobi, Apr. (30 participants) (IPPS KEN:02) (IPPS MSSEESA)

1st UoN-MSSEESA Career Mentorship Workshop, UoNBI, Nairobi, 6 June. (96 part.) (IPPS KEN:02) (IPPS MSSEESA)

Joint MSSEESA and DAAD Int. Conf. on Materials Science Research for Sustainable Energy in Africa, School of Phys. Sci., UoNBI, 26-27 Sep., Nairobi (Co-sponsored by DAAD). (62 part.) (IPPS MSSEESA)

Laos

Training course on Analysis of Heavy Metals Contaminant in Soil and Water by Atomic Absorption Spectrophotometry Technique, Dept. Chem., NUOL, 21-23 Aug., coorganized with Environment Protection Fund and World Bank. (25 part) (IPICS LAO:01)

Pre-conference workshop. NUOL, 31 Oct. – 1 Nov. (110 part.) (IPMS SEAMaN)

The 11th International Conference on Mathematics and Mathematics Education in Developing Countries, 2-4 Nov., Vientiane. (150 part.) (IPMS SEAMaN)



Courtesy of IPMS.

Lao-Australia Groundwater Geophysics Short Course, 16-23 Mar., Vientiane, organized with the Flinders University, Adelaide, Australia. (13 part.) (IPPS LAO:01)

Myanmar

Int. Conf. on Physics, Mandalay 2018 (ICPM2018), Univ. Mandalay, 25-27 Nov. The conference was sponsored mainly by IPPS MYA:01 project, and co-organized by Myanmar Academy of Arts and Science. (275 part.) (IPPS MYA:01)

Rwanda

11th ANCAP Symposium, 10-13 Dec., UR Coll. Sci. Tech., Kigali. (40 part.) (IPICS ANCAP)
(IPICS RWA:01)

18th ANCAP Board Meeting, 11 Dec., UR Coll. Sci. Tech., Kigali. (11 part.) (IPICS ANCAP)

ANCAP summer school, 13-14 Dec., UR Coll. Sci. Tech., Kigali. (21 part.) (IPICS ANCAP)

2nd Workshop in Chemistry, 18-21 Dec., UR, Coll. Sci. Tech., Kigali. (42 part.) (IPICS RWA:01)

Senegal

Conférence Internationale de Biomathématiques au Sénégal CIBS 2018, 29 June - 2 July. Ecole Polytechnique de Thies (EPT). (41 part.) (IPMS BURK :01)

Séminaire de formation à la gestion de projet, 30 July - 3 Aug., Rhino-Resort Saly. (30 part.) (IPMS BURK :01)

South Africa

Workshop on “Fundamentals in chromatography and hands on practical experience on trouble shooting in liquid chromatography”, 5-8 Feb., with Univ. Witwatersrand, S. Africa and Lund Univ., Sweden. (31 part.) (IPICS SEANAC)

Sri Lanka

1st Sri Lankan ANRAP Regional Seminar on Herbal Approaches in Combating Diabetes and other Tropical Diseases, 17-19 Jan, Kandy. (80 participants) (IPICS ANRAP)

24th meeting of ANRAP Board, NIFS, Kandy, 18 Jan. (10 part.) (IPICS ANRAP)

The NetHerb meeting, NIFS, Kandy, 18 Jan. (10 part.) (IPICS ANRAP)

Sudan

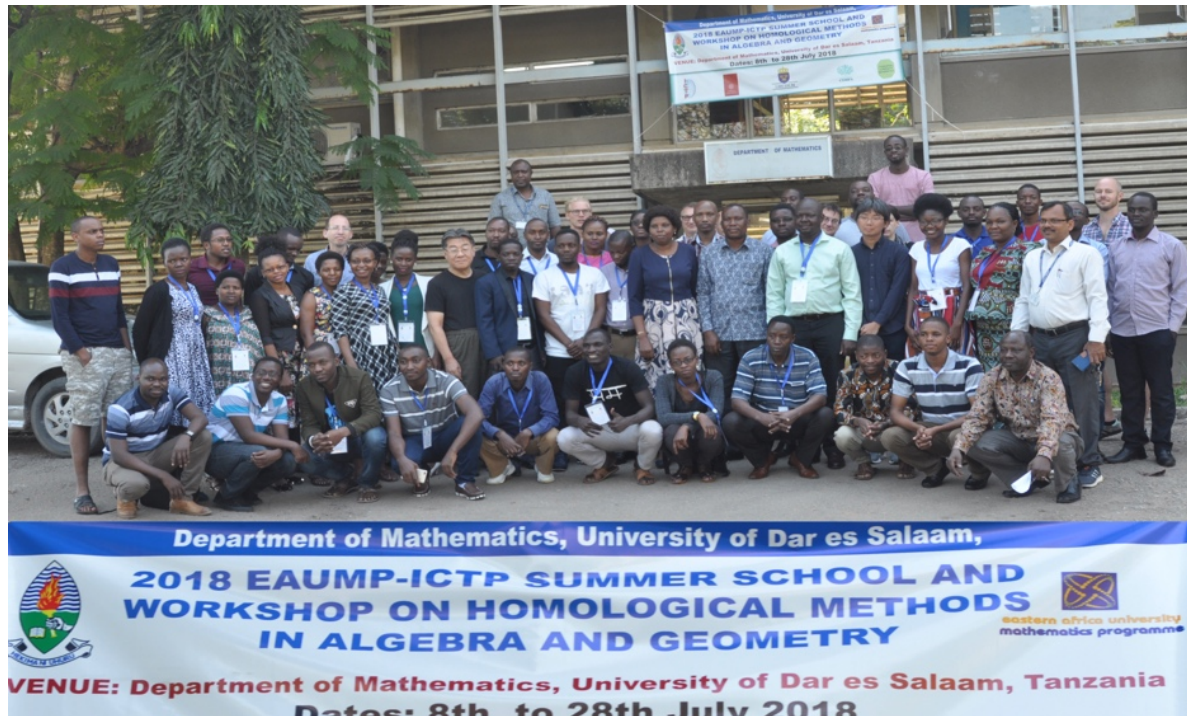
Seminar on Mycetoma. Fac. Pharm., Univ. Sci. Tech., 23 Jan., Karthoum. (> 10 part.) (IPICS NAPRECA)

Tanzania

Training and Research in Aquatic Health in the Eastern and Southern Africa (TRAHESA) annual meeting, Zanzibar Stone Town, 31 Oct. - 2 Nov. (10 part.) (IPICS ANCAP)

Clarence Mgina coordinated the organisation of the 2nd Chemistry Festival in Tanzania, by Tanzania Chemical Society, 25-26 Oct. (400 part.) (IPICS ANCAP)

The 2018 EAUMP Summer School and workshop on Homological Methods in Algebra and Geometry at university of Dar es Salaam, 8-28 July, co-organized with ICTP. (60 part) (IPMS EAUMP)



Courtesy of IPMS.

Workshop on PDEs and Calculus of Variation at the Dept. Math., UDSM, 1-5 Oct., supported by AIMS-Germany Research Chair under the Alexander von Humboldt program, co-organised with AIMS-Tanzania. (30 part) (IPMS EAUMP)

Int. Conf. on the East African Rift System and Commemorating 25 Years of ESARSWG, 8–10 Oct., Dar es Salaam. (62 part.) (IPPS ESARSWG)

Togo

Regional Colloquium on Physics and Applications (CRéPAs 2018), Dept. Phys., Univ. Lomé, 23-28 July. (85 part.) (IPPS AFSIN)

Uganda

The 3rd Network Meeting for Sida- and ISP funded PhD students and Postdocs in Mathematics Theme: strengthening Research in Mathematics in Universities with Sida and ISP support, Entebbe, Uganda, 20-24 Aug. (109 part.) (IPMS EAUMP)

The 6th Training Workshop in Photovoltaics, Bio Gas Production and Concentrated Solar Power Systems, 6-10 Aug., Dept. Physics, Makerere Univ. (26 part.) (IPPS UGA:01)

Tailored training workshop on PV installation and maintenance for Female students, 3 Mar., Makerere Univ. (18 part.) (IPPS UGA:01)

Summer school for the Joint Undertaking for an African Materials Institute (JUAMI), 10-21 Dec., Makerere Univ. (40 part.) (IPPS UGA:01)

Astrophysics workshop on Asteroseismology, MUST, 5-16 Feb., facilitated by Prof. Donald Kurtz (M), Univ. Central Lancashire, UK. (25 part.) (IPPS UGA:02)

Space Physics workshop on data analysis techniques and applications of Matlab and Julie, MUST, 22 Oct. - 2 Nov. The main facilitators were Dr Stephan Buchert (M). Uppsala Univ, Sweden, and Dr Amabayo Emirant Bertillus, Busitema Univ. Uganda. (25 part.) (IPPS UGA:02)

Astrophysics workshop on Exo-planets, MUST, 19 -30 Nov. The main facilitator was Dr Eika Guenther, Thüringer Landessternwarte Karl-Schwarzschild-Observatorium Tautenburg, Germany. (25 part.) (IPPS UGA:02)

Zambia

4th Natl. Symp. Chemistry Materials and Energy, 9-10 Nov., Lusaka. (66 part.) (IPICS ZAM:01)

2nd UNZA CHEMSOC Students Symposium, 18 Nov., Lusaka. (45 part.) (IPICS ZAM:01)

Research Management Workshop, 28-30 Nov., Lusaka. (24 part.) (IPICS ZAM:01)



Group photo at the 4th National Symposium on Chemistry, Materials and Energy. The symposium was opened by the Honourable Minister of Transport and Communication Brain Mushimba at the Hotel Intercontinental Lusaka. Courtesy of IPICS ZAM:01.

Zimbabwe

The Zimbabwe Chemistry Society Inaugural Conference, 16-17 Aug. Univ. Zimbabwe. (41 part.) (IPICS ANCAP)

4th NAPRECA-Zimbabwe Symposium on Natural Products Research: Contribution to Health by Medicinal Plants in Zimbabwe, 14 Dec., Univ. Zimbabwe, Harare. (50 part.) (IPICS ZIM:01)



Participants of the 4th NAPRECA-Zimbabwe research symposium. Courtesy of IPICS ZIM:01.



Left: Ms Rumbidzai Mlambo giving a talk on patent issues of chemicals derived from natural products. Right: Prof. Lameck Chagonda (UZ Dept. Pharmacy) responding to questions on the phytochemistry of fragrances. Courtesy of IPICS ZIM:01.

Environ. Pollution Monit. Stakeholders' Workshop, 19 Jan., Bulawayo. (40 part.) (IPICS ZIM:02)

Gender based workshop "The girl child and her physical environment", 23 Mar., Bulawayo. (50 part.) (IPICS ZIM:02)

Thirtyeight students and six teachers from the Bulawayo highschools Townsend, Montrose and Eveline attended the workshop. The target group of participants were girls in their 4th year of High school), who were expected to choose subjects at the end of 2018, to take up for their advanced level studies in 2019. The choices will determine their university studies as well as thier career pathways. It was realised that the majority of students drop science subjects, which affect their university studies and ultimately their careers.

The main objective of the workshop was to encourage the young girls to take science subjects commonly referred to as Science, Technology, Engineering and Mathematics (STEM). The workshop also aimed to raise awareness on the vast opportunities and post univerisity career options. The importance of protecting our environment for future generations was also highlighted at the workshop.

Apart from the three female members of the group, Dr N. Basopo, Miss S. Mnkandla and Miss J. Change, there was an invited female senior lecturer from NUST, Dr T. Ncube and also two external (outside NUST) female speakers, one from the National Social Security Authority (NSSA) and the other from Environmental Management Authority (EMA).

The students were encouraged to identify things they like to do and focus on them as career options. The students were told that they can achieve anything they want in life if they put their minds to it. The speakers, who were all women, shared real life experiences of how they succeeded in the science field. This was done with the hope of inspiring the young students.

The students were also made aware of the effects of pollution and the importance of preserving the environment through presentations of research that has been carried out in the research group.

The students were given a chance to participate in activities that were designed to generate an awareness about the health of the environment around them.

The workshop was successful in that a follow on the girls revealed that those who were not in the Environmental Science clubs in their school signed up for the clubs after the workshop. This was taken to indicate a generated interest in environmental issues, an interest stimulated at the workshop. The girls also indicated that they were going to choose chemistry, mathematics, physics and Biology for their Advanced "A" level studies.

Research Management workshop, 20-22 Nov., Bulawayo. (30 part; Co-organized with ISP) (IPICS ZIM:02)

APPENDIX 4. POSTDOCTORAL AND SCIENTIFIC VISITS

This section lists scientific and related visits, sandwich students' stays, and attendance to courses and meetings not listed elsewhere. The entries are given essentially as reported, and listed country wise, following the country where the visit took place, and then according to ISP research/network code. ISP funding is through the group/network indicated, unless other information is given.

Bangladesh

Janaki Baral (F), PhD student at Ctr. Dept. Chem., Inst.Sci. Tech., Tribhuvan Univ., Nepal came to Dhaka on 13 Dec.for 3 months fellowship. She is working on “Quest of Antidiabetic effect of *Artemisia Vulgaris* and *Zanthoxylum armatum* of Nepal”, funded by ANRAP. (IPICS ANRAP)

Begum Rokeya attended the Certification course on clinical research for study investigators, 2-4 Apr., Bangladesh Medical & Dental Council (BMRC), Dhaka. (IPICS ANRAP)
(IPICS NITUB)

Prof. Dr Manabu Abe (M), Hiroshima Univ., Japan visited BAN:04, Dept. Chem., Univ. Dhaka on 26 Feb., to discuss research and future collaboration, funded by KUET. (IPICS BAN:04)



Professor Manabu Abe, Hiroshima University, Japan with staff and students at the BAN:04 Research Laboratory. Courtesy of IPICS BAN:04.

Mizanur Rhaman (M) and Nazrul Islam (M) participated in the 8th ANRAP workshop at BUHS, Dhaka, 16-20 Sep. (IPICS BAN:04)

Mohammad Shoeb chaired the Session on Toxicology, Pesticide Residue Analysis Session of Internal Research Review 2017-2018 of Entomology Division, Bangladesh Agricultural Research (BARI), Gazipur, Dhaka, 30 July. (IPICS BAN:04)

Nargis Parvin (F) took part in the 70th training Programme of NITUB, on the “Use, maintenance and troubleshooting of Common Medical Instruments” at BUHS, Dhaka, 14-19 July. (IPICS BAN:04)

Nargis Parvin (F) and Rafiza Islam (F) participated Training on Pesticide Residue Analysis in Vegetables Using QuChERS Extraction and Gas Chromatography, at Pesticide Analytical Laboratory (PAL), Entomology Division, BARI, Gazipur during 08-12 April. (IPICS BAN:04)

Nazrul Islam (M) took part in the 68th training program of NITUB on Atomic Absorption Spectrophotometer at the Anal. Chem. Lab., Chem. Div., AECD, 21-26 July. (IPICS BAN:04)

Prof. Dr Gan Zhang (M), Deputy Director General of Guangzhou Institute of Geochemistry, Chinese Academy of Science Guangzhou, China, visited BAN:04, Dept. Chemistry, Univ. Dhaka on 28 Feb., to discuss research and future collaboration, funded by himself. (IPICS BAN:04)



Professor Gan Zhang, Deputy Director General Guangzhou Institute of Geochemistry, Chinese Academy of Science Guangzhou, China with staffs and students of BAN:04 Research Group. Courtesy of IPICS BAN:04.

Dr Mong Sanu Marma (M), Associate Director and Group Leader, Nucleotide Chemistry, Qiagen, Waltham, MA, USA visited BAN:04, Dept. Chemistry, Univ. Dhaka on 26 Nov., to discuss research and future collaboration. The visit was funded by himself. (IPICS BAN:04)

Prof. Dr Pratip Kumar Mukhopadhyay, (M), Head of the Materials Science Division at the Bose Centre of Advanced Research, was in research visit at Dhaka 3-9 Mar. (IPPS BAN:02/2)

Mr Trilochan Khanal (M) and Mr Trilochan Khanal (M), Tribhuban Univ., Nepal, spent a 10 day visit at Dhaka Univ. for training on hands on measurement on human body using Focused Impedance Method. The visit was supported by ISP funds. (IPPS BAN:04)

Dr Katsuyoshi Nishinari (M), Hubei Univ. Technol., China, visited the Nanophysics Group 6-14 Dec., to participate in discussion meetings about current research projects. He also conducted a series of lectures for MS students in the field of Soft matter and involved in one to one discussion with the MS thesis students of nanophysics group in their respective fields. The visit was funded by ISP. (IPPS BAN:05)

Belgium

Corneille Bakouan (M), Dept. Chemistry, Univ. Ouaga 1 Pr. KI Zerbo, paid a research visit to Univ. Mons, Sep.- Dec. The visit was funded by the Belgian SYNERGIE project. (IPICS BUF:02)

Asfaw Negash (M) participated in the Cross-Disciplinary Science Technology and Art Festival, 3-5 May, Hasselt. (IPICS ETH:01)

Bolivia

Jhean Carla Echalar (F) and Carlos F Pinto (M) attended the International Colloquium of Chagas Disease organized by the IRD, Nov. 8-9, Cochabamba. (IPICS BOL:01)

Dr Luis Flores-Prado (M), Dept. Biology, Universidad Metropolitana de Ciencias de la Educación in Santiago, performed a research visit to USFX in Sucre during Aug. This visit was funded by IPICS BOL:01. (IPICS BOL:01)

Botswana

Manalebish Debalike Asfaw(F) paid a research visit to Botswana Int. Univ. Sci. Technol. (BIUST), Jan. - June. The visit was funded by Simons Foundation and OWSD. (IPMS ETH:01)

Brazil

Amidou TALL (M), a PhD student of Univ. Ouaga 1 Pr Joseph Ki/Zerbo spent an internship at the Lab. Electrochem., Univ. Fed. of Alagoas, Maceio, hosted by Professeur Marilia Oliveira FONSECA GOULART, starting 15 Nov. (IPICS ANEC)

Mr DIEYE El Hadji (M), Laboratory of Physical Organic Chemistry and Environmental Analyses (LCPOAE) at the Faculty of Sciences and Techniques, University Cheikh Anta Diop Dakar, Senegal, spent six months of doctoral training, 6 June to 4 Dec., at the Laboratory of Polymeric Materials, Federal University of Rio Grande do Sul (UFRGS), Porto Alegre, Brazil under the supervision of Prof. Carlos Arthur FERREIRA. (IPICS ANEC)



Mr Amidou TALL in action at Univ. Fed. of Alagoas, Maceio, Brazil. Courtesy of ISP ANEC.

Burkina Faso

Dr MBOKOU FOUKMENIOK Serge, Lab. Noxious Chem. Environ. Eng. at Univ. Dschang, Cameroon, spent a postdoctoral visit to the Lab. Analyt. Chem., Environ.Bioorg., Univ. Ouaga 1 Pr Joseph KI/Zerbo, under the supervision of Prof Issa TAPSOBA, May to June. (IPICS ANEC)



Dr S. MBOKOU in the laboratory in Ouagadougou and presenting his result. Courtesy of IPICS ANEC.

Prof. Pascal Gerbaux (M), Mons University visited LCAEBiO at Ouag I University, 29 January -3 february 2018. He participated in laboratory activities, gave a course on mass spectrometry and visited la saisonnière files, funded by IPICS BUF:01. (IPICS BUF:01)



Prof. Pascal Gerbaux visiting LCAEBiO and the field. Courtesy of IPICS BUF:01.

Y.L. Bonzi-Coulibaly (F) participated in the CNABiO general assembly, 10 Feb., Centre Notre Dame de la Lorette, Ouagadougou. (IPICS BUF:01)

Jean Claude Ouédraogo (M) and Hien Nabomo (M) did three field visits (20 Feb., 29 Mar., 5 June), Gomposom, funded by IPICS BUF:01. (IPICS BUF:01)

Y.L. Bonzi Coulibaly (F) participated in Maquis des sciences 22 Feb., Institut Francais, Bobo-Dioulasso. (IPICS BUF:01)

Egon Heusson (M), engineer from REALCAT, Lille, visited LCAEBiO and give a seminar to MSc students at Univ. Ouaga 1 Pr. KI Zerbo, 6 Mar., funded by REALCAT. (IPICS BUF:01)

Ebba Rosendal (F), MSc student from Lund University stayed six months at LCAEBiO, Mar.-July, to do laboratory work on natural products, funded by Lund University. (IPICS BUF:01)

Joan Yebras Cañellas (M), lecturer in EUSS, Spain, paid a visit to LCAEBiO, 10 July, funded by IPICS BUF:01). (IPICS BUF:01)

Marie France Thevenon (F), CIRAD, Montpellier visited LCAEBiO 15 July, funded by CIRAD. (IPICS BUF:01)

Y.L. Bonzi Coulibaly (F) was a member of evaluation committee of the competition MT18, 21 July. (IPICS BUF:01)

Ouédraogo W. Jean Claude (M) participated in the CNABiO Workshop Partenariat entre recherche et le Réseau, 11-12 Sep., Ouagadougou. (IPICS BUF:01)

Y.L. Bonzi Coulibaly (F) participated in Formation en Assurance qualité, 18-20 Sep., Ziniaré. (IPICS BUF:01)

Y. L. Bonzi-Coulibaly (F), Ouedraogo W. Jean Claude (M) & Benjamin Ouédraogo (M) participated in the 8^{ème} rencontre scientifique sous régionale WANNPRES, 31 Sep.-3 Aug., Ouagadougou. (IPICS BUF:01)

Y.L. Bonzi Coulibaly (F) participated in FRSIT 2018, 20-25 Oct., Ouagadougou. (IPICS BUF:01)

Ouédraogo W. Jean Claude (M) participated in the Formation sur la mise en ligne des cours, IFOAD Ouagadougou, 3-7 Dec. (IPICS BUF:01)

Y.L. Bonzi Coulibaly (F) participated in Atelier de formation: techniques de planification stratégique, 6-8 Dec., IDS Ouagadougou. (IPICS BUF:01)

Prof. Anne Lise Hantson (F), Univ. Mons visited Dept. Chem., Univ. Ouaga 1 Pr. KI Zerbo in Feb., to discuss scientific studies of arsenic issues in Burkina Faso, funded by the Belgian SYNERGIE project. (IPICS BUF:02)

Prof. Robert Mason (M), Univ. Connecticut, USA, visited Dept. Chem., Univ. Ouaga 1 Pr. KI Zerbo in May-June, to begin collaboration in the field of the use of Hg in Artisanal and Small Gold Mining. (IPICS BUF:02)

Prof. Alzouma ZOUBEIROU MAYAKI (M), Professeur Titulaire de Microbiologie des Sols, Université de Tillabéri, Niger, visited the CRSBAN to participate to the PhD defense of MAHAMADOU FODY Alio, 26-29 Oct. (IPICS RABiotech)

Dr Amadou Hamadoun BABANA, Maître de Conférences en Microbiologie, USTTB, visited the CRSBAN for exchanges with students, to give a seminar, and to participate in the PhD defense of Désiré TRAORE, 24 Mar. (IPICS RABiotech)

Dr Bourèma KOURIBA (M), Maître de Conférences en Immunologie, USTTB, visited the CRSBAN 14-16 Mar., for exchanges with students, to give a seminar, and participate in the PhD defense of Djélika KONATE. (IPICS RABiotech)

Dr Christophe Brugidou (M), Dir. de Rech. de Phytopathologie, IDR Montpellier, France, visited the CRSBAN 30 Apr., to participate the PhD defense of Moustapha Koala. (IPICS RABiotech)

Prof. Fatiou TOUKOUROU (M), ret. Professeur Titulaire de Microbiol., Univ. d'Abomey-Calavi, Bénin, visited the CRSBAN 19 Nov., to participate to the PhD defense of Mahamadi NIKIEMA. (IPICS RABiotech)

Dr Francis Rosillon (M), Maître de Conférences Honoraire en Microbiologie, Université de Liège, Belgique, visited the CRSBAN 23-25 Mar., for exchanges with students, to give a seminar, and to participate in the PhD defense of Désiré Traoré. (IPICS RABiotech)

Prof. Lamine Saïd BABA-MOUSSA (M), Professeur Titulaire en Biochimie et Biologie Moléculaire, Microbiologie, Université d'Abomey-Calavi, Bénin, visited the CRSBAN 5-7 Jan., for exchanges with students, to give seminar, and to participate in the PhD defense of Abel TANKOANO. (IPICS RABiotech)

Prof. Louise ANIN ATCHIBRI (F), Prof. Titulaire de Biochimie-Nutrition, Univ. Nangui Abrogoua, Côte-d'Ivoire visited the CRSBAN 29-31 Mar., for exchanges with students, to give a seminar, and to participate in the PhD defense of Charles Windépagngé Yaméogo. (IPICS RABiotech)

Prof. Mady CISSE (M), Professeur Titulaire, Université Cheik Anta Diop de Dakar, Dakar, Sénégal, visited the CRSBAN, 17-20 Jan., for exchanges with students, to give a seminar, and to participate in the PhD defense of TAPSOBA Fidèle Wend-Bénédo. (IPICS RABiotech)

Dr Nathalie GUESSENND (F), Directrice de Recherches, Inst.Pasteur de Côte d'Ivoire, UFR des Sciences médicales, Univ. Félix Houphouët Boigny, visited CRSBAN 30 Apr., for exchanges with students, give a seminar and to participate in the PhD defense of Ali KONATÉ. (IPICS RABiotech)

Dr Noël DURAND (M), Maître de recherche, Mycotoxine, CIRAD, Montpellier, France, visited the CRSBAN to give a seminar and to participate in the PhD defense of WARE LARISSA YACINE épouse KABORE, 09-12 Nov. (IPICS RABiotech)

Prof. Paulin Azokpota (M), Professeur Titulaire, Université d'Abomey-Calavi, Cotonou, Bénin, visited the CRSBAN 17-20 Jan., for exchanges with students, to give la seminar, and to participate in the PhD defense of TAPSOBA Fidèle Wend-Bénédo. (IPICS RABiotech)

Prof. Ramatou Djermaakoye SIDIKOU (F), Professeur Titulaire de Biologie, Physiologie, Biotechnologies Végétales, Université Abdou Moumouni de Niamey, Niger visited the CRSBAN for exchanges with students, to give a seminar, and to participate in the PhD defenses of ABDOULAYE MAMOU-DOU Oubayyou, 22-25 July, and MAHAMADOU FODY Alio, 26-29 Oct. (IPICS RABiotech)

Prof. Yaovi Agbékponou AMEYAPOH (M), Professeur titulaire, Microbiologie, Université de Lomé, Togo visited the CRSBAN for exchanges with students, to a conference and to participate in the PhD defenses of Abel TANKOANO, 5-7 Jan., Pane Bernadette Sourabié-Ouattara, 12-14 Jan., and WARE LARISSA YACINE épouse KABORE, 9-12 Nov. (IPICS RABiotech)

Prof. Abdoulaye Sene (M), Univ. Cheikh Anta Diop de Dakar, Senegal spent 12-16 Feb. in Ouagadougou. (IPMS BURK:01)

Mamadou Sy (M), Prof. titulaire, Univ. Gaston Berger, Sénégal spent 5-8 July in Ouagadougou. (IPMS BURK:01)

Mamadou Abdoul Diop (M), Univ. Gaston Berger, Sénégal spent 28 Nov. - 2 Dec. in Ouagadougou. (IPMS BURK:01)

Diene NGOM (M) spent 17 Sep. - 4 Oct. in Bobo-Dioulasso (funded by Univ. de Nazi Boni). (IPMS BURK:01)

Prof.Khalil EZZINBI, Univ. Cadi Ayyad, Marocco, visited Univ. Ouaga 1 and 5-8 July, and 21 Nov. - 2 Dec. on ISP funds. (IPMS BURK:01)

Cambodia

Michael Strandell (M) and Ulla Eriksson (F), Dept. Appl. Environ. Sci., Stockholm Univ., Sweden, visited RUPP and CamControl, 29 Jan. - 16 Feb. to conducted a training course on GC and Quality Assurance. The visit was funded by IPICS ANFEC. (IPICS ANFEC)

Mohammad Shoeb (M) and Nazrul Islam (M) participated at the ANFEC Meeting and Inaugural Ceremony of ANFEC Training Programme on Chromatography at Dept. Chem., RUPP, 29 Jan.-16 Feb, funded by ANFEC. (IPICS BAN:04)

Sreng Soknet and Proum Sorya participated the 5th ANFEC training/workshop in chromatography (GC/MS), quantification and quality assurance co-organized by ANFEC and Dept. Chem., RUPP, at Camcontrol, Phnom Penh, 29 Jan.-16 Feb, funded by ANFEC. (IPICS CAB:01)

Prof. Em. Michel Jambu (M), Univ. Cote D'Azur, Nice, France. Introduction to Quantum Calculus, 2 Jan. (15 part). (IPMS SEAMaN)

Timothy. O'Brien (M), Loyola Univ., Chicago, USA. Short course on Applied Nonlinear Statistical Methods. (15 part). (IPMS SEAMaN)

Monyrattanak Seng (M), Ctr Research in Mathematics, Mexico. Introduction to Lie groups and Lie Algebras, 15 Jan. (15 part) (IPMS SEAMaN)

Prof. Em. Michel Jambu (M), Univ. Cote D'Azur, Nice, France). Groups by example, 16 Jan. (15 part). (IPMS SEAMaN)

Prof. Rod Halburd (M), Univ. Coll. London, UK. Singularities, Solvability and Solitons, 14 Feb. (20 part) (IPMS SEAMaN)

Prof. John Briggs (M), Univ. Freiburg, Germany, visited Dept. Physics Dec. 2017 to Mar. 2018, to do research and teach quantum physics and statistical physics to MSc. students. This visit was funded by IPPS CAM:01. (IPPS CAM:01)

Assoc. Prof. Peeradett Tongumpai (M) Chair of NARIT Executive Board, Thailand, Dr Saran Poshyachinda (M) NARIT Executive Director, Mr Wichan Insiri (M) Director of Foreign Affairs (NARIT), Dr Puji Irawati (F), Research Astronomer, Dr Supachai Awiphan(M), Research Astronomer, Ms Supaluck Chanthawan (F), Foreign Affairs Specialist (NARIT), Ms Sulisa Chariyalertsak (F), Foreign Affairs Officer (NARIT), Mr Setthawut Thongmee (M), Foreign Affairs Officer (NARIT), Mr Jessada Keeratibharat (M), Public Outreach Officer (NARIT), Mr Siwarut Ploydang (M), Public Outreach Officer (NARIT), visited Dep. Physics, RUPP 6-7 Dec. to discuss Astronomy Education in Cambodia. The visit was supported by NARIT. (IPPS CAM:01)

Prof. ShinhooKang (M) from Korea, visited Dep. Physics RUPP, 21 Dec. 2018 - 21 Jan. 2019 to teach a course in Material Science. This visited was support by his own fund. (IPPS CAM:01)

Canada

Prof. T.A. Batubenge (M) paid a research visit to Univ. Montreal. Financial support towards ticket was received from Univ. Montreal. (IPMS EAUMP)

Cameroon

Raumiald Bagnomo BABINE (M), a PhD student of Univ. Ouaga 1 Pr Joseph Ki/Zerbo spent an internship at Univ. Dschang, under the supervision of Prof. Ignas Kenfack TONLE, starting 9 Nov. (IPICS ANEC)



Mr BABINE with colleagues at Univ. Dschang, Cameroon. Courtesy of IPICS ANEC

China

S. Admassie (M) visited South China University of Technology (SCUT), Guangzhou, 17 Mar. - 16 Apr. The visit was funded by SCUT. (IPICS ETH:01)

W. Mammo (M) participated in the Qingdao Forum on Science & Technology and the 2nd Qingdao International Academician Conference, 16-18 Aug., Qingdao. (IPICS ETH:01)

Simion Bartilol (M) attended SETAC Asia Pacific Focus Meeting on environment and health at Guangzhou Institute of Geochemistry (GIG), Guangzhou, China, 24-28 May 2018. The travel was funded by GIG. (IPPS KEN:02/1)

Congo Brazzaville

Prof. Ngameni (M) served as thesis examiner at Univ. Marie-Ngouabi, Brazzaville, in Oct. (IPICS ANEC)

Ethiopia

Alemayehu Yifru (M), Belete Tesfaw (M), Fekadu Checkol (M), Meseret Aregahegn (M) and Teklewold Getachew (M) participated in the 2nd Scientific Conference on Renewable Energy Systems for Sustainable Future (2nd-RES4SF-2018), 20-21 June, Addis Ababa. (IPICS ETH:01)

Asfaw Negash (M), B.A. Abdulahi (M) and Teklewold Getachew (M) participated in the Ethiopian regional workshop on solar energy and energy storage technology: Materials, system design and application (smr3149), 15-19 Oct., Addis Ababa. (IPICS ETH:01)

Prof. Sosina M. Haile (F), Northwestern Univ., Illinois, USA, visited Dept. Chem., AAU, 24 Dec. to present a seminar. The visit was self-financed. (IPICS ETH:01)

Prof. Sten Kaijser (M), Uppsala Univ., Sweden, Some interesting families of orthogonal polynomials Dept. Math., AAU, 15 Oct. (15 part.) (IPMS ETH:01)

Prof. Rikard Bøgvad (M), Stockholm Univ., Sweden. On Generalizing an idea of Rodrigues. Dept. Math., AAU, 28 August. (20 Part) (IPMS ETH:01)

A delegation from Makerere Univ. and UDSM visited the Dept. Math., AAU in March to discuss collaborations between Eastern Africa Universities. The visit was funded by the Sida Bilateral Program. (IPMS ETH:01)

Shiferaw Berhanu (M) from Temple University, USA, visited the Dept. Math., AAU, June - July, to teach a PhD course. The visit was funded by ADMP, CDC. (IPMS ETH:01)

Shiferaw Berhanu (M) from Temple University, USA, visited the Dept. Math., AAU in Nov. to supervise a PhD student. The visit was funded by ADMP, CDC. (IPMS ETH:01)

Prof. Kolluru Venkateswarlu (M), Ambo Univ. Ethiopia, visited the Dept. Math., AAU, 22 Oct – 21 Nov. to teach a course “Selected Topics in Algebra II, funded by IPMS ETH:01 (IPMS ETH:01)

Prof. Bruno Buonomo (M), Univ. Naples Federico II, Italy, visited the Dept. Math., AAU in Dec. to deliver a short course in mathematical epidemiology and numerical methods, financially supported by a collaboration project between AAU and the Univ. Naples Federico II. (IPMS ETH:01)

Prof. Eleonora Messina (F), Univ. Naples Federico II, Italy, visited the Dept. Math., AAU in Dec. to deliver a short course in mathematical epidemiology and numerical methods, financial supported by a collaboration project between AAU and the Univ. Naples Federico II. (IPMS ETH:01)

Dr Tomas Verdik (M), Free State Univ., South Africa, visited the Dept. Math., AAU, in Oct. to give a PhD course, the visit was funded by IPMS ETH:01. (IPMS ETH:01)

Prof. Dinesh G. Sarvet (M), College of Charleston, USA, visited the Dept. Math., AAU in Oct. to give a PhD course, funded by IPMS ETH:01. (IPMS ETH:01)

Dr Mulugeta Bekele (M), Dr Tatek Yergou (M) and Dr Lemi Demeyu (M) were in research visit to Haramaya Univ., 11-17 Nov. The visit was funded ISP. (IPPS ETH:01)

Dr Tatek Yergou (M) paid a research visit to Bahir Dar Univ., 4-6 October, funded by Bahir Dar Univ. (IPPS ETH:01)

Dr Lemi Demeyu (M) paid a research visit to Haramaya Univ., 20-22 Sep. The visit was funded by Debre Birhan Univ., Ethiopia. (IPPS ETH:01)

Dr Zerihun Getahun (M), Bahir Dar Univ., visited the group at AAU, 21-25 May. The visit was funded by ISP. (IPPS ETH:01)

Prof. Mesfin Tsige (M), Univ. Akron, USA. visited the Dept. Physics during the defence of our PhD student as a co-advisor of the student, 12 July, and gave a lecture on “Carbon nanotubes for removal of water contaminants”. The price for the air ticket was funded by ISP. (IPPS ETH:01)

Prof. Jusepe (M), Kwazulu Natal Univ., South Africa, visited Dept. Physics 12 July as an external examiner for a PhD student. (IPPS ETH:01)

Dr Cyril Rauch (M), Univ. Nottingham, UK, visited Dept. Physics 6 Feb., and gave a seminar on "Mechano - Biology of hoof (and nail) growth: on the role of physics in animal's health and welfare". (IPPS ETH:01)

A team of seismologists and experts from Strasbourg, France, visited the group to service and the seismic station network. (IPPS ETH:02)

Dr Ian Bastow (M), Imperial College, UK, visited the group to launch a new project in the Turkana area. (IPPS ETH:02)

Alexander Poplavskiy (F) and Abdelouaheb Agrebi [M] from the Comprehensive Test Ban Treaty Organization (CTBTO) visited the group in Dec., to install Geotool and SeisComp3, which are usable for seismic data archiving and analysis. (IPPS ETH:02)

Prof. Manasse Mbonye (M) visited the Ethiopian Science and Technology Institute and met the co-supervision team of the PhD student Joseph Ntahompagaze prior and after his defence. During his visit, he also got the opportunity to give a presentation, 20 Dec., A simple model of space structure. (IPPS RWA:01)

France

Dr Richard SAWADOGO (M), researcher at Research Inst. Health Sci. of the Natl. Ctr. Sci. Tech. Res., Burkina Faso, paid a research visit to Univ. Paris Sud, Fac. Pharmacy of Châtenay-Malabry under the supervision of Dr Alexandre Maciuk, 15-30 April. (IPICS ANEC)

Têda Hamidou GANAME (M), a PhD student of Univ. Ouaga 1 Pr Joseph Ki/Zerbo, spent an internship at Univ. Paris Sud, Fac. Pharmacy of Chetnay-Malabry, under the supervision of Dr Alexandre Maciuk, 15 Apr. - 10 July. (IPICS ANEC)

BAKOUAN Youssoufou (M), a PhD student of Univ. Ouaga 1 Pr Joseph Ki/Zerbo started an internship at the laboratoire P I I P UMR 7345, Equipe SDM, Univ. Provence, Marseille, under the supervision of Dr Isabelle Couturier Marseille, in Dec. (IPICS ANEC)

Y.L. Bonzi Coulibaly (F) participated in the Congrès management des équipes et leadership Africk-consult, 7-13 Aug, Paris. (IPICS BUF:01)



Dr Alexandre Maciuk, Université Paris Sud, Dr Richard Sawadogo and the PhD student Ganamé Hamidou of Univ. Ouaga 1 Pr. KI Zerbo during a work meeting in Paris. Courtesy of IPICS ANEC.



Dr Alexandre Maciuk, showing the technical facilities in his laboratory at Université Paris Sud to Ganamé Hamidou, to the right with Dr Richard Sawadogo in the HPLC-MS room. Courtesy of IPICS ANEC.



Mr GANAME Tèeda Hamidou in action in the laboratory, to the left with local staff member. Courtesy of IPICS ANEC.



Participation to IRD administrative Council, 12 Oct. Montpellier; 18 Dec. Paris. (IPICS BUF:01)

Y. Bonzi Coulibaly (F) visited Univ. Mons, 9-19 Dec., funded by Univ. Ouaga 1 Pr. KI Zerbo.
(IPICS BUF:01)

Abdou SENE (M), spent 1-6 Dec. at University Paris VI. (IPMS BURK:01)

Ouédraogo Désiré (M) paid a visit to INRIA, Institut Élie Cartan de Lorraine, Univ. Lorraine, 3-21 Sep., funded by Univ. Ouaga 1. (IPMS BURK:01)

Guiro Aboudramane (M) visited Institut Elie cartan, INRIA Grand Est, Univ. Lorraine Metz, 2-21 Sep., funded by Univ de Nazi Boni. (IPMS BURK :01)

Prof. Jeremie T. Zoueu (M) spent a visit at the Institut Fresnell in Marseille, 10-12 Dec., for establishing a collaboration between the institute and the AFSIN network. In this occasion, he gave the seminar: “Photonics and sustainable development in Africa”. (IPPS AFSIN)

Pr. Joseph BATHIEBO (M) visited Univ. Perpignan Via Domitia 21 Nov. - 5 Dec. The visit was funded by ISP. (IPPS BUF:01)

Pheneas Nkundabakura and Jean Damascene participated in the 4th Indo French astronomy school on Spectroscopy, 9-16 July, Lyon. (IPPS RWA:01)

Germany

Begum Rokeya (F) participated in the 54th EASD Ann. Meeting, Berlin, 1-5 Oct. (IPICS ANRAP)
(IPICS NITUB)

Prof. Abiy Yenesew (M) made academic visit to Univ. Potsdam, 22-30 June, funded by Univ. Potsdam. (IPICS KEN:01)

Dr Kenneth Arinaitwe (M) is holding a postdoctoral position at the Helmholtz Center for Environmental Research – UFZ Leipzig Germany. The Fellowship is funded by Georg Foster Reserach Fellowship for postdoctoral reserachers in Germany. The postdoctoral visit started 20 Feb. 2017 and is expected to end 15 May 2019. (IPICS UGA:01)

Dr Ngonn Seam (M) joined the exchange staff with Heidelberg University with the support from Erasmus+ program from April 9th to May 7th, 2018. (IPMS SEAMaN)

Kimleang Khun (M) took part in a meeting regarding the mobility/training for teaching between EU PROGRAMME and PARTNER COUNTRIES, in Dresden, 2-5 Nov. This visit was funded by the Erasmus Plus Program and Partially by ISP. (IPPS CAM:01)

Prof. Abdramane Ba (M), Bakamba Dite Djénèba Sacko (M) and Boubacar Sidiki Kanté (M) participated at the mid-term meeting RARSUS-SEMALI, 16-17 July, Cologne. The visit was financed by BMBF. (IPPS MAL:01)

Prof. Abdramane BA (M), Bakamba Dite Djénèba Sacko (M), Boubacar Sidiki Kanté (M), Thierno Madani Sidibé (M) and 12 masters’ students attended the Summer School on Renewable Energy, 18-24 July, Cologne. Funded by RARSUS-SEMALI/BMBF. (IPPS MAL:01)

Prof. Abdramane BA (M) and Dr Souleymane Sanog (M) o visited (5-20 december) the ITT TH Cologne within the RARSUS-SEMALI project. The aim of the visit was planning the activities of 2019 and for writing at least one scientific article. The visit was funded by RARSUS-SEMALI/BMBF. (IPPS MAL:01)

A PhD student, Priscilla Muheki (F), visited Thüringer Landessternwarte Karl-Schwarzschild-Observatorium Tautenburg in Germany for two months (September and October). The purpose of the visit was to make observations for her PhD project and also interact with one of the supervisors, Dr Eike Guenther. During this period, she also had an opportunity to attend a school on observations.
(IPPS UGA:02)

A PhD student, Ndugu Nelson (M), visited the Max Planck institute in Germany for three months starting in Dec. The purpose of the visit is to interact with one of the supervisors, Dr Bertram Bitsch.
(IPPS UGA:02)

Ghana

Moustapha Dièye (M) started a visit to AIMS, Ghana, (funded by AIMS) 1 Nov., extended to 31 Oct. 2019.
(IPMS BURK :01)

Hong Kong

Michael J. Gatari (M) travelled for the Global Off-Grid Forum and Expo at the Hong Kong Convention and Exhibition Centre (HKCEC), 20-26 January. The travel was funded by Global Off-Grid Lighting Association (GOGLA).
(IPPS KEN:01/2)

India

Md Zakir Sultan was a visiting scientist at the Dept. Chemistry, IIT, Chennai, Apr.-June.
(IPICS NITUB)

Dr H.N. Das (M) and Arup Kumar (M) visited the Bose Institute, Kolkata, 26 Nov. - 5 Dec.
(IPPS BAN:02/2)

Prof. Mulugeta Bekele (M) and Yegermal Bassie (M) visited the Indian Institute of Science, Bangalore, for one month (Aug.). The visit was funded by ISP.
(IPPS ETH:01)

John Birir (M) paid a research visit to IIT-Madras, Chennai, Nov. - Dec., funded by IIT-Madras and the travel by ISP.
(IPPS KEN:01/2)

Halfan Mtelela (M) and Michael Musoke (M) attended the Vacuum and Processing course in Kharagpur, 1-14 Dec. The attendance was sponsored by ISP.
(IPPS TAN:01/2)

Indonesia

Mohammad Shoeb, Kesiny Phomkeona, and Sorya Proum participated in the workshop “Trends in quality management – improving your laboratory’s proficiency”, 25-27 July, Jakarta.
(IPICS ANFEC)
(IPICS BAN:04)
(IPICS CAB:01)
(IPICS LAO:01)

Chan Oeurn Chey and Kimleang Khun took part in the 10th Southeast Asia Astronomy Network (SEAN) Meeting, Lampung, 19-21 Oct. The visit was co-funded by ISP and NARIT, Thailand.
(IPPS CAM:01)



Mohammad Shoeb, Kesiny Phomkeona, and Sorya Proum with other participants in the Jakarta Quality Management Workshop. Courtesy of IPICS CAB:01.

Italy

Dr Christian Sekomo (M) attended the 14th meeting of the Chemical Review Committee (CRC 14) of the Rotterdam Convention, 11-14 Sep., Rome, paid by FAO/UNEP. (IPICS RWA:01)

PhD student Ruth Mbabazi (F) participated in the Workshop on Polymer Synthesis, Dept. Chem. Chem. Technol., Univ. Calabria, in May, supported by VicInAqua. The visit was funded by European Union Horizon 2020. (IPICS UGA:01)

Feyissa Kebede Bushu (M) paid a research visit to Univ. Cagliari, Oct. – Dec. The visit was funded by ISP. (IPMS ETH:01)

Atalay Ayele (M) visited ICTP in Trieste for the whole of July, with the aim to analyze the 2015 Fentale Volcanic activity. The visit was supported by ISP. (IPPS ETH:02)

Prof. Collins Mito (M) paid a research visit to University of Rome ‘La Sapienza’, 27 May -7 June. The visit was funded by University of Rome ‘La Sapienza’ and ISP. (IPPS KEN:04)

Japan

Dr Phenxay Deevanxay (M) and Mr Vanpasueth Phouthavong (M) paid a research visit to Inst. Materials Innovation, Inst. Innovation for Future Society, Nagoya Univ., 25 Feb. - 1 Mar. The visit was funded by JSPS Core to Core Program, Nagoya Univ. (IPICS LAO:01)

Mr Vanpasueth Phouthavong (M; 10-30 Sep) and Dr Kesiny Phomkeona (F; 24-30 Sep) paid a research visit to Inst. Materials Innovation, Inst. Innovation for Future Society, Nagoya Univ. The visit was funded by Nagoya Univ. (IPICS LAO:01)

Dr H. N. Das (M), spent a visit of two months (Aug. – Sep.) at the Research Institute of Electronics, Shizuoka University. (IPPS BAN:02/2)

Kenya

Vincent O. Madadi participated in the PACN Congress on Managing Resources Through Chemistry: Wealth not Waste, Univ. Nairobi, Chiromo Campus, 6-8 Nov. (IPICS ANCAP)

Prof. Bernard Thole (M), Univ. Malawi, Prof. Ola Wendt (M), Lund Univ., Sweden, Prof. Martin Onani (M), Univ. Western Cape, South Africa, and Prof. Metin Balci (M), Middle East Technical Univ., Ankara, Turkey, visited Dept. Chem., UoNBI, for one week in May, funded by IPICS KEN:01. (IPICS KEN:01)

Rachael Njogu (F) and Ruth Odhiambo (F) participated in the MTAWA Panel Discussion and Graduate Career Workshop at JKUAT, Nairobi, 24-25 July. (IPICS KEN:01)

Pascalina O. Munyewende (F) and Gloria Bowes (F), Univ. Witwatersrand, RSA, visited the School of Math., UoNBI, 28 Feb. (IPMS EAUMP)

Prof. Jim Bryan (M), Univ. British Columbia, Canada, visited the School of Math., UoNBI, in Aug. to participate in and give a talk on Fano varieties with small invariants at the Nairobi workshop in Algebraic geometry. The visit was funded by Univ. British Columbia, Canada. (IPMS EAUMP)

Dr Liana Heuberger (F), Math. Institute, Univ. Warwick, UK, visited the School of Math., UoNBI, in Aug. to conduct the pre-workshop and give a talk on Fano varieties with small invariants at the Nairobi workshop on Algebraic geometry. The visit funded by Univ. Warwick. (IPMS EAUMP)

Prof. Laura Costa (F), Dept. Math., Univ. Barcelona, Spain, visited the School of Math., UoNBI, and gave a course on Sheaves and cohomology. (IPMS EAUMP)

Prof. Alessio Corti (M), Dept. Math., Imp. Coll. London, UK, visited the School of Math., UoNBI, in Aug. and gave a talk on Hyperelliptic integrals and mirrors of anticanonical del Pezzo weighted hypersurfaces. (IPMS EAUMP)

Prof. Marco Garuti (M), AIMS, Cameroon, visited the School of Math., UoNBI, in Aug. and gave a research seminar on Unipotent Albanese varieties, funded by AIMS Cameroon. (IPMS EAUMP)

Prof. Balazs Szendroi (M), Math. Institute, Univ. Oxford, UK, visited the School of Math., UoNBI, in Aug and gave a research seminar ADE surface singularities and their Hilbert schemes. The visit was funded by AIMS Cameroon. (IPMS EAUMP)

Aurelio Carlucci (M), Mathematics Institute, Univ. Oxford, UK, visited the School of Math., UoNBI, in Aug to conduct the pre-workshop and give a talk on Moduli schemes of stable pairs on the resolved conifold at the Nairobi workshop on Algebraic geometry. The visit funded by Univ. Oxford. (IPMS EAUMP)

Dr Diletta Martinelli (F), Dept. Math., Univ. Edinburgh, UK, visited the School of Math., UoNBI, in Aug to lead the pre-workshop and give a talk on Bridgeland stability and applications to birational geometry of moduli spaces at the Nairobi workshop on Algebraic geometry. The visit funded by LMS. (IPMS EAUMP)

Dr Alberto Cazzaniga (M), Dept. Math., Stellenbosch Univ., RSA, visited the School of Math., UoNBI, in Aug to conduct the pre-workshop and give a talk: On some computations of refined DT invariants at the Nairobi workshop on Algebraic geometry, funded by LMS. (IPMS EAUMP)

Ms Carolina Namanya (F) Dept. Mathematics, Makerere Univ., Uganda, visited the School of Math., UoNBI, in Aug to participate at the Nairobi workshop on Algebraic geometry. The visit was funded by MARM-LMS. (IPMS EAUMP)

Mr Brian Makonzi (M), Dept. Mathematics, Makerere Univ., Uganda, visited the School of Math., UoNBI, in Aug to participate in the Nairobi workshop on Algebraic geometry. The visit funded by MARM-LMS. (IPMS EAUMP)

Mr Luke Vorhies (M), Dept. Math., Stellenbosch Univ., RSA, visited the School of Math., UoNBI, in Aug to participate at the Nairobi workshop on Algebraic geometry. The visit was funded by MARM-LMS. (IPMS EAUMP)

Mr Makanjuola Musa (M), Univ. Ibadan, Nigeria, visited the School of Math., UoNBI, in Aug to participate in the Nairobi workshop on Algebraic geometry. The visit funded by MARM-LMS. (IPMS EAUMP)

Mr John Felemu Olasupi (M), Univ. Ibadan, Nigeria, visited the School of Math., UoNBI, in Aug to participate in the Nairobi workshop on Algebraic geometry. The visit funded by MARM-LMS. (IPMS EAUMP)

Mr Damas Mgani (M), Dept. Math., UDSM, Tanzania, visited the School of Math., UoNBI, in Aug to participate in the Nairobi workshop on Algebraic geometry. The visit funded by MARM-LMS. (IPMS EAUMP)

Mr Edson Nzaganya (M), Dept. Math., UDSM. Tanzania, visited the School of Math., UoNBI, in Aug to participate in the Nairobi workshop on Algebraic geometry. The Visit funded by MARM-LMS. (IPMS EAUMP)

Mr Arphaxad Kimeu (M), Dept. Mathematics, Moi University, Kenya, participated in the Nairobi workshop on Algebraic geometry in Aug., funded by MARM-LMS. (IPMS EAUMP)

Mr Victor Tomno (M), Dept. Math., Moi Univ., Kenya, visited the School of Math., UoNBI, in Aug to participate at the Nairobi workshop on Algebraic geometry. The visit funded by MARM-LMS. (IPMS EAUMP)

Prof Roel Braekers (M), Hasselt Univ., Belgium, visited the School of Math., UoNBI, 19 Jan. The visit was funded by VLIR-UOS. (IPMS EAUMP)

Prof. Wojciech Chachólski (M), Dept. Math., KTH, Sweden, visited the School of Math., UoNBI, 12-14 Nov., and gave a 3-day mini-course to the master students on Homology for topological data analysis. (IPMS EAUMP)

Graduate Course on Functional Ceramics by Prof. Erik Kelder (M), INST Conference Room, Nairobi, 5-9 Feb. Co-organized with Delft Univ. Technol., the Netherlands. (30 part.) (IPPS KEN:01/2)

Graduate Course on Statistics by Prof. Peter Verheijen (M), INST Conference Room, Nairobi, 5-9 Feb. Co-organized with Delft Univ. Technol., the Netherlands. (30 part.) (IPPS KEN:02/1)

Overview of mathematical modelling techniques by Prof. Peter Verheijen (M), Delft Univ. Technol., the Netherlands. 9 Oct., INST Conference Room, Nairobi. (40 part.) (IPPS KEN:02/1)

Recent Developments in Studying Trace Elements in Tissue Samples by Prof David Fleming (M), Alison University, Sackville, Canada, 9 Aug. (20 part.) (IPPS KEN:01/2)

China Education System, Role and Research at SKLOG (*State Key Laboratory of Organic Geochemistry, Wushan, Tianhe District, Guangzho China*), by Dr Gan Zhang (M), Goungzhou Inst. Geochemistry (GIG), Chinese Academy of Science, 8 Aug. (22 part.) (IPPS KEN:01/2)

Atmospheric science for sustainable development, by Prof. Johan Boman (M), Gothenburg University, Sweden, 7 Dec. (30 part.) (IPPS KEN:01/2)

Korean Experiences of Nuclear Siting and Nuclear Power Plant Construction Experiences by Prof. Myung Jae Song (M), Korea Nuclear Association (KNA), 28 June. (35 Part.) (IPPS KEN:01/2)

Nuclear new-build: repeating historic mistakes? By Prof. Jan Blomgren (M), Gothenburg University, Sweden, 16 Oct. (35 part.) (IPPS KEN:01/2)

Prof. Jan Marijnissen (M), University of Florida, USA, and visiting professor at UoN, visited INST, 31 Jan. - 22 Feb., and 26 Oct. - 15 Nov. , to tutor and supervise MSc and PhD graduate research and innovation projects. The visits were funded by ISP (IPPS KEN:01/2)

Prof. Erik Kelder (M), Delft University of Technology, Netherlands, visited INST, 3–11 Feb., for teaching a graduate course on Functional Ceramics. The visit was funded by ISP. (IPPS KEN:01/2)

Dr Chris Hendrick (M), SOZ Foundation, Netherlands, visited INST, 11-17 Feb. to train MSc and PhD graduates on use and application of Raspberry PI microcomputer. The visit was funded by ISP (IPPS KEN:01/2)

Prof. Francis Pope (M) and Dr Ajit Singh (M), University of Birmingham (UoB), UK, visited INST, 19–25 Apr., ASAP project research, and service, training and installation of UoB made Optical Counters. The visit was funded by ASAP Project at UoB. (IPPS KEN:01/2)

Agaton Svenaeu (M) and Max Rosvall (M), Uppsala University, Sweden, visited INST, 21 Mar. - 16 May for MSc/BSc Research Project on how financial organisation and actors do risk analysis of environmental technology in emerging markets and compare with how local actors consider their risks and perform the analysis. The visit was funded by ISP. (IPPS KEN:01/2)

Prof. Jan Marijnissen (M), University of Florida, USA, and visiting professor at UoN, visited INST, 5-19 July, to tutor and supervise MSc and PhD Graduate Research and innovation projects. The visit was funded by ISP. (IPPS KEN:01/2)

Prof. Prabhu Rajagopal (M) from IIT-Madras, Chennai, India, visited INST, 9-29 July for teaching and PhD students' supervision. The visit was funded by ISP. (IPPS KEN:01/2)

Prof. David Fleming (M), Mount Alison University, Sackville, Canada, visited INST, 4-11 August 2018, for inspecting INST 2017/2018 academic year examinations for purposes of benchmarking and Quality Assurance. The visit was funded by UoN. (IPPS KEN:01/2)

Dr Gan Zhang (M), Dr Jun Li (F), Dr Liu Xin (F), and Dr Zhao Shizhen (M), Goungzhou Institute of Geochemistry (GIG), Chinese Academy of Science, China, visited INST, 4-14 Aug. for collaboration discussions on studying pollutants along the 21st maritime silk road. The visit was funded by GIG. (IPPS KEN:01/2)

Dr Ajit Singh (M), University of Birmingham (UoB), UK, visited INST, 25-29 Aug. for ASAP project, tutoring of project air quality team on R-statistics. The visit was funded by ASAP Project at UoB. (IPPS KEN:01/2)

Dr Andrea Mazzeo (M), University of Birmingham (UoB), UK, visited twice INST, 25-29 Aug. and 1-8 Dec., for ASAP project collaboration discussion on package 4 and Introduction of HDM-4 Model to the project air quality team. The visit was funded by ASAP Project at UoB. (IPPS KEN:01/2)

Prof. Peter Verheijen (M), Delft University of Technology, Netherlands, visited INST, 4-11 Nov. for teaching graduate course on statistics. The visit was funded by ISP. (IPPS KEN:01/2)

Prof. Johan Boman (M), University of Gothenburg, Sweden, visited INST, 2-8 Dec. for tutoring students in their thesis writing as well as teaching. The visit was funded by University of Gothenburg. (IPPS KEN:01/2)

Prof. Em. Jacob Van Dyke (M), Head of Medical Physics at the Regional Cancer Centre, London, Ontario, Canada, and founder of Medical Physics for World Benefit from Departments of Oncology and Medical Biophysics, Western University, Ontario, visited INST 8-17 December, for collaboration discussions and participation in a stakeholder meeting on the planned INST mounting of a medical physics Program. The visit was funded by ISP. (IPPS KEN:02/1)

Dr Wichard J D Beenkew (M) and Daniel Egbe (M) visited on 1 March, to carry out an evaluation on MSSEESA. (IPPS KEN:02)
(IPPS MSSEESA)

There were students from Makerere and Dar es Salaam who visited the laboratories of the Department of Physics, UoN, under the umbrella of MSSEESA for research purposes. (IPPS KEN:02)
(IPPS MSSEESA)

Prof. Jeremie T. Zoueu (M), INHB, Ivory Coast, visited Dept. Physics, UoN, 14-22 Sep. for carrying out measurements on raman spectrometer, funded by IPPS KEN:04. (IPPS KEN:04)

Mr Gnetto Ipo Marius (M), INHB, Ivory Coast, visited Dept. Physics, UoN 14 Sep. - 6 Dec. to carry out research on holographic microscopy. The visit was funded by IPPS KEN:04. (IPPS KEN:04)

Dr Ryan Gallacher (M), the Imperial College, London, UK, visited the Geology Dept/Seismology and Applied Geophysics Unit at UoN 28 Nov. - 4 Dec., to work on receiver functions with Bruce Mutegi and train other students on receiver function trials project NSF. (IPPS KEN:05)

Alexander Christian Schnackenberg (M), IRIS, USA, visited the Geology Dept/Seismology and Applied Geophysics Unit at UoN 28-31 Aug. for training on SeiscompSeismic Data Analysis software. (IPPS KEN:05)

Dr Sarah Stamps (F), Dept. Geosciences, Virginia Tech, spent 2-25 Jan. at the Geology Dept./Seismology and Applied Geophysics Unit, UoN. On the occasion, she gave a course "Geodynamics in Central Kenya". (IPPS KEN:05)

Stefan Skupien (M) and Daniel Ayuk Mbi Egbe (M) gave a brief summary of the results of the evaluation of the MSSEESA network, at the UoN, 28 Sep., during the network annual board meeting. (IPPS MSSEESA)

Dr Denis Okello (M) paid a research visit to UoN 12 -16 Aug. to prepare the proposal for extension of the IPPS UGA:01 grant. The visit was funded by IPPS UGA:01. (IPPS UGA:01)

Laos

Assist. Prof. Yuki Kamimoto (M), Nagoya Univ., visited Dept. Chem., NUOL, 5-6 Feb. to discuss research collaboration on methane hydrate formation and utilization of waste materials for the removal of chemical contaminants in water. The visit was funded by Nagaya Univ. (IPICS LAO:01)

Dr Takeshi Hagio (M), Nagoya Univ., visited Dept. Chem., NUOL in March to discuss research exchange regarding the utilization of waste materials for the removal of chemical contaminant in water. The visit was funded by Nagoya Univ. (IPICS LAO:01)

Kesiny Phomkeona (F) attended a Workshop on Globally Harmonized System of Classification and Labeling of Chemical (GHS) at Ministry of Industry and Commerce, Vientiane, 5-6 Dec. (IPICS LAO:01)

Luxembourg

Mr Teeda Hamidou GANAME (M), a PhD student of Univ. Ouaga 1 Pr Joseph Ki/Zerbo started an internship 3 Dec. at the Lab.f Molec. Cell. Biol. of Cancer in the Hospital of Kirchberg, under the supervision of Professor Marc DIEDERICH. (IPICS ANEC)

Mali

Moustapha SAWADOGO, Burkina Faso, visited Dept. Chemistry, USTTB 15-9 Jan. (IPICS MAL:01)

Cecilia Öman (F), ISP, visited Dept. Chemistry, USTTB in April-May for training in project management. The visit was funded by IPICS and IPICS MAL:01. (IPICS MAL:01)

Prof. Mama PLEA (M), Cameroon, visited Dept. Chemistry, USTTB 15-25 Aug., for the thesis defense by Sanata TRAORE, funded by the ISP grant. (IPICS MAL:01)

Prof. Mamadou Abdoul Diop (M), Univ. Gaston Berger, Senegal, visited USTTB 17-30 Apr. (IPMS BURK:01)

Prof. Gane Samb LO (M), Univ. Gaston Berger, Senegal, visited USTTB 1-15 Apr. on ISP funds. (IPMS BURK :01)

Cedric Mguemlle (M), Pan African University for Water and Energy Systems (PAUWES), had an internship about "Modeling the energy supply scenario for Bamako, Mali" for the RARSUS-SEMALI project. 14 May - 30 June, Bamako. Funded by PAUWES. (IPPS MAL:01)

Morocco

Dr ZABSONRE Issa (M), visited the Lab. Math. et Dynamique de Population (LMDP), Marrakech, Maroc, 10-30 Sep. (IPMS BURK :01)

Myanmar

Brigitte Lucquin (F) Prof. Em., Univ. Paris 6, France, 5-15 Nov., SEAMS School 2018 on Partial Differential Equations and their Applications. Financial support from CIMPA. (IPMS SEAMaN)

Prof. Eiji Yanagida (M), Tokyo Ins.Technol., Japan, 5-15 Nov., SEAMS School2018 on Partial Differential Equations and their Applications. Financial support from CIMPA. (IPMS SEAMaN)

Assoc. Prof. Michinori Ishiwata (M), Osaka Univ., Japan, 5-15 Nov., SEAMS School 2018 on Partial Differential Equations and their Applications. Financial support from CIMPA. (IPMS SEAMaN)

Takeshi Nandri (M), Prof., Res. Inst. Inform. Technol. (RITT), Kyusu Univ., Japan, 19-21 Dec., Course on Supercomputer and Python Programming Language. (IPMS SEAMaN)

Gail Tang (M), Univ. Lavene, USA, (Fulbright scholar), Dec. 2018 to Mar. 2019. Teaching to the undergraduate students and seminar to all math students and teachers. (IPMS SEAMaN)

Prof. Aung Ko Ko Kyaw, Southern University of Science and Technology, China, visited the group in Nov. for participating at the ICPM2018. (IPPS MYA:01)

Prof. Em. Yoshinori Akaishi (M), the High Energy Accelerator Research Organization, Japan, visited the group 24 Nov. - 3 Dec. to attend the ICPM2018, to discuss with group members and to sit as an external examiner for the defense of PhD candidates, supported by ISP funds (IPPS MYA:01).

Prof. Khin Maung Maung (M), Univ. Southern Missisipi, USA, visited the group 22 Nov. - 15 Dec. to attend the ICPM2018, to discuss with the group members and to sit as an external examiner for the defense of PhD candidates. (IPPS MYA:01)

Nigeria

R. Sha'Ato, R.A. Wuana & S. M. Tongu participated in the 41st Annual Intl. Conference, Workshop & Exhibition of the Chemical Society of Nigeria, Univ. Ibadan, 6-21 Sep. (IPICS ANCAP)

Malawi

Prof. David Kariuki visited Dept. Chem., Univ. Malawi on a Senior Faculty Visiting Fellowship for three months from July to Sep. Funded by CARTA. (IPICS KEN:01)

Prof. Lydia Njenga (F) and Prof. David Kariuki (M) served as facilitators in a PhD Supervision workshop at the University of Malawi for one week in July. (IPICS KEN:01)

Malaysia

CCS members Neth barom (M), Sieng Huy (F), Chek Sotha (F) and Phan Kongke (M) attended the ICPAC Langkawi 2018 and 19th Malaysian Intl. Chem. Congr., 30 Oct. - 2 Nov., Langkawi, as coorganisers. (IPICS CAB-CCS)



CCS members at ICPAC Langkawi. Courtesy of IPICS CAB-CCS.

Morocco

Prof Hamidou Toure participated in the General Assembly of the African Mathematical Union, 24 Sep., Rabat. (IPMS BURK:01)

Nepal

Mr Elisee Gashugi (M) attended a meeting of ISO/PC 305 Sustainable non-sewered sanitation systems, 20-26 May, Kathmandu, paid by Bill & Melinda Gates Foundation through the American National Standards Institute. (IPICS RWA:01)

Netherlands

Fredrick Kariithi (M) paid a research visit to VHL University of Applied Sciences, January-November 2018. The visit was funded by VHL University of Applied Sciences and ISP paid for the airticket. (IPPS KEN:01/2)

Michael J. Gatari (M) went for a Water Conference and for supervision of students at Wetsus, Leeuwarden (4-8 Sept.). The travel was funded by UoN and ISP. (IPPS KEN01/2)

Poland

Otto Trust (M) took part at the Summer School on Spectroscopic data analysis with iSpec, 26-29 June, Wroclaw. (PPS UGA:02)

Peru

Sharon Aol (F) visited Jicamarca Radio Observatory in Peru 2 June - 13 Aug. She learnt how the Incoherent Scatter Radar and JULIA radar works, and worked on a project titled "Statistical analysis of the occurrence of equatorial Spread-F using the JULIA radar at Jicamarca". (IPPS UGA:02)

Rwanda

Prof. David Kariuki (M) served as facilitator in a PhD Supervision workshop at University of Rwanda for one week in May. (IPICS KEN:01)

Mr Fan Xiao Xiong (M), Shimadzu Co Tokyo office, Japan, visited UR Dept. Chem., 23 Mar., to look on the problems reported by an ESTEC technicians, prior to help in finding solutions. The visit was paid by Shimadzu. (IPICS RWA:01)

Ms Noella Karusisi (F), Ms Lisa Ganley (F) and Ms Rachael Hamilton (F), LEAF Therapeutics, USA, visited UR Dept. Chem., 18 May, for possible collaboration in drug discovery. The visit was paid by LEAF Therapeutics. (IPICS RWA:01)

Dr M.P. Brahmhatt (M), Dept. Chem. Sheth M.N. Science College, India, paid a courtesy visit to UR Dept. Chem., 23 May, and future collaboration was discussed. The visit was paid by himself. (IPICS RWA:01)

Dr John Wasswa (M), Univ. Makerere, Uganda, visited UR Dept. Chem. and its laboratory, 16 May, Kigali, to look together on further collaboration. Funded by IPICS UGA:01. (IPICS RWA:01)
(IPICS UGA:01)

Prof. Ininda Joseph (M), UoNBI, Kenya, visited Rwanda in Feb., teaching the module of weather systems at UR. (IPPS RWA:01)

Fernando Rodriguez Villegas (M) and Claudio Arezzo (M), ICTP, Trieste, Italy, visited the UR Dept. Math. in Nov. (IPMS EAUMP)

Michael Dorff (M), USA, Presenting Applications of Mathematics on First celebration of the Pi-Day in Rwanda. (IPMS EAUMP)

Layla Sorkatti (F), Sudan, and Paul Vadelind, Sweden, participated in the First celebration of the Pi-Day in Rwanda. (IPMS EAUMP)

Ruben Garcia Benito (M), Institute of Astrophysics of Andalucia, Spain, visited the group in Kigali 26 Aug. – 1 Sep. and held a “School on Spectroscopy”, about the 2D and 3D spectroscopy, for MSc and PhD students and some staff, (16 part.), sponsored by IPSS RWA:01. (IPSS RWA:01)

Prof. Joshua Ngaina (M), UoN, Kenya, was invited to teach the module of Climate systems in the Master of science in Atmospheric and Climate science programme in March, funded by IPSS RWA:01. (IPSS RWA:01)

Senegal

Prof. Hamidou TOURE (M), f Univ. Ouaga 1, Burkina Faso, visited Univ. Gaston Berger 21-25 Oct. (IPMS BURK:01)

Professor Khalil EZZINBI, Univ. Cadi Ayyad, Marocco, visited Univ. Gaston Berger, 21-25 Oct. on ISP funds. (IPMS BURK :01)

Prof. Hamidou Toure (M), Univ. Ouaga 1, Burkina Faso, participated in meetings of the Scientific Council of Excellence, Centre of Mathematics and Computer Sciences (CEA-MITIC), 29 May 2 and 26-27 Oct. (IPMS BURK:01)

Singapore

Chan Oeurn Chey (M) joined the meeting of the ASEAN Federation of Physics Societies, NTU, Singapore, 5-9 Mar., co-funded by ISP and NTU. (IPPS CAM:01)

Chan Oeurn Chey (M) and Kimphun Sunly (M) participated in the 48th International Symposium on Multiparticle Dynamics (ISMD2018), NTU, Singapore, 2-5 Sep., co-funded by ISP and NTU. (IPPS CAM:01)

Dr Zephania Birech (M) paid a research/academic visit to Prof. Huang Zhiwei’s optical bioimaging group, at the Nal Univ. of Singapore, May-June, sponsored by ISP funds. (IPPS KEN:04)

Than Zaw Oo (M) was a visiting scientist at the Energy Research Institute at Nanyang Technological University (ERI@NTU) from June to Sept. (IPPS MYA:01)

Hnin Ei Maung (F) started a six-month research training at ERI@NTU in Oct. (IPPS MYA:01)

South Africa

M.O. Munyati (M) attended the Joint researcher workshop: Zambia-South Africa Cooperation programme, 11-13 Apr. Pretoria. (IPICS ZAM:01)

M.O. Munyati (M), Cynthia Mwansa (F) & Natasha Sichone (F) attended the Spring School on Solar Energy and Photosynthesis 1-5 Oct., Univ. Pretoria, funded by the ISP grant. (IPICS ZAM:01)

Prof. Stanley Mukanganyama (M) paid research visits to University of Cape Town, 29 July - 5 Aug., and to the Central University of Technology (CPUT), Cape Town, 5 -12 Aug. The visit was funded by IPICS-ZIM:01. (IPICS ZIM:01)

Michael Mangala (M) travelled for an IAEA regional training course on determination of uranium isotopes in the environment in Pretoria, 10-13 Feb., funded by IAEA. (IPPS KEN:01/2)



Participants of the Spring School on Solar Energy and Photosynthesis in Pretoria. Courtesy of IPICS ZAM:01.

South Korea

Dr Mohammad Shoeb (M) paid a research visit to Dept Chemistry, Kyungpook Natl Univ., 16-19 Sep. The visit was funded by SETAC Asia Pacific and visa fee from BAN:04. (IPICS BAN:04)

Spain

Ms MAROUA SADDAOUI (F), Univ. Tunis El Manar, Tunisia, spent a postdoctoral period 5 Jan. - 5 April at Faculté de Chimie, Univ. Complutense de Madrid. (IPICS ANEC)

Diene NGOM (M), 17 Oct. - 3 Nov. Postdoctoral visit. (IPMS BURK:01)

The PhD student Cheick Oumar Kindo (M) participated in the workshop 'HYSPLIT MODEL' at IDAEA-CSIC (Institute of Environmental Assessment and Water Reseach), 12-20 May, Barcelona (IPPS MAL:01)

Sri Lanka

Prof. Bishnu Prasad Sarma (M), Govt Ayurvedic College, Assam, India, visited Kandy, 17-19 Jan., to discuss collaboration. The visit was funded by ANRAP. (IPICS ANRAP)

M Mosihuzzaman participated in 1st Sri Lankan ANRAP Regional Seminar, Kandy, 17-19 Jan. (IPICS ANRAP)

Two scientists from Bangladesh, and one from each of the following Pakistan, Malaysia, Turkey, Cambodia and India, were supported by ANRAP to attend the 1st Sri Lankan ANRAP Regional Seminar on “Herbal Approaches in Combating Diabetes and other Tropical Diseases” held 17-19 Jan. in National Institute of Fundamental Studies, Kandy, Sri Lanka. (IPICS ANRAP)

Sudan

Profs. Marcel Tanner (M) and Pascal Mäser (M), Swiss Tropical and Public Health Institute, participated in the Seminar on Mycetoma. Fac. Pharm., Univ. Sci. Tech., 23 Jan., Khartoum. (IPICS NAPRECA)

Assoc. Prof. Wendy van de Sande (F), Med. Microbiol. Inf. Dis., Erasmus Med. Ctr., Rotterdam, the Netherlands, spent a one week research visit at Fac. Pharm., Univ. Sci. Tech., Khartoum, partially sponsored by Univ. Sci. Tech. (IPICS NAPRECA)

Sweden



Mohammad Shoeb with Swedish Institute Diploma holders from Bangladesh at the City Hall, Stockholm.
Courtesy of IPICS BAN:04.

Mohammad Shoeb (M) participated in the World Alumni Leaders Conference, Swedish Institute (SI), Stockholm, during 30 May-01 June, and paid a visit to Linköping Univ. and ISP Office, Uppsala Univ. The travel was funded by SI and partially from BAN:04. (IPICS BAN:04)

Y.L. Bonzi Coulibaly (F) served at the SAC meeting, IFS, 23-30 May in Lund & 26-28 Oct. in Stockholm. (IPICS BUF:01)

Y. Bonzi Coulibaly (F) paid a visit to Prof. Charlotta Turner, Lund Univ., Dept. Chem., Ctr Anal. Synth., Lund, 25 May. The visit was an extra activity following SAC meeting of IFS, funded by IFS. (IPICS BUF:01)

Jean Claude Ouédraogo (M) made a training at Dept Pure and Applied Biochemistry, Chemical Center, Lund University, Lund, 24 Sep. - 23 Oct., funded by Ouaga University. (IPICS BUF:01)

Y. Bonzi Coulibaly (F) paid a visit to the Department of Pure and Applied Biochemistry, Chemical Center, Lund University, Lund, Oct., as an extra activity of an IFS meeting. (IPICS BUF:01)

W. Mammo (M) paid a visit to Chalmers University of Technology, Gothenburg, March 2-4 and 7-9, funded by IPICS ETH:01 and a grant from the Swedish Research Council. (IPICS ETH:01)

W. Mammo (M) participated in the Swedish OPV meeting, 5-7 Mar., Vårdnäs. (IPICS ETH:01)

Proum Sorya (F) and Sreng Soknet (F) visited Uppsala Univ. 17-28 Sep. and 1-12 Oct., respectively, supported by ERASMUS+ grants. (IPICS CAB:01)

Vanseng Chounlamany (F) visited Uppsala Univ. 9-22 Sep. supported by an ERASMUS+ grant.
(IPICS LAO:01)

Sami Khalid visited IPICS at Uppsala Univ. for a one-day brainstorming session on NAPRECA development, 14 Aug.
(IPICS NAPRECA)

Theoneste Muhizi (M) visited UU, Sweden, to meet Prof. Mate Erdelyi and Prof. Henrik Kylin for joint proposal writing, 26 May - 1 June, funded by the UR Sida Program.
(IPICS RWA:01)

Simon Lukato (M) trained at Lund Univ. Sep. – Dec., funded by OPCW.
(IPICS UGA:02)

Prof. Patrick Weke (M) and Jared Ongaro (M) participated in the 2nd Network meeting for Sida and ISP funded PhD students in Mathematics, Stockholm, 26-27 Feb.
(IPMS EAUMP)

Dr Kanal Hun visited Uppsala Univ. and attended the Analysis of Algorithms 2018, with the support from Erasmus+ KA107 International Credit Mobility Scholarship.
(IPMS SEAMaN)

PhD student Sharon Aol (M) visited the Ångström Laboratory, Uppsala Univ. 14 Apr. – 21 June, with the purpose to interact with her supervisor Dr Stephan Buchert and draft a manuscript from her PhD research.
(IPPS UGA:02)

Switzerland

Michael J. Gatari (M) travelled to the First WHO Global Conference on Air Pollution and Health at WHO HQs, Geneva, 30 Oct. -1 Nov., using ISP funds.
(IPPS KEN:01/2)

Tanzania

Prof. Jan Ludvik Lyche (M), Norway, and Prof. Stephen Mutoloki visited the Inst. Marine Sciences for a meeting to evaluate joint students in the field of aquatic health, Nov., funded by NORAD.
(IPICS ANCAP)

Prof. Joshua Greene (M), Boston College, USA, visited in July and lectured on Curves intersection. The visit was partially funded by EAUMP.
(IPMS EAUMP)

Prof. Lothar Göttsche (M), ICTP, Trieste, Italy, visited in July and lectured on Advanced linear algebra. The visit was funded by ICTP.
(IPMS EAUMP)

Prof. Ravi Ramakrishna (M), Cornell, USA, visited in July and lectured on Galois theory. The visit was partially funded by EAUMP and ICTP.
(IPMS EAUMP)

Dr David Ssevviiri (M), Makerere, Uganda, visited in July and lectured on Elementary algebraic geometry. The visit was funded by EAUMP.
(IPMS EAUMP)

Dr Angela Tabiri (F), Glasgow, UK, visited in July and lectured on Hopf algebras. The visit was funded by ICTP.
(IPMS EAUMP)

Prof. Friedrich Wagemann (M), Nantes, France, visited in July and lectured on crossed modules of Lie algebras. The visit was funded by ICTP.
(IPMS EAUMP)

Prof. Yujiro Kawamata (M), Univ. Tokyo, Japan, visited in July and lectured on Non-commutative deformations of simple objects in a category of preserve coherent sheaves. The visit was funded by ICTP.
(IPMS EAUMP)

Dr Shinnosuke Okawa (M), Univ. Tokyo, Japan, visited in July and lectured on the definition of Non-commutative del Pezzo surfaces. The visit funded by ICTP. (IPMS EAUMP)

Prof. Diogo Gomes (M), King Abdullah Univ., Saudi Arabia, visited 1-5 Oct. for the workshop on PDEs and Calculus of Variation. He gave lectures on Calculus of variation. (IPMS EAUMP)

Prof. Olivier Pamen (M) visited 1-5 Oct. for the workshop on PDEs and Calculus of Variation. He gave lectures on Stochastic Differential equations. (IPMS EAUMP)

Dr Marc Sedjro (M), AIMS centre, Tanzania, Measure Theory course, April - June, MSc level, 9 students. (IPMS EAUMP)

Dr Mengistu Goa Sangago (M), AAU, Ethiopia, Topology course, 28 May - 29 June, MSc level, 9 students. (IPMS EAUMP)

Dr Mengistu G. Sangago (M), AAU, Ethiopia, Fixed points of non-expansive mapping in Banach spaces with graphs, 28 June, staff and student seminar, 29 part. (IPMS EAUMP)

Dr Linus Carlsson (M), Mälardalen Univ., Sweden, Partial Differential Equations, 4 Apr. - 4 May, MSc level, 15 students. (IPMS EAUMP)

Dr Linus Carlsson (M), Mälardalen Univ., Sweden, an algorithm for solving a PDE (2 seminars), May, staff and students, 27 part. (IPMS EAUMP)

Dr Layla Sorkatti (F), Khartoum Univ., Sudan, Symplectic Alternating Algebras, 21 June, staff and students, 25 part. (IPMS EAUMP)

Dr Layla Sorkatti (F), Khartoum Univ., Sudan, Commutative Algebra, 15 May - 22 June, MSc level, 4 students. (IPMS EAUMP)

Paul Vaderlind (M), Stockholm Univ., Sweden, Differential Geometry, 1-24 Dec., MSc Level, 5 students. (IPMS EAUMP)

Thailand



Participants in the IUPAC Intl. Conference on Green Chemistry in Bangkok. Courtesy of IPICS CAB-CCS Sieng Huy, CCS's Executive Director, participated in the IUPAC International Conference on Green Chemistry in Bangkok, 9-10 Oct. (IPICS CAB-CCS)

Ms Kimhuo Heang (F), Ms Sotheavy Sun (F), Mr Doem Vanny (M) and Ms Peng Yun (F), all MSc students at RUPP Dept. Math., attended "Chiang Mai – IWR Summer School 2018" on topic "the

Scientific Computing and Environmental Science”, 8-16 Mar., Chiang Mai, funded by IWR, Heidelberg Univ. (IPMS SEAMaN)

Than Zaw Oo (M) and Win Myint Oo (M) made a research collaboration visit and lab tour at King Mongkut's University of Technology (KMUTT) and at Sakon Nakhon Rajabhat University (SNRU) Thailand, 26-30 Mar., supported by ISP funds. (IPPS MYA:01)

Yan Lin Aung (M) was at SNRU, Thailand for research training in May. (IPPS MYA:01)

Tunisia

Amidou TALL (M), a PhD student of Univ. Ouaga 1 Pr Joseph Ki/Zerbo spent an internship at Univ. Tunis El Manar, 11 May - 10 Aug., under the supervision of Prof. Nouredine RAOUAFI. (IPICS ANEC)

Uganda

Dr Xiaolei FAN (M), School of Chem. Eng. and Analyt. Sci., Univ. Manchester, visited Dept. Chem., Makerere Univ. in Aug., to discuss possible collaboration in the fields of analytical and chemical engineering including green processing, funded by Univ. Manchester and Erasmus Mundus. (IPICS UGA:01)
(IPICS UGA:02)

Prof. Xi Jiang (M) and Dr Roberto Volpe (M), Queen Mary Univ. London, visited Dept. Chem., Makerere Univ. in Aug., to discuss possible research collaboration, funded by the Erasmus Mobility Program. (IPICS UGA:01)

Prof. Peter S. Spencer (M), Oregon Inst. Occ. Health Sci., Oregon Health & Sci. Univ., Portland, Oregon, USA, visited the group in Dec., to discuss possible research collaboration in residue analysis. He sponsored his visit. (IPICS UGA:01)

Dr Justus Masa (M), Ctr Electrochem. Sci., Ruhr-Univ. Bochum visited two days to discuss collaboration on catalyst characterization. (IPICS UGA:02)

Prof. Assata Zerai (F), Univ. of Illinois, USA, visited five days to discuss collaboration on a Science for All Project between Makerere and Univ. Illinois. (IPICS UGA:02)

Prof. Chrispin Kowenje (M), Dept. Chemistry, Univ. Maseno, Kenya, visited two days to discuss collaboration on synthetic silicate minerals and catalysis. (IPICS UGA:02)

Prof. Bernardo Rodrigues (M), School of Mathematics, Statistics and Computer Science, Univ. KwaZulu-Natal, Durban, South Africa. Title: Bridges between rank 3 primitive permutation groups and binary self-dual codes. Sept. (IPMS EAUMP)

Prof. David Li-Bland (M), Dept. Mathematics, NSF Mathematical Sciences Postdoctoral Research Fellowship, U.C. Berkeley, USA. Title: Mechanics and Manifolds. 7 Nov. (IPMS EAUMP)

Prof. James Gossell (M), Dept. Mathematical Sciences, Clemson Univ., South Carolina, United States. Title: Minimal PMU Covers on Electric Power Systems 15 Aug. (IPMS EAUMP)

Dr Layla Sorkatti (F), Dept. Mathematics, Al-Neelain Univ., Sudan. Title: Quiver and Path Algebras. 19 Dec. (IPMS EAUMP)

Dr Peter Nabutanyi (M), Fac. Theoretical Biol., Bielefeld Univ., Germany. Title: Modeling the Effect of Genetic Drift on the frequency of a Mutation in Rapidly Growing Populations. 19 Dec.
(IPMS EAUMP)

Prof. Gerald Wanjala (M), Dept. Mathematics, Sultan Qaboos Univ., Oman. Title: Weakly Invariant Subspaces for Multivalued Linear Operators on Banach Spaces. 27 June. (IPMS EAUMP)

Prof. Michael Forbes (M), Univ. Queensland, Australia. The Vehicle Routing Problem, 5 July.
(IPMS EAUMP)

Prof. Salvador Rodrigues-Lopez (M), Stockholm Univ. Sweden. A review on Fourier analysis techniques applied to the study of (some) PDEs, 11 July. (IPMS EAUMP)

Dr Simon Frost (M), Univ. Cambridge, UK. Incorporating evolution into mathematical models of disease dynamics, 9 Feb. (IPMS EAUMP)

Dr Mirjana Pivoc (F) paid a visit to Mbarara University of Science and Technology (MUST) to lecture observational techniques for postgraduate students during for three weeks during in May. She was hosted by the MUST Dept. Physics on behalf of EAARN. The visit was funded by EAARN.
(IPPS EAARN)

Dr Bosco Oruru (M), Makerere University, Uganda, visited (MUST to teach stellar astrophysics for postgraduate students during Sep. The visit was funded by EAARN. (IPPS EAARN)

Dr Pheneas Nkundabakura (M), University of Rwanda, visited MUS) to teach postgraduate students during Aug. The visit was funded by EAARN. (IPPS EAARN)

Associate Prof. Simon K. Anguma (M), Muni University, Arua, Uganda, visited MUST in Apr. and Aug. for administrative and supervisory activities of EAARN. The visit was funded by EAARN.
(IPPS EAARN)

PhD student Isaac Habumugisha (M) visited Entoto Observatory in Ethiopia for three months, May – July. funded by ISP through EAARN. (IPPS EAARN)

Prof. Donald Kurtz (M), University of Central Lancashire, UK, visited the group in Feb., to facilitate a workshop on Asteroseismology, partially funded by IPPS UGA:02. (IPPS UGA:02)

Dr Stephan Buchert (M), Uppsala Univ., Sweden, visited the group in Oct., to facilitate a space physics workshop. The visit was funded by IPPS UGA:02. (IPPS UGA:02)

Dr Emirant Bertillas Amabayo (M), Busitema University, Uganda, visited the group in Oct. –Nov. to facilitate a space physics workshshop. The visit was funded by IPPS UGA:02. (IPPS UGA:02)

Dr Eika Guenther (M), Thüringer Landessternwarte Tautenburg Karl-Schwarzschild-Observatorium, Germany, visited the group in Nov. to facilitate in exo-planet workshop. The visit was funded by IPPS UGA:02. (IPPS UGA:02)

United Kingdom

M. Shoeb (M) participated in the Kick-off meeting of the project Erasmus +, KA2 – Cooperation for innovation and the exchange of good practices – Capacity building in the field of Higher Education with the title: ENabling Humanitarian Attributes for Nurturing Community-based Engineering (ENHANCE), Univ. Warwick, 11-12 Dec., funded by ENHANCE. (IPICS BAN:04)



Mohammad Shoeb with members of EU funded Research Project ENHANCE at University of Warwick, UK. Courtesy of IPICS BAN:04.

Mr Elisee Gashugi (M) attended a meeting of ISO/TC 283 to develop the ISO guideline and standards in the sector of Occupational health and safety management, 17-21 Sep, Coventry, paid by ISO. (IPICS RWA:01)

Solomon Tesfaye Bekele (M) and Mulugeta Alemayehu (M) paid a research visit to Brunel Univ., London, July - Sep. The visit was funded by ISP. (IPMS ETH:01)

Dr Tsegaye Gedif Ayele (M), paid a research visit to Brunel Univ., London, July – Sep. The visit was partially funded by ISP. (IPMS ETH:01)

Michael J. Gatari (M) travelled to the First ASAP Project Meeting at University of Birmingham, UK, 27 Jan. - 2 Feb. The travel was funded by UoB. (IPPS KEN:01/2)

Michael J. Gatari (M) travelled to the ASAUK Conference and ASAP Meeting at University of Birmingham, UK, 9-15 Sep., funded by UoB. (IPPS KEN:02/1)

USA

Prof. M Mosihuzzaman participated in the 78th American Diabetes Association meeting, Orlando, Florida, 22-26 June. (IPICS ANRAP)

Dr Jared ONGARO (M) paid a research visit to the Math. Sci. Res. Inst., Berkeley, April-May, to participate in the program Enumerative Geometry beyond numbers. National Research Foundation and ISP funded the visit. (IPMS EAUMP)

Dr Bruno KORGGO (M) visited the University of Maryland and NASA Goddard Space Flight Center, 25 October-7 November, USA. The visit was partially funded by University of Maryland and by ISP-BUF 01. (IPPS BUF:01)

Joshua Onkangi (M) paid a training visit to Middlebury Institute of International Studies at Monterey, California, 4-8 June. The training was funded by James Martin Center for Nonproliferation (CNS) and Lawrence Livermore National Laboratory (LLNL). ISP paid for the airticket. (IPPS KEN:01/2)

Zambia

Daniel A. Egbe (M), Johannes Kepler University, Austria. 1-15 May. Collaboration meetings and seminar presentation. (IPICS ZAM:01)

M.O. Munyaty (M) attended SARIMA Research and Grants Management Training hosted by NSTC, 32-27 July, Lusaka. (IPICS ZAM:01)

Judith Koskey (F) and Julia Rotich (F), University of Eldoret, Kenya 15 Nov. 2018 - 15 Apr. 2019. Visiting MSc research students carrying out experimental work. (IPICS ZAM:01)

Cecilia Öman (F), ISP, Sweden visited UNZA 28-30 Nov, to facilitate of the training workshop on research management. IPICS funded. (IPICS ZAM:01)

Merck country representatives Cecilia Mulenga (F; Account manager - Zambia) and Regional Sales Manager Mary De Sousa ((F), South Africa visited UNZA Dept. Chem. 15 Mar. (IPICS ZAM:01)



Cecilia Öman (ISP) preparing for her research management presentation. Courtesy of IPICS ZAM:01.



Meeting with Merck representatives. Courtesy of IPICS ZAM:01.

Professor Olivier O. Otafudu (M), Wits Univ., RSA, visited UNZA Dept. Math 1 week in Dec., He served as external examiner, and resenation of talks. Financial Support: UNZA. (IPMS EAUMP)

Lindah K. Kiriinya (F) travelled to a Regional Workshop in Nuclear Security, Lusaka, 19-23 Nov., funded by IAEA (IPPS KEN:01/2)

Daniel Ayuk Mbi Egbe (M), Johannes Kepler University Linz, Austria, Wichard Beenken (M), Technische Universität Ilmenau, Germany, and Stefan Skupien, WZB Berlin Social Science Center, Germany, visited the group 21 -25 Aug. for the evaluation of MSSEESA. (IPPS ZAM:01)

Zimbabwe

Awraris Anbassie (M) paid a research visit to Univ. Zimbabwe, Harare, to do part of his MSc thesis work. The visit was fully funded by ISP support. (IPICS ETH:02)

Yokabd Tadesse (F) paid a research visit to Univ. Zimbabwe, Harare to do part of her MSc thesis work. The visit was fully funded by ISP support. (IPICS ETH:02)

Rumbidzai Makurira (F) participated in the College of Health Sciences Curriculum Review, 12-13 July, Harare. (IPICS ZIM:01)

Rumbidzai Makurira (F) and Molly Mombeshora (F) participated in Induction and Foundation Methods of Teaching in Higher Education, 6-9 Aug., UTLC, Harare. (IPICS ZIM:01)

Molly Mombeshora participated in the Postgraduate Thesis writing and referencing workshop And Science Cluster postgraduate workshop, 5 Feb., Univ. Zimbabwe, Harare. (IPICS ZIM:01)

Molly Mombeshora (F) participated in Merck Research Workshop on Proteomics, Genomics and Multiplexing Portfolio/Luminex Technology, 27 Mar., Harare. (IPICS ZIM:01)

Winnie Mozirandi participated in Literature Review and Research Methodology, 1-2 Feb., Univ. Zimbabwe. (IPICS ZIM:01)

Winnie Mozirandi participated in the Univ. Zimbabwe Annual Medical Research Symposium, 20 Oct., Harare. (IPICS ZIM:01)

S. Mnkandla (F) participated in the Advanced Research Design Course conducted by the Partnership for African Social & Governance Research, 18-28 June, Bulawayo. (IPICS ZIM:02)

N. Basopo (F), J. Change (F), D. Ndebele (M), D. Tapfuma (M), S. Mnkandla (F), and A.H. Siwela (M) participated in the Research Management workshop, 20-22 Nov., Bulawayo. (IPICS ZIM:02)

N. Basopo (F) and S. Mnkandla (F) participated in NUST Women Academic Researchers' training workshop on Technopreneurship, 29-30 Nov., Bulawayo. (IPICS ZIM:02)

APPENDIX 5. ABBREVIATIONS AND ACRONYMS

2D	two-dimensional
3D	three-dimensional
AAPPS	Association of Asia Pacific Physical Societies
AAS	African Academy of Science
AAS	Atomic Absorption Spectroscopy/Spectrometer
AAU	Addis Ababa University (Addis Ababa, Ethiopia)
ABU	Al Baha University, Al Baha, Saudi Arabia
Acad.	Academy
ACC	Asia Chem Corporation
ACS	American Chemical Society
ADMP	African Diaspora Mathematicians Program
AECD	Atomic Energy Centre Dhaka (Bangladesh)
AFR	Africa
AFSIN	African Spectral Imaging Network
AiBST	African Institute of Biomedical Science and Technology (Harare, Zimbabwe)
AIDS	Acquired Immunodeficiency Syndrome
AFM	Atomic Force Microscope
AFSCIB	Association des Femmes Scientifiques du Burkina
AFROSAI	African Organization of Public Finance Supreme Audit Institutions
Alloc.	Allocation (of funding)
ANCAP	African Network for the Chemical Analysis of Pesticides
ANEC	African Network of Electroanalytical Chemists
ANFEC	Asian Network of Research on Food and Environment Contaminants
ANRAP	Asian Network of Research on Antidiabetic Plants
APFAN	Asia Pacific Food Analysis Network
App.	appendix
ARES	Académie de Recherche et d'Enseignement Supérieur
ARSO	African Organization for Standardisation
ARUA	African Research Universities Alliance
AS	Asia
ASAUK	Africa Studies Association of the United Kingdom
ASAP	Air Pollution in East Africa project
ASEAN	Association of Southeast Asian Nations
Assoc.	associate/association
AVN	African Very Long Baseline Interferometry Network
AWMA	African Woman in Mathematics Association
BAN	Bangladesh
BAU	Bangladesh Agricultural University
BBF	Balance Brought Forward
BCF	Balance Carried Forward
Bil.Prg.	Bilateral Program
BMBF	Bundesministeriums für Bildung und Forschung (German Federal Ministry of Education and Research)
BMC	Biomedical Centre (Uppsala University, Sweden)
BMRC	Bangladesh Medical & Dental Council
BNACWC	Bangladesh National Authority for Chemical Weapons Convention
BOD	biochemical oxygen demand
Bot.	Botany
BP	Before Present
BUET	Bangladesh University of Engineering and Technology
BUF	Burkina Faso
BUHS	Bangladesh University of Health Sciences

BURK	Burkina Faso
BCSIR	Bangladesh Council of Scientific and Industrial Research
BVP	Boundary Value Problems
CAB	Cambodia
CAB	Conformity Assessment Body
CAM	Cambodia
CAMES	Conseil Africain et Malagache pour l'enseignement supérieur (African Council for Higher Education)
CARTA	Consortium for Advanced Research Training in Africa
CCD	Commission de la Coopération au Développement
CCS	Cambodian Chemical Society
CDC	Commission for Developing Countries
CIMPA	Centre International de Mathématiques Pures et Appliquées
CJCC	Cambodia-Japan Cooperation Center
Chem.	Chemistry/Chemical
CIRAD	Centre de Coopération International en Recherche Agronomique pour le Développement (French Agricultural Research Centre for International Development)
CNABiO	Conseil National de l'Agriculture Biologique au Burkina Faso
Coll.	College
contrib.	contributions
COMSOL	(A computer program for simulations)
CONAS	College of Natural and Applied Sciences
coop.	cooperation
CRSBAN	Centre de Recherche en Sciences Biologiques, Alimentaires et Nutritionnelles (Univ. Ouaga 1 Pr. KI Zerbo, Burkina Faso)
CSIC	Consejo Superior de Investigaciones Científicas (Spanish National Research Council)
Ctr.	Centre/Center
CZTS	Copper-zink-tin sulfide ($\text{Cu}_2\text{ZnSnS}_4$)
DAAD	Deutscher Akademischer Austauschdienst (German Academic Exchange Service)
DCM	dichloromethane
DDT	Dichlorodiphenyltrichloroethane (persistent insecticide, banned by the UNEP Stockholm Convention)
DE	diatomaceous earth
Dept	Department
DFT	Density Functional Theory
Div.	Division
DNA	Deoxyribonucleic acid (carrier of genetic information)
DOI	Digital Object Identifier
DUSS	Dhaka University Science Society
DUTP	Dhaka University Telemedicine Programme (Bangladesh)
E-Coli	<i>Escherichia coli</i> , a commum human gut bacterium
E-Waste	electronic waste
EAARN	East Africa Astronomy Research Network
EACO	East African Communities Organisation
EADN	Equatorial Africa Deposition Network
EANWoBAS	Eastern Africa Network for Women in Basic Science
EASD	European Association for the Study of Diabetes
EAUMP	Eastern African Universities Mathematics Programme
EBA	Expertgruppen för Biståndsanalys (The Expert Group for Aid Studies, a Swedish Government Committee with the mandate to evaluate and analyse Sweden's international development assistance)
EC	Executive Committee
ECG	electrocardiography

Ed / Eds	editor / editors
EDXRFS	energy-dispersive-X-ray-fluorescence spectrometry
EHDA	electrohydrodynamic atomization
EMG	Electromyography
ESARSWG	Eastern and Southern Africa Regional Seismological Working Group
ESDO	Environment and Social Development Organization
ESTEC	Educational Scientific & Technical Company Ltd, Nairobi, Kenya
ETH	Ethiopia
EU	European Union
EUR	Europe
EUSS	Escola Universitària Salesiana de Sarrià, Spain
Exp.	Expenditures
F	female
F.	Faso
Fac.	Faculty
FAO	The Food and Agriculture Organization of the United Nations
FASBMB	Federation of African Societies of Biochemistry and Molecular Biology
FC	(Swedish) Focus Country
FET	Field-Effect Transistor
FIM	Focused Impedance Method
FIST	Foundation for Interaction between Science and Technology
FRSIT	Forum National de la Recherche Scientifique et des Innovations Technologiques (Burkina Faso)
FS	Författningssamling (Swedish Government's Statute-book)
FTIR	Fourier Transformation Infra-Red
FTO	Fluorine Doped Tin Oxide
FUW	Federal University Wukari (Nigeria)
GC	Gas chromatograph or Gas chromatography
GC-MS	Gas chromatography linked with mass spectrometry
GC/MS	Gas chromatography linked with mass spectrometry
GED	General Educational Development (in 2018 replacing the Department of Natural Sciences at Daffodil University, Dhaka, Bangladesh)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (the German Federal Enterprise for International Cooperation)
GPS	Global Positioning System
HDM	Highway Development and Management
HIV	Human Immunodeficiency Virus
HPLC	High Performance Liquid Chromatography
HSTU	Hajee Mohammad Danesh Science and Technology University (Bangladesh)
HQ(s)	headquarter(s)
I	international
IAEA	International Atomic Energy Agency
IAS	Institute of Advanced Studies (at the Nanyang Technological University, Singapore)
ICPAC	International Congress on Pure & Applied Chemistry
ICPM	International Conference on Physics Mandalay
ICTP	The Abdus Salam International Centre for Theoretical Physics
ID	Identity
IDAEA	Institute of Environmental Sciences and Water Research
IDR	Institut de recherche pour le développement
IDS	Institut des Sciences
IEEE	Institute of Electrical and Electronics Engineers
IEICE	Institute of Electronics, Information and Communication Engineers
IF	Impact Factor
IFS	International Foundation for Science

IFOAD	Institut de Formation Ouverte à Distance (Univ. Ouaga II, Burkina Faso)
IIT	Indian Institute of Technology
IKM	Institut Kimia Malaysia
INHB	Institut National Polytechnique Félix Houphouët Boigny
INST	Institute of Nuclear Science and Technology (Univ. Nairobi, Nairobi, Kenya)
INT	international
Intl.	international
IOP	Institute of Physics
IOSR	International Organization of Scientific Research
IPICS	The International Programme in the Chemical Sciences (ISP)
IPMS	The International Programme in the Mathematical Sciences (ISP)
IPPS	The International Programme in the Physical Sciences (ISP)
IR	infrared
IRD	Institut de recherche pour le développement (France; Institute for Research and Development)
IRIS	Incorporated Research Institutions for Seismology (USA)
ISO	International Organization for Standardization
ISP	The International Science Programme (Uppsala University, Sweden)
ISSN	International Standard Serial Number
ITO	Iridium Tin Oxide
ITT	Institute for Technology and Resources management in the Tropics and Subtropics
IUPAC	International Union of Pure and Applied Chemistry
IWR	Interdisziplinäres Zentrum für Wissenschaftliches Rechnen (Interdisciplinary Center for Scientific Computing)
J.	journal
JKUAT	Jomo Kenyatta University of Agriculture & Technology
JKZ	Professor Joseph KI-ZERBO
JSPS	Japan Society for the Promotion of Science
JULIA	Jicamarca Unattended Long-term Investigations of the Ionosphere and Atmosphere (Peru)
KEBS	Kenya Bureau of Standards
KEN	Kenya
KENAS	Kenya Accreditation Service
kSEK	Thousands of Swedish Crowns (currency unit)
KTH	Kungliga Tekniska Högskolan (Royal Institute of Technology), Stockholm, Sweden
KUET	Khulna University of Engineering and Technology
L	local
L.Am.	Latin America
LAM	African Laser, Atomic, Molecular and Optical Sciences Network
LAM	Latin America
LAMIS	Laser Ablation Molecular Isotopic Spectrometry
LANBIO	Latin American Network for Research in Bioactive Natural Compounds
LAO	Laos
LAT	Large Area Telescope
LAT.AM	Latin America
Lat.Am.	Latin America
LC-MS	Liquid Chromatography – Mass Spectrometry
LCAEBiO	Laboratory of Analytical Environmental Chemistry and Biorganique, Ouaga I Univ., Burkina Faso.
LED	Light-Emitting Diode
LIBS	Laser Induced Breakdown Spectroscopy
Lic.	Licentiate
LiU	Linköping University, Linköping, Sweden
LMS	London Mathematical Society

LOC	local
Loc.	local
LOSSA	Laboratoire d'Optique de Spectroscopie et de la Science de l'Atmosphere (the laboratory of IPPS MAL:01)
M	male
MAL	Mali
MARM-LMS	Mentoring African Research in Mathematics, London Mathematical Society
MAT	Mathematical Association of Tanzania
Math.	mathematics
Md	Muhammad/Muhamad/Muhammed/Muhamed
MOU	Memorandum of Understanding
MPhil	Master of Philosophy
MRI	Magnetic Resonant Imaging
MS	Mass Spectrometer or Mass Spectrometry
MS	Master of Science
MSc	Master of Science
MSEK	Millions of Swedish Crowns (currency unit)
MSSEESA	Materials Science and Solar Energy Network for Eastern and Southern Africa
MT180	Ma thèse en 180 secondes (My thesis in 180 seconds)
MTAWA	Mentoring Network for African Women in Academia
MUST	Mbarara University of Science and Technology (Mbarara, Uganda)
MYA	Myanmar
N	national
N	no
N.Am.	North America
N/A	Not Applicable, or Not Available
NABSA	Network for Analytical and Bioassay Services in Africa
NADMICA	Nature Induced Disaster Mitigation in Central America
NAPRECA	Natural Products Research Network for Eastern and Central Africa
NARIT	National Astronomy Research Institute of Thailand
NAT	National/Local
NAT	Natural
Natl	National
NCRD	Norwegian Centre for Research Data
NCDs	Noncommunicable Diseases
NDT	Non-Destructive Testing
NDWQS	National Drinking Water Quality Standards
NIFS	National Institute of Fundamental Studies (Sri Lanka)
NITUB	Network of Instrument Technical Personnel and User Scientists of Bangladesh
NGO	Non-Governmental Organisation
NMR	Nuclear Magnetic Resonance
NSF	National Science foundation (USA)
NSTC	National Science and Technology Council (Zambia)
NTU	Nanyang Technological University, Singapore
NUOL	National University of Laos (Vientiane, Laos)
NUST	National University of Science and Technology, Bulawayo, Zimbabwe
NW	Scientific Network(s)
O	Oral (conference contribution, etc.)
OIAC	Organisation pour l'interdiction des armes chimiques (= OPCW)
OPCW	Organisation for the Prohibition of Chemical Weapons
OPV	Organic Photo Voltaics
P	Poster (conference contribution, etc.)
P3HT	poly(3-hexylthiophene)
PACN	Pan Africa Chemistry Network
PAMO	Pan African Math Olympiad

Part.	partial
part.	Participants
Paym.	payments
PCB	Polychlorinated Biphenyls (banned industrial chemical)
PCBM	phenyl-C ₆₁ -butyric acid methyl ester
PCR	Polymerase Chain Reaction
PDE	Partial Differential Equations
PDI	perylene diimide
PDR	People's Democratic Republic
PEDOT:PSS	poly(3,4-ethylenedioxythiophene)polystyrene sulfonate
PhD	Doctor of Philosophy
Phys.	Physical/Physics
PIC	Programme Interuniversitaire Ciblé (Belgian support cooperation program)
PM _{2.5}	atmospheric particulate matter (PM) that have a diameter of less than 2.5 micrometers
POPs	Persistent Organic Pollutants
Prof.	Professor
Publ.	Publication(s)
PV	Photovoltaic
QuChERS	Quick Easy Cheap Effective Rugged Safe
R	regional
RABiotech	West African Biotechnology Network
RARSUS-SEMALI	Risk Assessment and Reduction Strategies for Sustainable Urban Resource Supply in Sub-Saharan Africa Mali
RBM	Results Based Management
REALCAT	Plateforme intégrée Appliquée au Criblage haut débit de Catalyseurs pour les Bioraffineries
REG	regional
REMA	Rwanda Environment Management Authority
Res.	Research
RG	Research Group(s)
ROPE	Real Time Outcome Planning and Evaluation
RSA	Republic of South Africa
RSB	Rwanda Standards Board
RSC	Royal Society of Chemistry
RSTS	Relevant Science & Technology Society (Bangladesh)
RTA	Rapid Thermal Annealing
RUPP	Royal University of Phnom Penh (Cambodia)
RWA	Rwanda
S.Am.	South America
SAC	Scientific Advisory Committee
SAMEO	South Asia Middle East Organisation
SAMSA	Southern Africa Mathematical Sciences Association
SANORD	Southern African – Nordic Centre
sandw.	sandwich (training program)
SARIMA	Southern Africa Research and Innovation Management Association
SASBMB	South African Society of Biochemistry and Molecular Biology
Sci.	Science
SDG	Sustainable Development Goal
SEAMaN	South East Asia Mathematics Network
SEANAC	Southern and Eastern Africa Network for Analytical Chemists
Sect.	Section
SEDES	Servicio Departamental de Salud
SEK	Swedish Crowns (currency)

SEM	Scanning Electron Microscope
sem.	Seminar
SETAC	Society of Environmental Toxicology and Chemistry
SFS	Svensk Författningssamling (Swedish Government's Statute-book)
SI	Swedish Institute
Sida	Swedish International Development Cooperation Agency
SILAR	Successive ionic layer adsorption and reaction
SLU	Sveriges Lantbruksuniversitet (Swedish University of Agricultural Sciences)
SNRU	Sakon Nakhon Rajabhat University (Muang City, Thailand)
SOACHIM	La Société Ouest-Africaine de Chimie
SOZ	Netherlands marine research foundation
SPARK	(see https://sparkmed.stanford.edu)
SQ3	squarylium dye III
STEM	Science Technology, Engineering and Mathematics
SU	Stockholm University, Stockholm, Sweden
SUN	Scaling Up Nutrition (https://scalingupnutrition.org)
SWH	Sandwich (training)
TC	Technical Committee
TH	Technische Hochschule (Technical University)
THC	Technical Harmonization Committee
TICA	Thailand International Cooperation Agency
Tot.	Total
TR	Thomson Reuters
TRF	Thailand Research Fund
TCS	Tanzania Chemical Society
TV	television
TWAS	The World Academy of Sciences
TWM	Tanzanian Women in Mathematics
TXRF	Total Reflection X-Ray Fluorescence
UDSM	University of Dar es Salaam (Dar es Salaam, Tanzania)
UEMOA	Union économique et monétaire ouest-africaine (West African Economic and Monetary Union)
UFR	Unité de formation et de recherche (\approx "Faculty")
UFZ	Umweltforschungszentrum
UGA	Uganda
UGC	University Grants Commission
UHÄ	(formerly) Universitets- och högskoleämbetet (Office of Universities and Higher Education, Sweden)
UK	United Kingdom
UN	United Nations
UNEP	United Nations Environmental Program
UNICAM	Implementing quality of education & training of the Young UNiversities in rural area of CAMbodia
Univ.	University
UNZA	University of Zambia
UoN	University of Nairobi (Nairobi, Kenya)
UoNBI	University of Nairobi (Nairobi, Kenya)
UR	University of Rwanda
USD	United States Dollar (currency)
USFX	Universidad de San Francisco Xavier de Chuquisaca (Sucre, Bolivia)
USTTB	Université des Sciences, des Techniques et des Technologies de Bamako (Mali)
UTCL	University Teaching and Learning Centre (Harare, Zimbabwe)
UU	Uppsala University (Uppsala, Sweden)
UV	ultraviolet (light)
UZ	University of Zimbabwe

VBA	Visual Basic for Applications (the programming language of Excel)
VIS/Vis	visible (light)
VLBI	Very Long Baseline Interferometry
VLIR-OUS	Flemish Interuniversity Council - Universities of South Africa
w/o	without
WAFOOD	West Africa FOODS
WANNPRES	Western Africa Network of Natural Products Research Scientists
WGEA	Working Group on Environmental Auditing
WHO	World Health Organisation
WoB	Web of Science
WZB	Wissenschaftszentrum Berlin für Sozialforschung
XRD	X-Ray Diffraction
Y	yes
ZAM	Zambia
ZIM	Zimbabwe