



APT 2024

in ● SAKA, JAPAN
Congrès Convention Center
11-14 Oct. 2021

APT 2024

11-14 Oct. 2021

8th Asian Particle Technology Symposium



elcome

MESSAGE

First of all, I would like to express my deepest condolence and sympathy to all those affected by COVID-19, which continues to spread around the world. At the same time, I sincerely appreciate all your support and contribution to this symposium.

On behalf of the organizing committee, we hereby declare the opening of the 8th Asian Particle Technology Symposium (APT 2021) at Osaka, Japan. The theme of the symposium is "Challenges for the new era". Unlike the time when we decided the theme nearly four years ago, it is not easy to get rid of the anxiety about the future. Because we are in this era, it is necessary to work together to overcome the difficulties and make this era fruitful and happy.

In this symposium, we are expecting the lively and active discussions on the cutting edge technology, revolutionary idea, innovated methods, new solutions and fundamental theories, which can open the door of a new technology era. The symposium also provides academic and engineers in all over the world including Asia Pacific countries to learn and share their expertise and knowledge in particle technology. Finally, I sincerely hope this symposium is useful and successful to all of you.

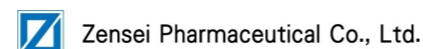
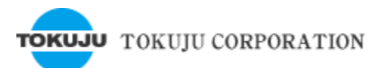
Yours sincerely,

Satoru Watano

Chairperson of APT 2021
Osaka Prefecture University



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Waseda University

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Osaka Prefecture University

Hiromitsu Yamamoto

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Information for Attendees

APT2021 will be held by "Hybrid style (both onsite and online)."

Onsite information



Guidelines for COVID-19 prevention

We strongly request all onsite attendees to follow the guidelines below:

- 1 Please measure your body temperature before leaving your house or hotel. If your temperature is higher than 37.5 degree Celsius or if you do not feel well especially with cough and runny nose, you must refrain from coming to the venue. In this case, you can participate via online. We also request all onsite attendees to measure your body temperature at the entrance of the venue.
- 2 You are prohibited to enter the venue without wearing a mask. Inside the venue, please wear a mask at all times. Disposable masks made of non-woven material are highly recommended.
- 3 Please keep a distance at least 1.8 m (about 2 arm lengths) from your neighbors. Even when seated, please keep enough space from others.
- 4 Please wash your hands often and always keep your hands and fingers clean with sanitizers. Many sanitizers are prepared at the venue, and please use them.
- 5 When taking your mask off during lunch, please keep quiet. Please wear a mask, when you enjoy a conversation with others.
- 6 During the onsite poster session, please also wear a face shield. A face shield will be provided from the organizing committee.

Registration and Information Desk

The registration and information desk is located near the entrance of Hall C. It opens from 13:00 on Sunday (10th October); 7:30 on Monday; 7:45 on Tuesday and Wednesday; 8:00 on Thursday. It closes at 18:00 from Sunday until Wednesday; 11:30 on Thursday.

Onsite Oral Presenters

- 1 The duration of presentation is 45 minutes for the plenary lectures, 30 minutes for the invited presentations, and 20 minutes for the general oral presentations. The duration includes the time for questions and PC changes. Slides in 4:3 as well as 16:9 screen ratios are acceptable.
- 2 You are advised to bring your own laptop PC for your oral presentations. You can connect your PC to projector via standard VGA connector (D-sub 15 pin) or HDMI. You must personally bring the proper adopters to connect your PC to the projector.
- 3 Please note that your presentation time cannot be changed nor extended due to PC connection issues. Therefore, during the break or lunch before your session, we kindly request to test your slides at the room in advance your presentation.

Information of Poster Session for Onsite Attendees

Poster session will be held only virtually. All poster presenters will make their presentations only by online. To meet the online poster presenters, the onsite attendees should bring their own devices to join the online poster session virtually from the venue. Poster presenters can also make their online presentations at the venue. You can use free wireless internet throughout the venue.

Internet

We are pleased to offer you free wireless internet throughout the venue.

Online information



General Information for Online Attendees

You can attend the APT2021 virtually via online. The plenary and invited lectures as well as the general oral and poster presentations will be provided by lives (virtually in real-time) using Zoom-based system, so called Going Virtual. Going Virtual is limited access to attendees. Your audio and video will be connected to the onsite session at the venue. So, you can directly communicate with the onsite presenters. The plenary and invited lectures will be recorded, and the recorded videos will be uploaded to YouTube after the symposium (limited access to attendees). The URL and ID/password for Going Virtual will be announced on a limited access page in the symposium website <https://apt2021.org/>.

Guidelines of Online Settings

- 1 Please prepare to use the latest version of Zoom.
- 2 We kindly request all online attendees to change/set your display name to "Your name (Affiliation)". If your name and affiliation are unclear, you may be forced to leave Zoom room by the organizing committee.
- 3 We also kindly request all online attendees to mute yourself, except when you ask questions or speak.
- 4 When you want to ask questions or speak, you can use in-meeting chat or reactions in Zoom.

Online Oral Presenters

- 1 You can make your presentation via online using Zoom. We will set-up the time table with considering the time difference between Japan and your country. Thus, we kindly request the online oral presenters to make your presentation by live (in real-time). If you are difficult to make your presentation by live, please contact apt2021@chemeng.osakafu-u.ac.jp, no later than October 3.
- 2 The duration of presentation is the same as that of the onsite oral presentation (45 minutes for the plenary lectures, 30 minutes for the invited presentations, and 20 minutes for the general oral presentations). The duration includes the time for questions and PC changes.
- 3 Slides in 4:3 as well as 16:9 screen ratios are acceptable.

Poster Presenters

- 1 **Poster session will be held only virtually.** You can make your presentation via online using Breakout Rooms of Zoom. We kindly request the online poster presenters to make your presentation by live (in real-time). The URLs for Zoom will be presented on Going Virtual. If you are difficult to make your presentation by live, please contact apt2021@chemeng.osakafu-u.ac.jp, no later than October 3.
- 2 Attendees will join to your Breakout Room. So, please keep turning on the audio/video and enjoy discussion with the attendees directly.
- 3 Posters of portrait and landscape orientations are acceptable.

Information for Attendees

APT2021 will be held by "Hybrid style (both onsite and online)."

Recording & Photography Policy

Recordings of presentations or taking photos/screenshots of slides is strictly prohibited at this symposium in both the online and onsite.



Awards

- 1 APT2021 will establish "Young KONA Award" sponsored by Hosokawa Powder Technology Foundation. The candidates will make their presentations at the Young Resercher Award Session on Tuesday. After having the peer review of the oral presentation, the award winner(s) will be given the certificate and cash (100,000 JPY) for the supplementary prize.
- 2 APT2021 will also establish "Excellent Poster Award". All student poster presenters are nominated as a candidate. After having the peer review of the poster presentation, winner(s) will be given the award(s).
- 3 All the awards welcome whether online or onsite presentations. In other words, review process of the awards will not distinguish the presentation styles (online or onsite).
- 4 All winners will be notified to their email addresses during the symposium. We kindly request all winners to attend the awarding ceremony on Thursday at 11:10 in Hall C.

POWTEX OSAKA 2021

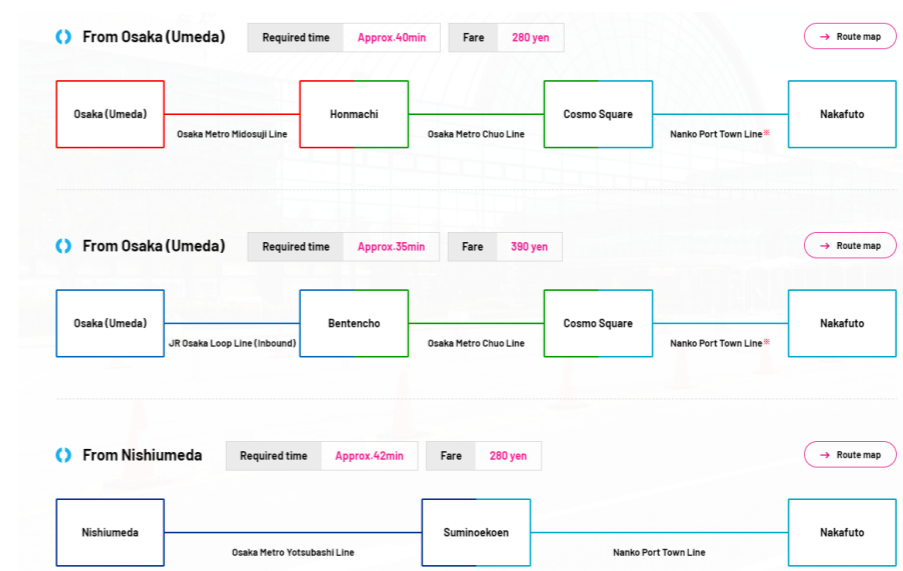
POWTEX OSAKA 2021
The 14th International Powder Technology Exhibition Osaka

13-15 October, 2021
INTEX OSAKA

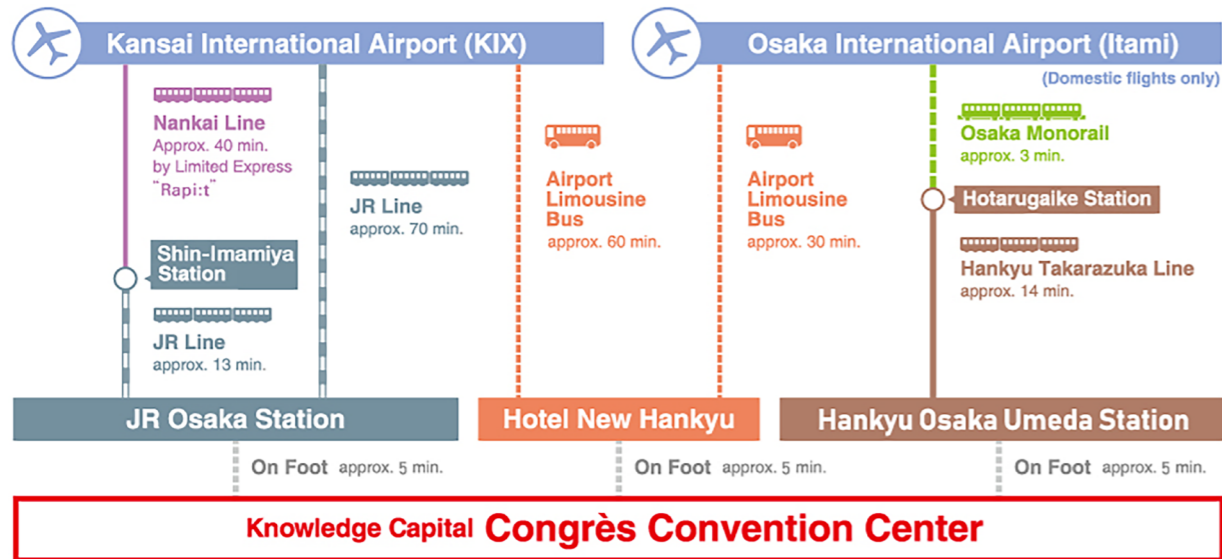


APT2021 will provide a free ticket of POWTEX OSAKA 2021. The POWTEX OSAKA 2021 is the largest exhibition for powder technology. It will be held at INTEX Osaka (Nanko) between October 13 and 15. Please visit and enjoy POWTEX OSAKA 2021. For more detail, please check the website <https://www.powtex.com/osaka/en/>

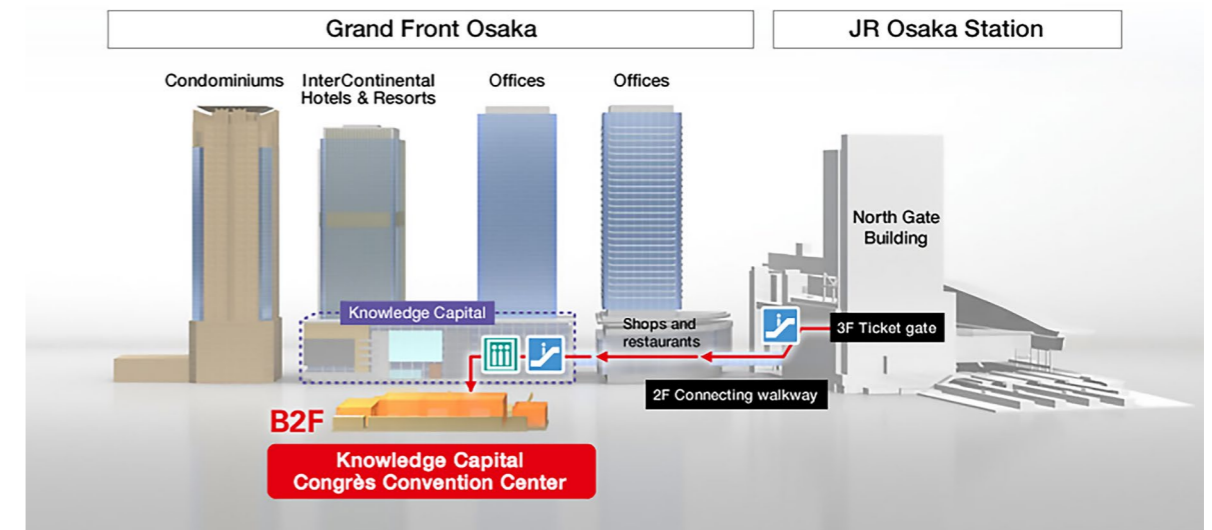
Please note that the symposium will not provide transportation services such as shuttle bus from the symposium venue to POWTEX OSAKA 2021. Please use public transportations. The followings are the access routes from Osaka (Umeda) to the nearest station of POWTEX OSAKA 2021.



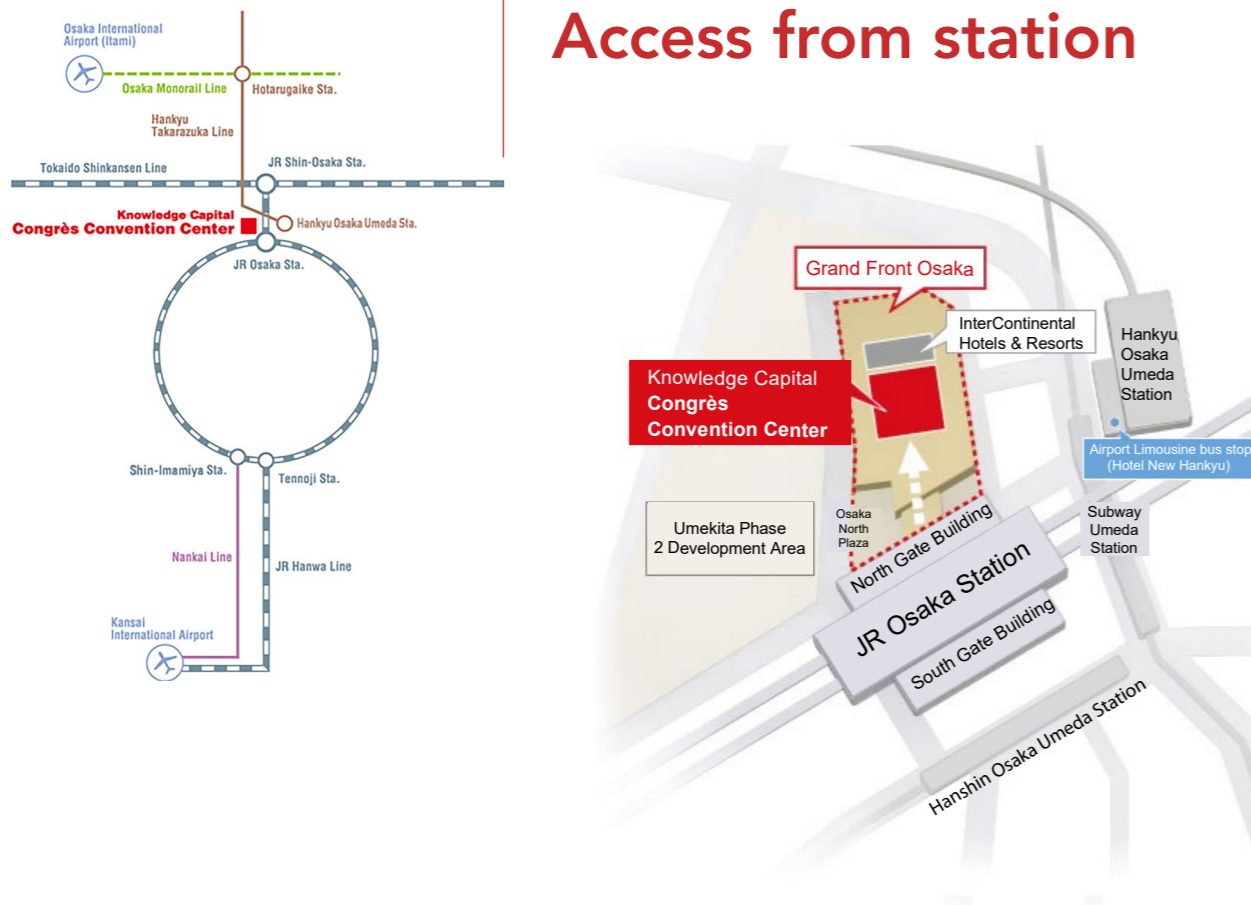
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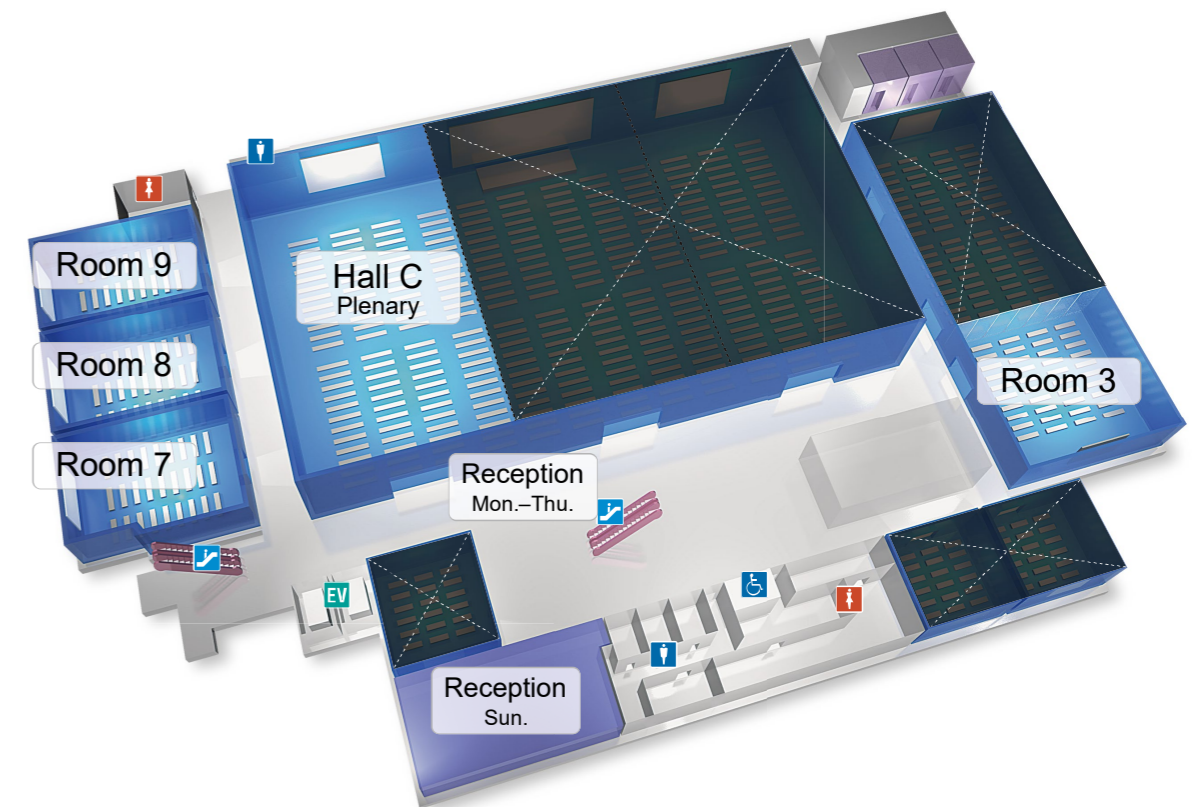
Access from JR Osaka Station



Access from station



Floor Map



Plenary speakers



Makio Naito

Professor, Joining and Welding Research Institute (JWRI), Osaka University, Japan

[PL01] Monday 11 October, 8:45-9:30, Hall C
Smart powder processing for high quality advanced materials

Makio Naito received B.S., M.S. and Ph.D. degrees in chemical engineering from Nagoya University, Japan in 1980, 1982 and 1987, respectively. He worked at Hosokawa Micron Corp. from 1982 to 1993. He joined Japan Fine Ceramics Center (JFCC), Nagoya, Japan in 1993, where he has focused on powder characterization and powder processing technology in ceramics manufacturing. He was Vice Director of JFCC from 2000 to 2002, and then became a professor at the Joining and Welding Research Institute (JWRI), Osaka University, Japan in 2002. He continued focusing on important studies on innovative powder and nanoparticle processing to develop advanced materials about energy and environmental issues. He served the Director of Smart Processing Research Center, JWRI from 2007 to 2010, and also served the Vice Director of JWRI from 2009 to 2010. He is a Guest Professor of Shanghai Jiao Tong University in P.R. China from 2009, and also was a Visiting Professor of Shanghai Institute of Ceramics in P.R. China from 2014 to 2016. He was the President of The Society of Powder Technology, Japan from 2015 to 2019. In addition, he has served a director of The Association of Powder Process Industry and Engineering, JAPAN from 2016. He has also served a director of Hosokawa Micron Corp. from 2005 to 2014, and served the director of Institute of Nanotechnology and Materials Science, Kurimoto Ltd., Japan from 2005 to 2007. His publications cover a wide range of studies in the fields of the advanced materials and novel powder processing and characterization. He has authored or coauthored more than 300 refereed journal papers and more than 120 review articles. He has contributed to 80 books, edited 27 books and holds more than 80 patents. He has received several prestigious awards including Richard M. Fulrath Award from The American Ceramic Society (ACerS) in 2002. He has been a Fellow of the ACerS from 2010, and serves on the ACerS Board of Directors from 2020. He has been a Professional Academy Member of the World Academy of Ceramics since 2012, and has served on the Academy's Advisory Board since 2018.



Mojtaba Ghadiri

Professor, Chemical Engineering, University of Leeds, UK

[PL02] Monday 11 October, 14:35-15:20, Hall C
Rheology of cohesive powder mixtures

Dr Mojtaba Ghadiri is the Professor of Chemical Engineering at the University of Leeds, UK, with research activities focused on the link between bulk particulate solids behaviour and single particle properties with the aid of simulations by combined DEM and CFD. Application areas of interest are cohesive powder flow and fluidisation, size reduction and enlargement, environmental effects and electrical phenomena in particulate systems.

Mojtaba is a Fellow of the Royal Academy of Engineering, a Chartered Chemical Engineer and Fellow of the Institution of Chemical Engineers. He is the KONA 2019 Awardee of Hosokawa Micron Foundation for his contributions to Particle Technology. Until July 2019 he was the consultant of the International Fine Particle Research Institute in the size reduction area. For details of the current projects, collaborators and publications please see the Group's web page: <http://ghadiri-group.leeds.ac.uk/>



Atsushi Tsutsumi

Project Professor, The University of Tokyo, Japan

[PL03] Tuesday 12 October, 8:45-9:30, Hall C
A novel design methodology for CO₂ zero emission process based on exergy recuperation

Atsushi Tsutsumi is the Project Professor of the University of Tokyo, Japan. He received his Doctorate of Engineering from the University of Tokyo in 1986. He has been active in research on energy process engineering, exergy recuperative hydrogen and power coproduction system, innovative energy conservation for various chemical processes by self-heat recuperation, fuel cell/battery (FCB) system with energy sparking, hydrogen production by biomass gasification, novel hydrogen production by water decomposition electrochemical cycle, etc. In the last ten years he has concentrated on the development of novel process design methodology for energy and material production processes based on self-heat recuperation technology. He has published over 240 scientific publications, 404 proceedings in international journals and conferences and 30 books.



Aibing Yu

Professor, Pro Vice-Chancellor and President of Monash Suzhou, Australia

[PL04] Tuesday 12 October, 9:30-10:15, Hall C
CFD-DEM modeling of blast furnace ironmaking

Professor Aibing Yu specialized in process metallurgy, obtaining BEng in 1982 and MEng in 1985 from Northeastern University, China, PhD in 1990 from University of Wollongong and DSc in 2007 from the University of New South Wales, Australia. He is currently Pro Vice-Chancellor and President (Suzhou), Monash University, and Director of ARC Research Hub for Computational Particle Technology. He is a world-leading scientist in particle/powder technology and process engineering. He has authored/co-authored >1,000 publications (including >750 collected in the ISI Web of Science), delivered many invited plenary/keynote presentations at various international conferences, and graduated >40 postdoc fellows and >100 PhD students. He is Executive Editor of Powder Technology, Regional Editor of Granular Matter, and on the editorial board of ~20 learned journals. He is a recipient of numerous prestigious awards and fellowships. He was elected to Fellow of the Australian Academy of Technological Sciences and Engineering in 2004, and Australian Academy of Science in 2011, and Foreign Academician of Chinese Academy of Engineering in 2017.



Jim Litster

Head of Department of Chemical and Biological Engineering (till August 2021), Interim VP and Head of Faculty of Engineering (from September 2021), The University of Sheffield, UK

[PL05] Tuesday 12 October, 15:00-15:45, Hall C
Model driven design of particulate processes and products

Jim Litster is Professor and Head of Department of Chemical and Biological Engineering at The University of Sheffield (2016 – 2021) and takes up the role of Interim VP for Engineering from September 2021. Prior to this, he spent 8.5 years as Professor of Chemical Engineering and Professor of Industrial and Physical Pharmacy at Purdue University. From 1987 to 2007, he spent 20 years in academic positions at The University of Queensland including Head of Chemical Engineering and Head of School of Engineering.

His research area is Particulate Products and Processes. He is an international leading expert on wet granulation with over 30 years experience in the field. His key contributions include the development of key regime maps for granulation processes and the development of mathematical models for engineering design and scaling of granulation processes. He is the co-author of the well known monograph in this area - *The Science and Engineering of Granulation Processes* and his approaches are now widely used in engineering practice in industry. He is author of over 230 refereed publications. He has received national awards for his research in three countries including election to Fellow of the Australian Academy of Technological Sciences and Engineering in 2010, the Thomas Barron Award in Fluid-Particle Systems from the American Institute of Chemical Engineers in 2012, and the Geldart Medal for Contributions to Particle Technology from the Institution of Chemical Engineers in 2017. A major portion of his current research is in support of smart manufacturing of formulated particulate products, particularly pharmaceutical dosage forms.



Rajesh N. Davé

Distinguished Professor,
Department of
Materials and Chemical
Engineering, New
Jersey Institute of
Technology, USA

[PL06] Wednesday 13 October, 8:45-9:30, Hall C

Model-based reduction of powder cohesion through dry coating

Rajesh Davé, Ph.D., Fellow of the American Institute of Chemical Engineers (AIChE), American Association of Pharmaceutical Scientists (AAPS), and National Academy of Inventors (NAI) is a Distinguished Professor of Chemical and Materials Engineering at New Jersey Institute of Technology (NJIT).

Prof. Davé has a sustained experience in establishing and managing multi-disciplinary research programs. He is the founding Director of the R&D Excellence Center, New Jersey Center for Engineered Particulates (NJCEP), which received over \$1.8M from the state of New Jersey. He was also an Associate Director of the Particle Processing Research Center, an R&D Excellence Center funded at \$1.5M. He was one of five Founding Co-PIs and served as the NJIT Site-Leader, a Research Thrust Leader and a Test-bed Leader in the National Science Foundation (NSF) Engineering Research Center on Structured Organic Particulate Systems (C-SOPS), funded by NSF at a total of over \$37M for 10 years. Leveraging his past work, Dr. Davé is leading the establishment of an Industry-University Collaborative Research Center (IUCRC) under the auspices of the National Science Foundation (NSF), with the goal of developing a better understanding of drug particle formation, their characterization, processing, modification, stabilization, and cost-efficient manufacturing.

He has made significant impact to particle technology and pharmaceutical sciences through grant funded research for improved understanding of particle formation and processing, and cost-efficient manufacturing while developing patient compliant technologies including taste-masking. His trend-setting high-impact contributions include predictive understanding of the effect of surface modification of drug or excipient particles, thin polymeric films embedded with poorly water-soluble drug as a patient compliant platform technology for precision medicine along with regulatory science, and an understanding of drug particle milling from surface energetics perspective. His research contributions to date include 180 journal papers, numerous invited and keynote presentations as well as nineteen issued and several pending patents, including licensing of several patents. He has granted 33 PhDs to students at NJIT, seven of those students are currently in US academia. He has received numerous national awards, including 2015 American Institute of Chemical Engineering, Particle Technology Forum Fluidization Lectureship, and 2016 Thomas Alva Edison Patent Award.



Stefan Heinrich

Full-Professor and
Director of the Institute
of Solids Process
Engineering and
Particle Technology,
TUHH, Germany

[PL07] Wednesday 13 October, 14:00-14:45, Hall C

Challenges in modelling and understanding of particle formulation by spray granulation

Stefan Heinrich studied Process Engineering at the University of Magdeburg and received his Diploma in 1996 and his Ph.D. at the same university in 2000 in the field of fluidized bed spray granulation. From 2000 to 2002, he was Assistant Professor and from 2002 to 2008 Junior Professor at the University of Magdeburg, where he also received the Habilitation and the "venia legendi" in particle technology in 2006. In 2008 he became full professor and director of the Institute of Solids Process Engineering and Particle Technology of the Hamburg University of Technology (TUHH), Germany. Also in 2008 he denied a call for a full professorship for Particle and Materials Treatment Technology at the TU Bergakademie Freiberg, Germany. From 2011-2012 he was also the Dean of the Department of Chemical and Bioprocess Engineering of the TUHH and is the Liaison Officer of the German Research Foundation (DFG) for the TUHH.

In 2015 Stefan became a Honorary Doctor of the DonNTU (National Technical University of the Ukraine). He is the chairman of the German Working Party on Agglomeration and Bulk Solid Materials a member of the German Working Party on Drying of VDI-ProcessNet. He is also chairman of the Working Party on Agglomeration and member of the Working Party on Mechanics of Particulate Solids of the EFCE. Stefan was also the coordinator of the DFG Priority Programme 1679 „Dynamic simulation of interconnected solids processes and is the vice-spokesman of the DFG Research Training Group 2462 „Processes in natural and technical particle-fluid-systems“ and a member of the DFG Collaborative Research Centre 986 „Tailor-made multiscale materials systems“, member of the „Center of Advanced Materials (ZHM)“, Hamburg and member of the Scientific Advisory Board of the Helmholtz Institute Freiberg for Resources Technology, Freiberg, Germany. Stefan is also member of the judging panel for the Institution of Chemical Engineers (IChemE) Geldart Medal and works as executive editor of the journal „Advanced Powder Technology“ and as thematic editor of the journal „Particuology“. He is also member of the selection committee of the German Academic Exchange Office (DAAD).

Stefan was also the chairman of the 2nd Nordic Baltic Drying Conference (NBDC 2017), Hamburg, Germany, June 2017 and the chairman of the Partec 2019 - International Congress on Particle Technology, Nürnberg, Germany, April 2019.

Stefan's main research interests are fluidized bed technology, particle formulation with granulation, coating and agglomeration, drying of solids, development of particular composite materials, particle based simulation methods (discrete element modelling, population balance modelling) and coupling with continuum approaches (CFD), contact and breakage mechanics of particles as well as steady-state and dynamic flowsheet simulation of solids processes.

For his research activities in fluidized bed spray granulation Stefan received the DECHEMA-Prize 2015 of the Max Buchner Research Foundation and numerous other research awards.

Invited speakers

Monday 11 October



Mikio Sakai
University of Tokyo, Japan
1[HC]01
Future modeling and simulation for CPS based powder system



Michel Louge
Cornell University, USA
1[R3]01
Moisture and density measurements in powders: from geophysics to pharmaceutical processes



Takamasa Mori
Hosei University, Japan
1[R7]01
Slurry characterization for ceramics wet forming process -Importance of evaluating particle packing ability of slurry for control of green density-



Jeffrey Bodycomb
HORIBA Instruments Incorporated, USA
1[R9]01
Modern industrial nanoparticle characterization



Raymond Lau
Nanyang Technological University, Singapore
1[R3]02
Application of engineered particulates in dry powder inhalation



Kyo-Seon Kim
Kangwon National University, Korea
1[R8]01
Tailoring the nanostructured thin film by flame reactor and its application



Guanghui Ma
Chinese Academy of Sciences, China
1[R3]06
Uniform particles in synthetic vaccine engineering



Junpei Yamanaka
Nagoya City University, Japan
1[R7]06
Space experiments on clustering of charged colloids



Masayoshi Fuji
Nagoya Institute of Technology, Japan
1[R8]06
Surface chemistry of powder to open up the next era



Jin Y. Ooi
The University of Edinburgh, UK
1[HC]11
Particle dynamics and track bed deformation of a high speed ballasted railway



Hirofumi Takeuchi
Gifu Pharmaceutical University, Japan
1[R3]09
Recent trends in pharmaceutical dosage form design and preparation process



Csaba Sinka
University of Leicester, UK
1[R3]12
Virtual formulation laboratory for prediction and optimization of manufacturability of advanced solids based formulations with special reference to compaction problems



Barnasan Purevsuren
Mongolian Academy of Sciences, Mongolia
1[R8]09
Investigation on characterization and pyrolysis of coal of "Mogoin gol" deposit in Mongolia



Wolfgang Witt
Sympatec GmbH, Germany
1[R9]07
Particle characterization for laboratory and process environment

Tuesday 12 October



Daisuke Nishiura
Japan Agency for Marine-Earth Science and Technology, Japan
2[HC]11
High-performance particle simulation methods and its challenges in a massive granular system



Chuan-Yu (Charley) Wu
University of Surrey, UK
2[R3]11
Migration of buoyant particles in planar poiseuille flow



De-Hao Tsai
National Tsing Hua University, Taiwan
2[R8]05
Aerosol-based ion mobility-coupled techniques for metal-organic frameworks



Arno Kwade
Technische Universität Braunschweig, Germany
2[R9]09
Innovative powder processes to produce high-performance battery electrodes



Ardiansyah Taufik
Tohoku University, Japan
2[HC]12
1T/2H-MoS₂ engineering for improved toluene detection response at room temperature



Hisao Suzuki
Shizuoka University, Japan
2[R9]10
Core-shell type Si/Li₄Ti₅O₁₂ negative-electrode active material by nano-coating of secondary Si particles for higher capacity Li⁺ ion battery



Yasushi Mino
Okayama University, Japan
2[HC]13
Dynamics of colloidal particles at fluid interfaces: experimental and numerical studies

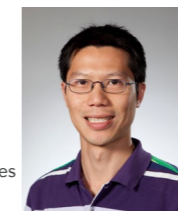


Jung Hyeun Kim
University of Seoul, Korea
2[R9]11
Advancements in earth-abundant photocatalyst materials for solar hydrogen production

Wednesday 13 October



Yansong Shen
University of New South Wales, Australia
3[HC]01
Modelling of gas-solid reacting flows and industry applications: recent examples



Alex Yip
University of Canterbury, New Zealand
3[R3]01
Ionic-liquid-templated synthesis of 10-membered ring zeolites with MFI and TON morphologies



Paul Mort
Purdue University, USA
3[R7]01
Perspective on particulate solids processing - process and product flow



Chiharu Tokoro
Waseda university / The University of Tokyo, Japan
3[R8]01
Advanced liberation technologies for resources recycling



Chang-Yu Wu
University of Florida, USA
3[R9]01
Efficient collection of viable SARS-CoV-2 aerosol for studying its transmission



Wei Ge
Chinese Academy of Sciences, China
3[HC]05
High-resolution simulation of particle-fluid systems in discrete methods



Tawatchai Charinpanitkul
Chulalongkorn University, Thailand
3[R3]04
Contribution of carbonaceous particle technology to bio-circular-green economy

Program at a glance

	10 Oct.	11 Oct.						12 Oct.						13 Oct.				14 Oct.			
		AM			PM			AM			PM			AM		PM		AM			
	13:00-18:00	8:30-8:40	8:45-9:30	9:45-11:45	13:00-14:10	14:35-15:20	15:35-17:45	8:45-9:30	9:30-10:15	10:30-12:10	13:05-14:45	15:00-15:45	16:00-18:10	8:45-9:30	9:45-11:15	11:30-12:50	14:00-14:45	15:00-18:00	9:00-11:00	11:10-11:40	
SPTJ award lectures																					
Modeling and simulation																					
Modeling and simulation of multiphase flow																					
Gas - solid flow : microscopic to macroscopic																					
Characterization																					
Powder handling: flow, mixing, and compaction																					
Particle synthesis & functionalization																					
Interfacial science of particle																					
Science and technology to open up new horizons in evaluation and control of particle dispersions																					
Aerosol																					
Electrostatics																					
Particle technology for medical and pharma																					
Particle technology for energy and power sources																					
Recycling and waste management																					
	Pre-registration	Opening		Plenary Lecture by M. Naito		Plenary Lecture by M. Ghadiri		Plenary Lecture by A. Tsutsumi		Plenary Lecture by A. Yu		Plenary Lecture by J. Litster		Plenary Lecture by R. Davé		Plenary Lecture by S. Heinrich		Poster session (only on-line)		Awarding & Closing	

Time schedule

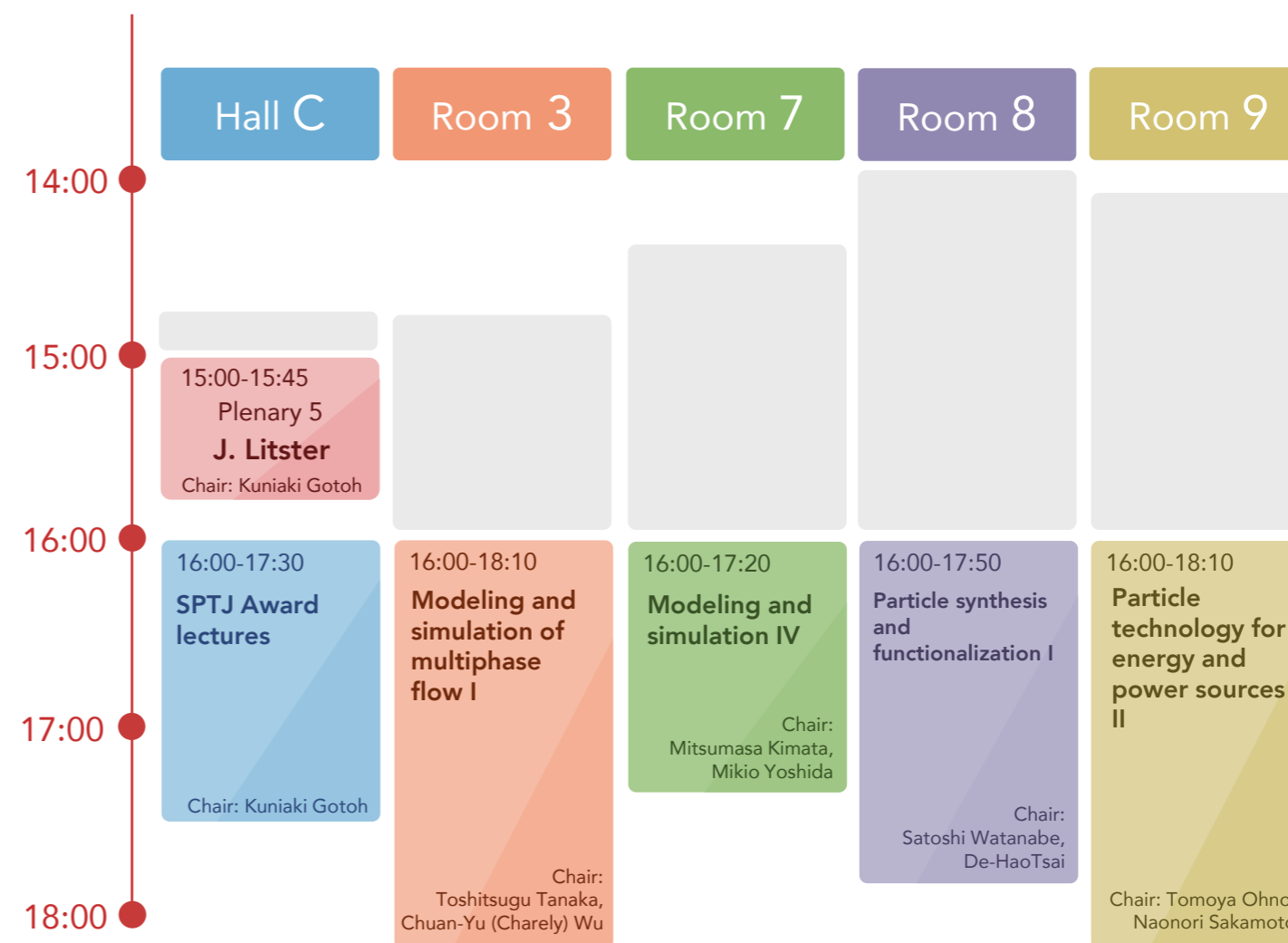
Monday 11 October

	Hall C	Room 3	Room 7	Room 8	Room 9
8:00					
8:30-8:45	Opening				
8:45-9:30	Plenary 1 M. Naito Chair: Satoru Watano				
9:00					
9:45-11:35	Modeling and simulation I Chair: Kimiaki Washino, Shingo Ishida	Particle technology for medical and pharma I Chair: Hiromitsu Yamamoto, Raymond Lau	Science and technology to open up new horizons in evaluation and control of particle dispersions I Chair: Hideya Kawasaki, Motoyoshi Kobayashi	Particle technology for energy and power sources I Chair: Izumi Taniguchi, Tomoya Ohno	Characterization I Chair: Naoyuki Ishida, Jeffery Bodycomb
10:00					
11:00					
12:00			Lunch		
13:00	13:00-14:00 Modeling and simulation II Chair: Mikio Sakai, Mitsumasa Kimata	13:00-14:10 Particle technology for medical and pharma II Chair: Hiromitsu Yamamoto, Kazunori Kadota	13:00-14:10 Science and technology to open up new horizons in evaluation and control of particle dispersions II Chair: Shin-ichi Takeda, Takamasa Mori	13:00-14:10 Interfacial science of particle Chair: Junichi Tatami, Masayoshi Fuji	13:00-14:00 Electrostatics Chair: Mikio Yoshida, Tatsushi Matsuyama
14:00					

	Hall C	Room 3	Room 7	Room 8	Room 9
14:00					
14:35-15:20	Plenary 2 M. Ghadiri Chair: Tatsushi Matsuyama				
15:00					
15:35-17:05	Modeling and simulation III Chair: Takuya Tsuji, Kimiaki Washino	15:35-17:35 Particle technology for medical and pharma II Chair: Hideki Ichikawa, Kazunori Kadota	15:35-17:15 Science and technology to open up new horizons in evaluation and control of particle dispersions III Chair: Tetsuya Yamamoto, Syuji Fujii	15:35-17:45 Gas - solid flow: microscopic to macroscopic I Chair: Koichiro Ogata, Yoshihide Mawatari	15:35-17:25 Characterization II Chair: Tatsushi Matsuyama, Wolfgang Witt
16:00					
17:00					
18:00					

Time schedule

Tuesday 12 October



Time schedule

Wednesday 13 October

	Hall C	Room 3	Room 7	Room 8	Room 9
8:00					
9:00	8:45-9:30 Plenary 6 R. Davé Chair: Kunihiro Fukui				
10:00	9:45-11:15 Modeling and simulation multiphase flow II Chair: Wei Ge, Toru Ishigami	9:45-10:55 Particle synthesis and functionalization II Chair: Motoyuki Iijima, Tawatchai Charinpanitkul	9:45-11:15 Powder handling: flow, mixing, and compaction I Chair: Jun Oshitani, Takuya Tsuji	9:45-11:15 Recycling and waste management I Chair: Taketoshi Koita, Cordova-Udaeta	9:45-10:55 Aerosol Chair: Takashi Ogi, Chang-Yu Wu
11:00					
12:00	11:30-12:40 Modeling and simulation multiphase flow III Chair: Kenji Kanno, Yansong Shen	11:30-12:40 Particle synthesis and functionalization III Chair: Shintaro Morisada, Alex Yip	11:30-12:50 Powder handling: flow, mixing, and compaction II Chair: Tomohiro Iwasaki, Yasushi Mino	11:30-12:50 Recycling and waste management II Chair: Chiharu Tokoro, Mitsuaki Matsuoka	
13:00			Lunch		
14:00	14:00-14:45 Plenary 7 S. Heinrich Chair: Satoru Watano				

	Hall C	Room 3	Room 7	Room 8	Room 9
14:00					
15:00	Going Virtual (Zoom-based on-line system)				
16:00	15:00-18:00 Poster presentations				
17:00	15:00-16:30 Odd number posters (the last two digits)				
18:00	16:30-18:00 Even number posters (the last two digits)				
	Chair: Hideya Nakamura, Shuji Ohsaki				

Time schedule

Thursday 14 October

	Hall C	Room 3	Room 7	Room 8	Room 9
8:00					
9:00	9:00-10:00 Modeling and simulation multiphase flow IV Chair: Kenji Tanno, Toru Ishigami		9:00-10:40 Gas - solid flow: microscopic to macroscopic II Chair: Jun Oshitani, Yoshihide Mawatari	9:00-11:00 Particle synthesis and functionalization IV Chair: Kenji Imura, Chika Takai- Yamashita	
10:00					
11:00	11:10-11:40 Awarding & Closing				
12:00					

Monday 11 October

Opening 8:30-8:45, Hall C

Plenary Lecture 8:45-9:30, Hall C Chair: Satotu Watano

[PL01] Smart powder processing for high quality advanced materials

by Makio Naito, Takahiro Kozawa, Akira Kondo Osaka University

Sessions 9:45-11:45

Hall C

Modeling and simulation I

Chair: Kimiaki Washino, Shingo Ishihara

1[HC]01 9:45-10:15 Invited lecture

Future modeling and simulation for CPS based powder system

Mikio Sakai

The University of Tokyo

1[HC]02 10:15-10:35

Prediction of macroscopic mechanical properties for granular microstructure based on virtual material testing

Koji Yamamoto, Masato Somemiya, Seishiro Matsubara, Norio Hirayama, Kenjiro Terada

CYBERNET SYSTEMS Co., Ltd.

1[HC]03 10:35-10:55

Application of powder analysis in a chemical manufacturer

Akiho Itomi, Shota Suzuki, Tsuyoshi Yamada, Tomohide Ina

Daicel Corporation

1[HC]04 10:55-11:15

Large scale DEM simulation of a high-shear mixer using coarse-grained method for granular shear flow

Hideya Nakamura, Naoki Kishida, Shuji Ohsaki, Satoru Watano

Osaka Prefecture University

1[HC]05 11:15-11:35

Numerical investigation of particle shape-induced axial segregation in a rotating long drum

Zongyan Zhou, Siyuan He, Jieqing Gan, David Pinson, Aibing Yu

Monash University

Room 3

Particle technology for medical and pharma I

Chair: Hiromitsu Yamamoto, Raymond Lau

1[R3]01 9:45-10:15 Invited lecture

Moisture and density measurements in powders: from geophysics to pharmaceutical processes

Michel Louge, Alexandre Valance, Jasdeep Mandur, William Blincoe, Anthony Tantuccio, Robert F. Meyer, Hai Trinh

Cornell University

1[R3]02 10:15-10:45 Invited lecture

Application of engineered particulates in dry powder inhalation

Raymond Lau

Nanyang Technological University

1[R3]03 10:45-11:05

Conceptual product development and feasibility of spa scrub with palm oil solid waste microcellulose beads

Illyin Abdi Budianta, Anjelita Nadia Andarina, Aqila Salmaagista, Engelina Melisa, Luqyaanaa Mursyidah Zahra, Rizki Ananda, Vallent Pangala, Misri Gozan

Universitas Indonesia

1[R3]04 11:05-11:25

Application of spray-dried particles of drug-containing cyclodextrin metal-organic framework to pulmonary drug delivery

Kazunori Kadota, Jun Yee Tse, Toshiki Nakajima, Shunsuke Tanaka, Hiromasa Uchiyama, Yuichi Tozuka

Osaka Medical and Pharmaceutical University

1[R3]05 11:25-11:45

High-yield agitation granulation process which Erich cleanline tool set realizes

Kai Oshiroa

Nippon Eirich Co., Ltd.

Sessions 9:45-11:35

Room 7

Science and technology to open up new horizons in evaluation and control of particle dispersions I

Chair: Hideya Kawasaki, Motoyoshi Kobayashi

1[R7]01 9:45-10:15 Invited lecture

Slurry characterization for ceramics wet forming process -importance of evaluating particle packing ability of slurry for control of green density-

Takamasa Mori

Hosei University

1[R7]02 10:15-10:35

In-situ observation of internal structure in alumina slurry under applying shear field by optical coherence tomography

Junichi Tatami, Hiroki Takaba, Motoyuki Iijima, Takuma Takahashi

Yokohama National University

1[R7]03 10:35-10:55

Shape-designable liquid marble

Syuji Fujii

Osaka Institute of Technology

1[R7]04 10:55-11:15

Fabrication of soy protein-based fiber for meat substitute

Shinsuke Nagamine, Koki Nishibori, Kyuya Nakagawa, Takashi Kobayashi

Kyoto University

1[R7]05 11:15-11:35

Magnetic field-responsive lyotropic liquid-crystalline polymer-modified Fe₃O₄ nanoplates

Kiyoshi Kanie, Chen Shen, Masaki Matsubara, Atsushi Muramatsu

Tohoku University

Room 8

Particle technology for energy and power sources I

Chair: Izumi Taniguchi, Tomoya Ohno

1[R8]01 9:45-10:15 Invited lecture

Tailoring the nanostructured thin film by flame reactor and its application

Kyo-Seon Kim

Kangwon National University

1[R8]02 10:15-10:35

A continuous hydrogen reduction system for producing functional material powders

Eri Kumai, Manabu Tanaka, Takayuki Watanabe,

Takeshi Hoshino, Satoshi Hosoda, Hiroshi Kanamori, Yuji Fujita

Kyushu University

1[R8]03 10:35-10:55

Effect of surface morphology of solid-electrolyte-coated active material on performance of all-solid-state lithium-ion battery

Eiji Hayakawa, Hideya Nakamura, Shuji Ohsaki, Satoru Watano

Osaka Prefecture University

1[R8]04 10:55-11:15

Rheological behavior of concentrated slurry and wet granules

Takumi Kusano, Masahiko Ishii, Masaaki Tani, Osamu Hiruta, Takuro Matsunaga, Hiroshi Nakamura

TOYOTA Central R&D Labs., Inc

1[R8]05 11:15-11:35

Design of electrode structure based on dry coating process for all-solid-state lithium-ion battery

Eiji Hayakawa, Hideya Nakamura, Shuji Ohsaki, Satoru Watano

Osaka Prefecture University

Monday 11 October

Sessions 9:45-10:55

Room 9 Characterization I

Chair: Naoyuki Ishida, Jeffrey Bodycomb

1[R9]01 9:45-10:15 Invited lecture

Modern industrial nanoparticle characterization
Jeffrey Bodycomb, Tetsuya Mori
HORIBA Instrument Incorporated

1[R9]02 10:15-10:35

Multidimensional nanoparticle characterization
by advanced analytical centrifugal
sedimentation
Dietmar Lerche, Maximilian Uttinger, Sebastian
Boldt, Daniel Krause, Johannes Walter, Shin-Ichi Takeda,
Wolfgang Peukert
LUM GmbH / LUM Japan Co., Ltd.

1[R9]03 10:35-10:55

Experimental approach for determination of
Hansen solubility (dispersibility) parameter of
nano/micro particles and its applications
Shin-ichi Takeda
Takeda Colloid Techno-Consulting Co., Ltd.



Afternoon
session

Sessions 13:00-14:10

Hall C Modeling and simulation II

Chair: Mikio Sakai, Mitsumasa Kimata

1[HC]06 13:00-13:20

Gas and melt pool flow in laser powder bed
fusion process of additive manufacturing
Erlei Li, Lin Wang, Aibing Yu, Zongyan Zhou
Monash University

1[HC]07 13:20-13:40

Mathematical modelling of laser powder bed
fusion process in additive manufacturing
Zongyan Zhou, Erlei Li, Lin Wang, Aibing Yu
Monash University

1[HC]08 13:40-14:00

Investigation of breakage mechanisms and their
effects on the breakage kinetics in ball mill using
discrete element method
Donwoo Lee, Jinyoung Je, Jihoe Kwon, Heechan Cho
Seoul National University

Room 3 Particle technology for medical and pharma II

Chair: Hiromitsu Yamamoto, Kazunori Kadota

1[R3]06 13:00-13:30 Invited lecture

Uniform particles in synthetic vaccine engineering
Guanghai Ma
Chinese Academy of Sciences

1[R3]07 13:30-13:50

Preparation of solid dispersion particles with using
co-amorphous of probucol and atorvastatin
Noriko Ogawa, Shinji Ohyama, Kaori Kawai, Toshiya
Yasunaga, Hiromitsu Yamamoto
Aichi Gakuin University

1[R3]08 13:50-14:10

Dissolution properties of solid dispersion
manufactured by spray drying and hot-melt
extrusion
Makoto Fukuta, Satoru Watano
Spera Pharma, Inc.

Monday 11 October

Sessions 13:00-14:10

Room 7

Science and technology to open up new horizons in evaluation and control of particle dispersions II

Chair: Shin-ichi Takeda, Takamasa Mori

1[R7]06 13:00-13:30 Invited lecture

Space experiments on clustering of charged colloids

Junpei Yamanaka, Hiroyuki Miki, Teruyoshi Ishigami, Yuzuki Mori, Minoru Fujita, Akiko Toyotama, Tohru Okuzono, Satoshi Adachi, Tetsuya Sakashita, Taro Shimaoka, Masae Nagai

Nagoya City University

1[R7]07 13:30-13:50

Aggregation/self-assembly controlled gold nanocluster-biopolymer conjugates for therapeutic applications

Hideya Kawasaki, Kanako Shitomi, Ichie Okamoto, Hirofumi Miyaji

Kansai University

1[R7]08 13:50-14:10

Self-assembly of metal-organic framework particles into spherical superstructures using microfluidic device

Satoshi Watanabe, Atsushi Fujiwara, Junwei Wang, Minoru T. Miyahara, Nicolas Vogel

Kyoto University

Room 8

Interfacial science of particle

Chair: Junichi Tatami, Masayoshi Fuji

1[R8]06 13:00-13:30 Invited lecture

Surface chemistry of powder to open up the next era

Masayoshi Fuji

Nagoya Institute of Technology

1[R8]07 13:30-13:50

A pure titania powder: preparation, characterization and photocatalytic activity of octahedral-shaped anatase particles

Bunsho Ohtani, Sayaka Koike, Yumin Li, Mai Takashima

Hokkaido University

1[R8]08 13:50-14:10

How to design "anisotropy" of nanoparticles?

Takeshi Yanagida

The University of Tokyo

Sessions 13:00-14:00

Room 9

Electrostatics

Chair: Mikio Yoshida, Tatsushi Matsuyama

1[R9]04 13:00-13:20

Novel continuous particle mixing system using electrostatic levitation by induction charging

Mizuki Shoyama, Shuhei Nishida, Sota Kai, Masatoshi Yasuda, Shuji Matusaka

Kyoto University

1[R9]05 13:20-13:40

Effects of container materials in a smaller particle admixing operation on particle electrostatic charge and flowability

Mikio Yoshida, Misaki Yono, Atsuko Shimosaka, Yoshiyuki Shirakawa

Doshisha University

1[R9]06 13:40-14:00

Effect of electrostatic interaction on charged dielectric particle agglomeration using BEM-DEM coupled simulation

Xuan Ruan, Shuiqing Li, Rui Ni

Tsinghua University

Monday 11 October

Plenary Lecture 14:35-15:20, Hall C Chair: Tatsushi Matsuyama

[PL02] Rheology of cohesive powder mixtures

by **Mojtaba Ghadiri**, Mehrdad Pasha, Wenguang Nan, Muzammil Ali, Xiaodong Jia University of Leeds

Sessions 15:35-17:35

Hall C

Modeling and simulation III

Chair: Takuya Tsuji, Kimiaki Washino

1[HC]09 15:35-16:05 Invited lecture

Particle dynamics and track bed deformation of a high speed ballasted railway

John P. Morrissey, **Jin Y. Ooi**

The University of Edinburgh

1[HC]10 16:05-16:25

Decoupling surface roughness and adhesion from friction by DEM

Wei Pin Goh, Mojtaba Ghadiri

University of Leeds

1[HC]11 16:25-16:45

Modelling of frictional heat generation between two spherical particles

Francisco Fidelis Kisuka, Chuan-Yu (Charley) Wu, Colin Hare

University of Surrey

1[HC]12 16:45-17:05

Numerical study of granular particles under vibration

Kejun Dong, Reza Amirifar, S M Arifuzzaman, Jinpeng Qiao

Western Sydney University

Room 3

Particle technology for medical and pharma III

Chair: Hideki Ichikawa, Kazunori Kadota

1[R3]09 15:35-16:05 Invited lecture

Recent trends in pharmaceutical dosage form design and preparation process

Hirofumi Takeuchi

Gifu Pharmaceutical University

1[R3]10 16:05-16:25

The manufacturing technology for ensuring content uniformity in low-content formulation

Akane Suzuki, Koji Tabayashi, Kou Matsui

Powrex Corporation

1[R3]11 16:25-16:45

Control strategy of drug product quality by process analytical technology

Yusuke Nozaki, Masafumi Dohi, Hiroyuki Kojima

Astellas Pharma Inc.

1[R3]12 16:45-17:15 Invited lecture

Virtual formulation laboratory for prediction and optimization of manufacturability of advanced solids based formulations with special reference to compaction problems

Csaba Sinka, B. D. Edmans, P. Polak, R. L. Davidchack, N. Di Pasquale, M.S.A. Bradley, J. Cummins, T. Deng, H. Salehi, V. Garg, M. Ghadiri

University of Leicester

1[R3]13 17:15-17:35

CFD-DEM modelling of the effect of electrostatics on powder dispersion in dry powder inhaler

Qixuan Zhu, Hak-Kim Chan, Runyu Yang

The University of New South Wales

Sessions 15:35-17:45

Room 7

Science and technology to open up new horizons in evaluation and control of particle dispersions III

Chair: Tetsuya Yamamoto, Syuji Fujii

1[R7]09 15:35-15:55

Single particle light scattering (SPLS): determination of size, count and concentration of nano- and micro-particles

Shin-ichi Takeda, Dietmar Lerche, Holger Woehlecke, Elia Wollik, Martin Hussels

Takeda Colloid Techno-Consulting Co., Ltd.

1[R7]10 15:55-16:15

Applicability of DLVO theory to aqueous dispersion of oxidized carbon nanohorns

Motoyoshi Kobayashi, Kiyono Omija

University of Tsukuba

1[R7]11 16:15-16:35

Two-dimensional charged colloidal crystals by electrostatic adsorption

Yurina Aoyama, Akiko Toyotama, Tohru Okuzono, Junpei Yamanaka

Nagoya City University

1[R7]12 16:35-16:55

An AFM study on the interaction forces between silanated silica surfaces in organic solvents: effect of the interactions on stability of particle dispersions

Naoyuki Ishida, Ai Sakamoto, Akifumi Ohnishi, Koreyoshi Imamura

Okayama University

1[R7]13 16:55-17:15

Change in the aqueous states of short-length-cellulose nanofibers upon dilution

Chika Takai-Yamashita, Junko Ikeda, Yuya Wada, Yoshifumi Yamagata, Yuichi Takasaki, Yutaka Ohya, Masayoshi Fuji, Mamoru Senna

Gifu University

Room 8

Gas-solid flow: microscopic to macroscopic I

Chair: Koichiro Ogata, Yoshihide Mawatari

1[R8]09 15:35-16:05 Invited lecture

Investigation on characterization and pyrolysis of coal of "mogoin gol" deposit in Mongolia

Purevsuren Barnasan, Batbileg Sanjaa, Batkhishig Damdin, Shagjav Enkhbold

Mongolian Academy of Sciences

1[R8]10 16:05-16:25

Numerical simulation of the coal-direct chemical looping combustion process

Shuyue Li, Yansong Shen

University of New South Wales

1[R8]11 16:25-16:45

Experimental study of approach behavior and collision of fine particles with a wall in viscous fluids

Fabian Krull, Sergiy Antonyuk

Technical University of Kaiserslautern

1[R8]12 16:45-17:05

Analysis of particle impact damage by material point method

Saba Saifoori, Saeid Nezamabadi, Steven Milne, Mojtaba Ghadiri

University of Leeds

1[R8]13 17:05-17:25

Experimental study on small-large particle interaction effect on flame propagation behavior in turbulent clouds of polymethylmethacrylate particles in a constant volume chamber

Yu Xia, Nozomu Hashimoto, Osamu Fujita

Hokkaido University

1[R8]14 17:25-17:45

A dynamic model of fluidized bed reactor for thermochemical heat storage using $\text{Ca}(\text{OH})_2/\text{CaO}$ to absorb the fluctuations of electric power supplied by variable renewable energy sources

Takayuki Uchino, **Chihiro Fushimi**

Tokyo University of Agriculture and Technology

Monday 11 October

Sessions 15:35-17:25

Room 9 Characterization II

Chair: Tatsushi Matsuyama, Wolfgang Witt

1[R9]07 15:35-16:05 Invited lecture

Particle characterization for laboratory and process environment

Wolfgang Witt, Ulrich Koehler, Axel Pankewitz, Christian Behrens

Sympatec GmbH

1[R9]08 16:05-16:25

Standards in dynamic image analysis of particle size and shape for laboratory and industrial applications

Ulrich Koehler, Wolfgang Witt

Sympatec GmbH

1[R9]09 16:25-16:45

Nanosuspension measurements: how PAT4nano will use the EMCC characterization data (CADA approach for real time and online analysis)

Richard Stephen Ward-Smith, Alan Ryder, Nicole Meulendijks, Noor Al-rifai, Chan Malde

Malvern Panalytical

1[R9]10 16:45-17:05

Volume and flow rate measurements on bulk solids using Helmholtz resonance: opportunities and challenges

Clive Eric Davies, Mohammad Barzegar, Gabe P. Redding, Miles C. Grafton, Luke Fullard

Massey University

1[R9]11 17:05-17:25

Measuring cohesion by rotating a granular pile

Hiroaki Katsuragi, Terunori Irie, Ryusei Yamaguchi, Sei-ichiro Watanabe

Osaka University

Day 2
Program



Tuesday 12 October

Plenary Lecture 8:45-9:30, Hall C Chair: Masayoshi Fuji

[PL03] A novel design methodology for CO₂ zero emission process based on exergy recuperation

by **Atsushi Tsutsumi** The University of Tokyo

Plenary Lecture 9:30-10:15, Hall C Chair: Yoshiyuki Shirakawa

[PL04] CFD-DEM modelling of blast furnace ironmaking

by **Aibing Yu** Monash University

Sessions 10:30-12:10

Hall C

Young researcher award session: Modeling and simulation I

Chair: Junya Kano, Ryoichi Kurose

2[HC]01 10:30-10:50

Numerical simulation on cuboid and sphere particles behavior in cascade impactor throat

Ryosuke Mitani, Shuji Ohsaki, Hideya Nakamura, Satoru Watano

Osaka Prefecture University

2[HC]02 10:50-11:10

Resolved CFD-DEM coupling model for gas-liquid-solid three-phase flows with controlled interfaces

Kimiaki Washino, Giang T. Nguyen, Ei L. Chan, Takuya Tsuji, Toshitsugu Tanaka

Osaka University

2[HC]03 11:10-11:30

Development and application of the FELMI for the simulation of industrial powder systems

Yuki Mori, Mikio Sakai

The University of Tokyo

2[HC]04 11:30-11:50

Coarse-grained DEM simulation of particle behavior and heat transfer for manufacturing scale equipment

Motoaki Saruwatari, Hideya Nakamura

Sumitomo Metal Mining Co., Ltd.

2[HC]05 11:50-12:10

Numerical analysis of gas behaviors in selective laser melting (SLM) by a multiphase moving particle semi-implicit method

Guangtao Duan, Mikio Sakai

The University of Tokyo

Room 3

Young researcher award session: Modeling and simulation II

Chair: Chiharu Tokoro, Mikio Sakai

2[R3]01 10:30-10:50

Geometric similarity for interparticle force evaluation in upscaled discrete particle simulation

Yuze Hu, Ei L. Chan, Takuya Tsuji, Toshitsugu Tanaka, Kimiaki Washino

Osaka University

2[R3]02 10:50-11:10

Lattice Boltzmann model for evaporation of colloidal suspensions

Yasushi Mino, Chika Tanaka, Koichi Nakaso, Kuniaki Gotoh

Okayama University

2[R3]03 11:10-11:30

Numerical investigation on the mixing mechanism in a pot blender using the discrete element method

Yuki Tsunazawa, Nobukazu Soma, Mikio Sakai

National Institute of Advanced Industrial Science and Technology

2[R3]04 11:30-11:50

Modelling and simulation of fracture of ceramic green bodies

Shingo Ishihara, George Franks, Junya Kano

Tohoku University

2[R3]05 11:50-12:10

Numerical simulation of wet granulation using DEM-PBM coupling method with deterministic aggregation kernel

Hideya Nakamura, Tomoya Baba, Shuji Ohsaki, Satoru Watano

Osaka Prefecture University

Sessions 10:30-11:50

Room 7

Young researcher award session:
Particle synthesis & functionalization I

Chair: Hiromitsu Yamamoto, Junichi Tatami

2[R7]01 10:30-10:50

Adsorption of poly(ethylene oxide) onto a silica particle in shear flow using microfluidics and optical tweezers

Lester Canque Geonzon, Motoyoshi Kobayashi,
Yasuhisa Adachi

University of Tsukuba

2[R7]02 10:50-11:10

Development of tough and water-repellent cellulose nanofiber/poly(ionic liquid)s double network ion gel

Takaichi Watanabe, Emiho Oe, Tsutomu Ono

Okayama University

2[R7]03 11:10-11:30

Synthesis of sugar-immobilized fluorescent PMMA particles for biomedical applications

Noriko Yamauchi, Michi Nagatsuka, Yoshio Kobayashi

Ibaraki University

2[R7]04 11:30-11:50

Improvement of solubility of sparingly water-soluble drug triggered by zeolitic imidazolate framework-8

Shuji Ohsaki, Kazuki Ohshima, Hiroki Satsuma,
Hideya Nakamura, Satoru Watano

Osaka Prefecture University

Room 8

Young researcher award session:
Particle synthesis & functionalization II

Chair: Masayoshi Fuji, Toshiyuki Nomura

2[R8]01 10:30-10:50

Synthesis of Sm-substituted garnet-type Li-ion solid-state electrolyte $\text{Li}_{7-y}(\text{La},\text{Sm})_3(\text{Zr},\text{Ta})_2\text{O}_{12}$ powder

Takahiko Kawaguchi, Ken Sugihara, Ryoya Nishimura,
Naonori Sakamoto, Hisao Suzuki, Naoki Wakiya

Shizuoka University / National Institute of Technology,
Numazu college

2[R8]02 10:50-11:10

Analyses of amorphous phases on the surface of titania particles induced by braying through energy-resolved distribution of electron traps

Mai Takashima, Guangyi Chen, Bunsho Ohtani

Hokkaido University

2[R8]03 11:10-11:30

Interparticle photo-cross-linkable slurries: a new strategy for shaping complex structured ceramic components

Motoyuki Iijima, Ryoya Arita, Junichi Tatami

Yokohama National University

2[R8]04 11:30-11:50

Influence of modified carbon black particles on electrochemical performance of Li-ion batteries using high-voltage spinel $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ cathode

Szu Chi Chao, Wei Cheng Chen, Yi Hung Liu

National Central University

Sessions 10:30-12:10

Room 9

Young researcher award session:
Powder handling & characterization I

Chair: Kuniaki Gotoh, Kunihiro Fukui

2[R9]01 10:30-10:50

Development of a high-precision classification system using cross-flow filtration and centrifugal field

Hiroshi Satone, Kenji Iimura

University of Hyogo

2[R9]02 10:50-11:10

Effect of dispersion state of acetylene black particles on the electrode density and volume resistivity for a cathode of Li-ion battery

Kenta Kitamura, Tsukasa Ochi, Takamasa Mori

Hosei University

2[R9]03 11:10-11:30

Three-dimensional visualization-measurement of carbon concentration (CB) in the cathode electrode slurry of lithium-ion battery by electrode resistance tomography (3D-ERTm)

Natsuki Ikeno, Yosephus Ardean Kumianto Prayitno,
Masahiro Takei

Chiba University

2[R9]04 11:30-11:50

Analysis of sintering behavior of alumina green bodies molded under a strong magnetic field based on master sintering curve theory

Yuki Otsuka, Junichi Tatami, Motoyuki Iijima,
Isao Yamamoto

Yokohama National University

2[R9]05 11:50-12:10

Network size analysis of TEMPO-oxidized cellulose nanofiber gel

Keijiro Sakuramoto

HORIBA, Ltd.

→
Afternoon
session

Tuesday 12 October

Sessions 13:05-14:45

Hall C

Young researcher award session:
Modeling and simulation III

Chair: Toshitsugu Tanaka, Ryoichi Kurose

2[HC]06 13:05-13:25

Analysis the particle temperature history in a spray dryer using CFD

An-Ni Huang, Wan-Yi Hsu, Hsiu-Po Kuo
Chang Gung University

2[HC]07 13:25-13:45

Continuum modeling of granular material in silos

Samuel Kyle Irvine, Luke Fullard, Tammy Lynch,
Daniel Holland, Daniel Clarke
Massey University

2[HC]08 13:45-14:05

DEM analysis of powder deaggregation and discharge from the capsule of a carrier-based dry powder inhaler

Francesca Orsola Alfano, Alberto Di Renzo,
Francesco Paolo Di Maio, Martin Sommerfeld
Universita della Calabria

2[HC]09 14:05-14:25

CFD-DEM simulations of a rotary kiln

Aman Rastogi, Colin Hare, Darren Gobby, Hugh Stitt,
Vincenzino Vivacqua
Johnson Matthey

2[HC]10 14:25-14:45

DEM modelling of grain swelling

Domenica Braile, Colin Hare, Chuan-Yu (Charley) Wu
University of Surrey

Room 3

Young researcher award session:
Modeling and simulation IV

Chair: Chiharu Tokoro, Mikio Sakai

2[R3]06 13:05-13:25

An efficient DEM parameter tuning based on Bayesian optimization

Shoki Homma
Toyo Engineering Corporation

2[R3]07 13:25-13:45

Analysis for the re-aggregation mechanism under wet ball milling

Kizuku Kushimoto, Shingo Ishihara, Junya Kano
Tohoku University

2[R3]08 13:45-14:05

Investigations of solid fraction in granular flows

Daniel J Holland, James Robinson, Maral Mehdizad,
Luke Fullard, Petrik Galvosas
University of Canterbury

2[R3]09 14:05-14:25

Particle shape effects in granular material using GPU DEM

Nicolin Govender
Research Center Pharmaceutical Engineering /
University of Johannesburg

2[R3]10 14:25-14:45

A regime map for dry powder coating

Marv Khala, Colin Hare, Vikram Karde, Jerry Y. Y. Heng
University of Surrey

Sessions 13:05-14:25

Room 7

Young researcher award session:
Particle synthesis & functionalization III

Chair: Hiromitsu Yamamoto, Junichi Tatami

2[R7]05 13:05-13:25

Synthesis of metallic cobalt nanoparticles using supercritical non-equilibrium process

Gimyeong Seong, Hoju Kang, Tadafumi Adschiri
Tohoku University

2[R7]06 13:25-13:45

Highly-loaded Ni on CeO₂ by flame spray pyrolysis for CO₂ methanation

Kakeru Fujiwara, Shugo Kayano
Yamagata University

2[R7]07 13:45-14:05

Tubular flame combustion for fine particle production

Tomoyuki Hirano, Takashi Ogi
Hiroshima University

2[R7]08 14:05-14:25

Aerosol deposition of ceramic composite films with controlled optical properties using electrostatic assembled nanocomposite particles

Wai Kian Tan, Atsushi Yokoi, Go Kawamura,
Atsunori Matsuda, Hiroyuki Muto
Toyohashi University of Technology

Room 9

Young researcher award session:
Powder handling & characterization II

Chair: Kuniaki Gotoh, Kunihiro Fukui

2[R9]06 13:05-13:25

Physical characterization of novel phenomena found in a vibrated powder bed

Prasad R. Sonar, Hiroaki Katsuragi
Osaka University

2[R9]07 13:25-13:45

Grinding characteristics of coal and torrefied biomass mixtures in a roller mill

Kiyoshi Sakuragi, Maromu Otaka
Central Research Institute of Electric Power Industry

2[R9]08 13:45-14:05

Effect of coke coating on iron ore granulation process using ultra-fine ore

Kenta Takehara
JFE Steel Corporation

Tuesday 12 October

Plenary Lecture 15:00-15:45, Hall C Chair: Kuniaki Gotoh

[PL05] **Model driven design of particulate processes and products**

by **Jim Litster** The University of Sheffield

Sessions 16:00-18:10

Hall C SPTJ Award lectures

Chair: Kuniaki Gotoh

2[HC]11 16:00-16:30 Invited lecture

High-performance particle simulation methods and its challenges in a massive granular system
Daisuke Nishiura, Mikito Furuichi, Hide Sakaguchi
Japan Agency for Marine-Earth Science and Technology

2[HC]12 16:30-17:00 Invited lecture

1T/2H-MoS₂ engineering for improved toluene detection response at room temperature
Ardiansyah Taufik, Yusuke Asakura, Hideki Kato, Masato Kakihana, Rosari Saleh, Tohru Sekino, Shu Yin
Tohoku University

2[HC]13 17:00-17:30 Invited lecture

Dynamics of colloidal particles at fluid interfaces: experimental and numerical studies
Yasushi Mino
Okayama University

Room 3 Modeling and simulation of multiphase flow I

Chair: Toshitsugu Tanaka, Chuan-Yu (Charley) Wu

2[R3]11 16:00-16:30 Invited lecture

Inertial migration of buoyant particles in planar poiseuille flows
Wenwei Liu, **Chuan-Yu (Charley) Wu**
University of Surrey

2[R3]12 16:30-16:50

A discrete element method with spherical harmonics for irregular granular materials based on the level set contact algorithm
Shunying Ji, Siqiang Wang, Ting Qiao, Linfeng Zhang
Dalian University of Technology

2[R3]13 16:50-17:10

A coupled granular-hydrodynamics model with dilated polyhedral discrete element method and explicit incompressible smoothed particle hydrodynamics
Jie Wu, Lu Liu, Shunying Ji
Dalian University of Technology

2[R3]14 17:10-17:30

Wyvern: a high-fidelity solver for coupled fluid-radiation-particle problems
Liang Yang, Andrew Buchan
Cranfield University

2[R3]15 17:30-17:50

Simulation of a spiral jet mill using coarse-grain CFD-DEM
Lewis Scott, Mojtaba Ghadiri, Antonia Borissova
University of Leeds

2[R3]16 17:50-18:10

Direct numerical simulation of a pulverized coal jet flame - effect of equivalence ratio on flame characteristics -
Masaya Muto, Kenji Tanno, Ryoichi Kurose
Meijo University

Sessions 16:00-17:50

Room 7 Modeling and simulation IV

Chair: Mitsumasa Kimata, Mikio Yoshida

2[R7]09 16:00-16:20

Revisit the spring-damping model used in discrete element method
Hsiu-Po Kuo, Chien-Cheng Lai, An-Ni Huang, Wan-Yi Hsu
National Taiwan University

2[R7]10 16:20-16:40

An investigation of collisions of liquid coated particles
Daniel J Holland, Oscar Punch, Megan Danczyk, Mathew Hawken, Luke Fullard
University of Canterbury

2[R7]11 16:40-17:00

DEM investigation of mixing indices in a ribbon mixer
Xin Jin, Yansong Shen
University of New South Wales

2[R7]12 17:00-17:20

DEM simulation analysis for effects of frictional conditions on five-disk cooperative falling behaviors in a particle bed
Daichi Kawabata, Atsuko Shimosaka, Mikio Yoshida, Yoshiyuki Shirakawa
Doshisha University

Room 8 Particle synthesis and functionalization I

Chair: Satoshi Watanabe, De-Hao Tsai

2[R8]05 16:00-16:30 Invited lecture

Aerosol-based ion mobility-coupled techniques for metal-organic frameworks
De-Hao Tsai
National Tsing Hua University

2[R8]06 16:30-16:50

Understanding the synergistic catalysis of CO₂ hydrogenation to methanol by Cu-based hybrid nanostructures
Truc Hoang Thanh Nguyen, Yu-Shih Lin, Yu-An Hsueh, De-Hao Tsai
National Tsing Hua University

2[R8]07 16:50-17:10

High specific surface area of macroporous pectin particles produced by a template-assisted spray drying
Tue Tri Nguyen, Masato Miyauchi, Kiet Le Anh Cao, Takashi Ogi
Hiroshima University

2[R8]08 17:10-17:30

Slacking of gate adsorption behavior on flexible metal-organic frameworks under external force
Shotaro Hiraide, Homare Arima, Hideki Tanaka, Minoru T. Miyahara
Kyoto University

2[R8]09 17:30-17:50

Kinetic analysis of adsorption-induced structural transition on flexible metal-organic frameworks
Yuta Sakanka, Shotaro Hiraide, Iori Sugawara, Minoru T. Miyahara
Kyoto University

Tuesday 12 October

Sessions 16:00-18:10

Room 9

Particle technology for energy and power sources II

Chair: Tomoya Ohno, Naonori Sakamoto

2[R9]09 16:00-16:30 Invited lecture

Innovative powder processes to produce high-performance battery electrodes

Arno Kwade, Julian Mayer, Mark Lippke, Alexander Diener, Gerrit Schalicke, Peter Michalowski

Technische Universität Braunschweig /
Battery LabFactory Braunschweig

2[R9]10 16:30-17:00 Invited lecture

Core-shell type $\text{Si}/\text{Li}_4\text{Ti}_5\text{O}_{12}$ negative-electrode active material by nano-coating of secondary Si particles for higher capacity Li^+ ion battery

Hisao Suzuki, Akari Kozuka, Takahiko Kawaguchi, Naonori Sakamoto, Naoki Wakiya, Shigeto Hirai, Tomoya Ohno

Shizuoka University

2[R9]11 17:00-17:30 Invited lecture

Advancements in earth-abundant photocatalyst materials for solar hydrogen production

Jung Hyeun Kim, Soojin Kahng

University of Seoul

2[R9]12 17:30-17:50

Low temperature crystallization of solid electrolyte $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ from molecular designed precursor solution and searching novel stabilizing element

Naonori Sakamoto, Tatsuya Yamazaki, Takahiko Kawaguchi, Tomoya Ohno, Naoki Wakiya, Hisao Suzuki

Shizuoka University

2[R9]13 17:50-18:10

In-situ 3D observation of compressed powder beds by synchrotron-radiation X-ray computed laminography

Maria Yokota, Takumi Kusano, Takuro Matsunaga

Toyota Central R&D Labs., Inc.

Wednesday 13 October

Plenary Lecture 8:45-9:30, Hall C Chair: Kunihiro Fukui

[PL06] Particle surface engineering for predictive enhancements of API and tablet properties

by **Rajesh N. Davé** New Jersey Institute of Technology

Sessions 9:45-11:15

Hall C

Modeling and simulation of multiphase flow II

Chair: Wei Ge, Toru Ishigami

3[HC]01 9:45-10:15 Invited lecture

Modelling of gas-solid reacting flows and industry applications: recent examples

Yansong Shen

University of New South Wales

3[HC]02 10:15-10:35

Modeling biomass pyrolysis in a bubbling fluidized bed using CFD

Hsiu-Po Kuo, Wei-Jhih Liao, Wan-Yi Hsu, An-Ni Huang

National Taiwan University

3[HC]03 10:35-10:55

Modeling the multiphase reacting flows in ironmaking blast furnaces

Shibo Kuang, Aibing Yu

Monash University

3[HC]04 10:55-11:15

Effects of particle clustering on powder-gas reaction

Kenji Tanno, Hiroaki Wanatane, Hisao Makino

Central Research Institute of Electric Power Industry

Room 3

Particle synthesis and functionalization II

Chair: Motoyuki Iijima, Tawatchai Charinpanitkul

3[R3]01 9:45-10:15 Invited lecture

Ionic-liquid-templated synthesis of 10-membered ring zeolites with MFI and TON morphologies

Alex Yip

University of Canterbury

3[R3]02 10:15-10:35

Low-temperature direct crystallization of $\alpha\text{-Al}_2\text{O}_3$ nanoparticles from tailored precursor

Takashi Arai, Asuka Nakamura, Saki Suzuki, Syogo Suzuki,

Naonori Sakamoto, Naoki Wakiya, Hisao Suzuki

National Institute of Technology, Numazu college

3[R3]03 10:35-10:55

Molecular dynamics simulation and free energy analysis of nucleation processes in binary Lennard-Jones systems

Yuya Iida, Satoshi Watanabe, Minoru T. Miyahara

Kyoto University

Day 3
Program



Wednesday 13 October

Sessions 9:45-11:15

Room 7

Powder handling: flow, mixing, milling, and compaction I

Chair: Jun Oshitani, Takuya Tsuji

3[R7]01 9:45-10:15 Invited lecture

Perspective on particulate solids processing - process and product flow

Paul Mort

Purdue University

3[R7]02 10:15-10:35

Mixing and segregation in granular flow

Shu-San Hsiau, Li-Tsung Sheng, Shih-Hao Chou

National Central University

3[R7]03 10:35-10:55

Experimental and parametric study on biomaterial fine grinding

Gary Liu

International Flavors & Fragrances

3[R7]04 10:55-11:15

Effects of amounts of liquid additives on grinding efficiency

Yuki Nakashima, Manabu Fukushima, Hideki Hyuga

National Institute of Advanced Industrial Science and Technology

Room 8

Recycling and waste management I

Chair: Taketoshi Koita, Mauricio Cordova-Udaeta

3[R8]01 9:45-10:15 Invited lecture

Advanced liberation technologies for resources recycling

Chiharu Tokoro

Waseda university / The University of Tokyo

3[R8]02 10:15-10:35

Recovery of valuable metals from obsolete LED light bulbs for recycling

Gjergj Dodbiba, Hiroki Oshikawa, Toyohisa Fujita

The University of Tokyo

3[R8]03 10:35-10:55

Improvement of acid resistance of coal fly ash-based geopolymer by mechanical activation

Mitsuaki Matsuoka, Kohei Okura, Takehiro Tanaka, Norihiro Murayama, Makio Naito

Kansai University

3[R8]04 10:55-11:15

Detection algorithm by continuous image processing of electric devices mounted on waste printed circuit boards

Naohito Hayashi, Shigeki Koyanaka, Tatsuya Oki

National Institute of Advanced Industrial Science and Technology

Sessions 9:45-10:55

Room 9

Aerosol

Chair: Takashi Ogi, Chang-Yu Wu

3[R9]01 9:45-10:15 Invited lecture

Efficient collection of viable SARS-CoV-2 aerosol for studying its transmission

Chang-Yu Wu, Sripriya Nannu Shankar, John A Lednický, Arantza Eiguren-Fernandez

University of Florida

3[R9]02 10:15-10:35

Effect of particle coincidence on response of optical particle counter (OPC) to relatively high concentration particulate matters (PM)

Phanatchakorn Mala, Yoshio Otani, Perapong Tekasakul, Toshiyuki Fujimoto, Tawatchai Charinpanitkul

Japan Society for the Promotion of Science (JSPS) Bangkok Office

3[R9]03 10:35-10:55

Evaluation of the droplet removal performance by a small on-desk air cleaner with photocatalyst

Masafumi Akiyoshi, Satoru Watano, Tsuyoshi Ochiai

Osaka Prefecture University

Wednesday 13 October

Sessions 11:30-12:40

Hall C

Modeling and simulation of multiphase flow III

Chair: Kenji Tanno, Yansong Shen

3[HC]05 11:30-12:00 Invited lecture

High-resolution simulation of particle-fluid systems in discrete methods

Wei Ge, Yong Zhang, Junwu Wang, Ji Xu, Qi Chang, Lingkai Kong

Chinese Academy of Sciences

3[HC]06 12:00-12:20

CFD-DEM modelling of the migration of fines in suspension flow through a solid packed bed

Zhouzun Xie, Yansong Shen, Shuai Wang

University of New South Wales

3[HC]07 12:20-12:40

DNS-DEM simulation on wet particle dynamics in turbulent channel flow

Yachan Shao, Xuan Ruan, Shuiqing Li

Tsinghua University

Room 3

Particle synthesis and functionalization III

Chair: Shintaro Morisada, Alex Yip

3[R3]04 11:30-12:00 Invited lecture

Contribution of carbonaceous particle technology to bio-circular-green economy

Giang T.T. Le, Tanapat Rodruangnon, Rittikiat Wandaw, Ketsarin Ariya, Thanawit Niyomna, Phisit Thairattananon,

Tawatchai Charinpanitkul

Chulalongkorn University

3[R3]05 12:00-12:20

Small-scale synthesis of zinc oxide nanoparticle: a home laboratory experience

Tjokorde Walmiki Samad, Vita Wonoputri,

Jevan Wiryamihardja, Odara Eka Aptari

Institut Teknologi Bandung

3[R3]06 12:20-12:40

Relationship between operation parameters and particle properties of hydrocalumite synthesized from concentrated seawater

Taichi Kimura, Mikio Yoshida, Masakazu Matsumoto, Yoshiyuki Shirakawa

Doshisha University

Sessions 11:30-12:50

Room 7

Powder handling: flow, mixing, milling, and compaction II

Chair: Tomohiro Iwasaki, Yashushi Mino

3[R7]05 11:30-11:50

De-agglomeration of spray-dried particles by ultrasonification

Yosuke Asanuma, M. P. Khairunnisa, Ferry Faizal, I. Wuled Lenggono

Tokyo University of Agriculture and Technology

3[R7]06 11:50-12:10

Effect of compaction speed on tableting process: a combined experimental and simulation study

Shuji Ohsaki, Yusuke Imayoshi, Kazume Kushida, Yu Matsuda, Hideya Nakamura, Satoru Watano

Osaka Prefecture University

3[R7]07 12:10-12:30

Evaluation of the effects of granulated alumina powder characteristics and die wall lubrication on compaction behavior using X-ray computed tomography

Tomoomi Segawa, Koichi Kawaguchi, Katsunori Ishii, Masahiro Nishina, Takayoshi Makino, Kenji Iimura, Hiroshi Satone, Michitaka Suzuki, Yuri Natori

Japan Atomic Energy Agency

3[R7]08 12:30-12:50

Optimization of pressure transmission ratio measurement by design of experiments

Osamu Sugimoto

DALTON Corporation

Room 8

Recycling and waste management II

Chair: Chiharu Tokoro, Mitsuaki Matsuoka

3[R8]05 11:30-11:50

Investigation of pressure of shock wave induced by silver wire explosion using pulsed discharge

Taketoshi Koita, Yoshiki Egawa, Soowon Lim, Takao Namihira, Chiharu Tokoro

Waseda University

3[R8]06 11:50-12:10

Studies on alternative methods for the recovery of phosphorus from sewage sludge ash and the wet chemical synthesis of hydroxyapatite

Mauricio Cordova-Udaeta, Gjergj Dodbiba, Chiharu Tokoro

Waseda University

3[R8]07 12:10-12:30

Simultaneous removal of sulfamethoxazole and trimethoprim contaminated in water using photocatalytic ZnO/magnetic carbon nanoparticles

Giang T.T. Le, Noriaki Sano, Tawatchai Charinpanitkul

Chulalongkorn University

3[R8]08 12:30-12:50

Tetracycline sorption by magnetic biochar derived from watermelon rind: performance and influential factors

Phisit Thairattananon, Giang T.T. Le, Noriaki Sano, Tawatchai Charinpanitkul

Chulalongkorn University

Technical session

Wednesday 13 October

Plenary Lecture 14:00-14:45, Hall C Chair: Satotu Watano

[PL07] Challenges in modelling and understanding of particle formulation by spray granulation
by **Stefan Heinrich** Hamburg University of Technology

Poster Sessions 15:00-18:00, Going virtual (Zoom-based on-line system)

Poster presentations

15:00-16:30 **Odd number posters** (the last two digits)

16:30-18:00 **Even number posters** (the last two digits)

Chair :Hideya Nakamura, Shuji Ohsaki

Day 4
Program



Thursday 14 October

Sessions 9:00-10:40

Hall C

Modeling and simulation of multiphase flow IV

Chair: Kenji Tanno, Toru Ishigami

4[HC]01 9:00-9:20

Pore-scale numerical study of intrinsic permeability for fluid flow through asymmetric ceramic microfiltration membranes

Shuang Song, Yansong Shen

The University of New South Wales

4[HC]02 9:20-9:40

Investigation on separation of liquid content from natural gas stream in gas-liquid cylindrical cyclone using computational fluid dynamics

Pimlapas Bunwichian, Rinrada Yingsukamol, Mattayakorn Suksirt, Niphon Wansophark, Sedthawatt Sucharitpawatskul, Tawatchai Charinpanitkul

Chulalongkorn University

4[HC]03 9:40-10:00

Radiation heat transfer from soot formed in wall-impinging spray flames under CI engine-like conditions: a numerical analysis

Abhishek Lakshman Pillai, Reo Kai, Ryoichi Kurose

Kyoto University

Room 7

Gas-solid flow: microscopic to macroscopic II

Chair: Jun Oshitani, Yoshihide Mawatari

4[R7]01 9:00-9:20

Influence of ambient conditions on the degradation of PPS filter media by NO₂ gas at high temperature

Kunihiko Fukui, Genki Ichiba, Tomonori Fukasawa, Toru Ishigami

Hiroshima University

4[R7]02 9:20-9:40

Effect of air pressure on fluidization conveying of powders with different particle size and density

Koichiro Ogata, Riho Abe

National Institute of Technology

4[R7]03 9:40-10:00

Unstable sphere sinking in a gas-solid fluidized bed at higher air velocity

Jun Oshitani, Shunsuke Kato, Toshiki Sasaki, Takuya Tsuji, Shusaku Harada, Hirokazu Kajiwara, Kei Matsuoka

Okayama University of Science

4[R7]04 10:00-10:20

Mechanism of density segregation for equal-sized binary particles in vibrated fluidized bed

Zhaohua Jiang, Takuya Tsuji, Jun Oshitani, Kimiaki Washino, Toshitsugu Tanaka

Osaka University

4[R7]05 10:20-10:40

Effect of a mechanical vibration on dense phase void fraction in a gas-solid fluidized bed

Yoshihide Mawatari, Takao Ohmori

Kyushu Institute of Technology

Sessions 9:00-11:00

Room 8

Particle synthesis and functionalization IV

Chair: Kenji Iimura, Chika Takai-Yamashita

4[R8]01 9:00-9:20

A facile synthesis of highly crystalline CAN and ANA from natural MOR zeolite

Mutjalin Limlamthong, Alex Chi-Kin Yip

University of Canterbury

4[R8]02 9:20-9:40

The role of silica source in ionic liquid-templated synthesis of zeolites

Xuemin Li, Owen Cumow, Alex C. K. Yip

University of Canterbury

4[R8]03 9:40-10:00

Plasma-modified carbon nanohorns for slow release of poly-vinylpyrrolidone-iodine

Giang T.T. Le, Piyapong Lerkprasertkun, Noriaki Sano,

Tawatchai Charinpanitkul

Chulalongkorn University

4[R8]04 10:00-10:20

Formation of well-defined spherical porous carbon particles transition from dense to hollow structure derived from kraft lignin

Kiet Le Anh Cao, Takashi Ogi

Hiroshima University

4[R8]05 10:20-10:40

Synthesis and characterization of low permittivity hollow nanoparticles

Quanyue Wen, Masayoshi Fujii, Hadi Razavi Khosrosh

Nagoya Institute of Technology

4[R8]06 10:40-11:00

Continuous hydrothermal flow synthesis (CHFS) of thermochromic vanadium dioxide (VO₂) nanoparticles

Shoichi Yamamoto, Masayoshi Fujii

Nagoya Institute of Technology

Awarding & Closing

11:10-11:40 Hall C

Wednesday 13 October, Going virtual (Zoom-based on-line system)

15:00 – 16:30 Odd number posters (the last two digits)

16:30 – 18:00 Even number posters (the last two digits)

[P1] Gas-particle flow

- P1-01** Fluidization characteristics for binary density difference powders under mechanical bed vibration
Naoki Iwamura, Yoshihide Mawatari, Jun Oshitani Kyushu Institute of Technology
- P1-02** Component separation from binary powder mixture in a vibrating fluidized bed based on differences in agglomeration properties
Junji Izumi, Tomonori Fukasawa, Toru Ishigami, Kumihiro Fukui Hiroshima University
- P1-03** Experimental investigation on PSI in vacuum atmosphere using active stereo vision
Yanwei Fang, Xuan Ruan, Shuiqing Li Tsinghua University
- P1-04** Drying characteristics of suspension in a binary-fluidized bed under reduced pressure
Wataru Sugimoto, Yuji Tatamoto Shizuoka University
- P1-05** Numerical analysis of drying characteristics of frozen material immersed in fluidized bed at low temperature under reduced pressure
Taishi Ichise, Nao Yokoi, Yuji Tatamoto Shizuoka University
- P1-06** Aerosolization of colloidal nanoparticles by spray dry method for cell exposure study
Chigusa Matsumoto, Sakika Iwao, Tomoya Tamadate, Yuko Mitera, Yayoi Inomata, Takafumi Seto Kanazawa University
- P1-07** Electro spray deposition of macro droplets for fabricating particle accumulated layer
Haruka Tachi, Toshiaki Sakai, Takafumi Seto Kanazawa University
- P1-08** Characteristics in drying of fine particle bed using ultrasonic atomization
Daisuke Takashima, Tomoki Okada, Noriaki Sano, Kyuya Nakagawa, Tetsuo Suzuki Kyoto University
- P1-09** Control of particle motion in gas phase using ultrasonic vibration -effect of acoustic radiation force and acoustic streaming-
Hirofumi Nonaka, Naoki Sotoguchi, Masuko Daichi, Kofu Kenji Nihon University
- P1-10** A dust sampler for simultaneous measurement of dust concentration and electric charging in flue gas of stationary sources
Masashi Wada, Masashi Tsuji Research Institute of Environment Agriculture and Fisheries Osaka Prefecture

[P2] Powder handling

- P2-01** Effect of hold-up on granulated physical properties in twin-screw extrusion granulation system
Miu Matsushita, Shuji Ohsaki, Hideya Nakamura, Satoru Watano Osaka Prefecture University
- P2-02** Effects of the pulse jet cleaning interval on the performance of pleated filter in dust collector
Kazuki Furumoto, Taiki Narita, Tomonori Fukasawa, Toru Ishigami, Kumihiro Fukui Hiroshima University
- P2-03** Study of thermal dehydration characteristics of waste gypsum particle in a rotary heating vessel
Kotetsu Arimura, Koichiro Ogata, Hideo Kawahara, Hiroaki Sano National Institute of Technology, Oita College

[P2] Powder handling

- P2-04** Density distribution of Al_2O_3 ceramics prepared by various molding techniques evaluated using optical coherence tomography
Tajima Mitsuki, Junichi Tatami, Motoyuki Iijima, Takuma Takahashi Yokohama National University
- P2-05** Elucidation of dewaxing behavior of alumina green bodies by in-situ measurement of interparticle adhesion force and OCT observation of internal structure
Mariko Minami, Junichi Tatami, Motoyuki Iijima, Takuma Takahashi Yokohama National University
- P2-06** Granulation of high silica zeolite using extrusion granulation
Shunsuke Kishimoto, Satoru Watano, Hideya Nakamura, Shuji Ohsaki Osaka Prefecture University
- P2-07** Controlled formation of CNTs-incorporated Al_2O_3/ZrO_2 composite granules by electrostatic integrated granulation
Yusaku Sato, Atsushi Yokoi, Wai Kian Tan, Go Kawamura, Hiroyuki Muto, Atsunori Matsuda Toyohashi University of Technology
- P2-08** A model study on granules formation by heterocoagulation of electrostatic integrated particles
Koki Nakamura, Atsushi Yokoi, Wai Kian Tan, Go Kawamura, Atsunori Matsuda, Hiroyuki Muto Toyohashi University of Technology
- P2-09** Formation of monodisperse spherical Al_2O_3 and Al_2O_3/ZrO_2 composite granules by wet agglomeration for ceramic composites design
Takuto Sunada, Atsushi Yokoi, Tan Wai Kian, Go Kawamura, Atsunori Matsuda, Hiroyuki Muto Toyohashi University of Technology
- P2-10** Shaping of flexible metal-organic framework particles by compaction
Kohei Takaoka, Shuji Ohsaki, Hideya Nakamura, Satoru Watano Osaka Prefecture University
- P2-11** Wet granulation of fine ore powder based on agitation torque
Tomotaka Otsu, Hideya Nakamura, Shuji Ohsaki, Satoru Watano, Takehide Higuchi Osaka Prefecture University
- P2-12** Water retention in model soil aggregates
Hyuga Yasuda, Makoto Katsura, Hiroaki Katsuragi Osaka University
- P2-13** Sodium methoxide-assisted synthesis of gallium-doped zinc oxide nanoparticles and the mist-deposited transparent conductive films
Yasutaka Nishi, Yuki Kasai, Ryoko Suzuki, Masaki Matsubara, Atsushi Muramatsu, Kiyoshi Kanie Nikon Corporation / Tohoku University
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- P2-23** Microfluidic particle separation device integrated with sponge-like matrix with uniformly-sized continuous micropores
Takeru Sato, Runa Hemmi, Masumi Yamada, Minoru Seki Chiba University
- P2-24** Rate-dependent change of compression energies during compaction process of pharmaceutical powder
Daisuke Mizunaga, Satoru Watano Otsuka Pharmaceutical Co., Ltd. / Osaka Prefecture University
- P2-25** Numerical analysis of compression properties of elasto-plastic cohesive particles for all solid-state batteries
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- P2-26** Continuous measuring of die wall pressure for studying the effect of compression speed
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- P2-28** Visualization of internal structure of granule and calculation of packing density of a granule using X-ray phase contrast tomography
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- P3-02** Efficient particle delivery to lung epithelial cells using polymers
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- P3-05** Composite spray freeze-dried particles for functional food with improved dissolution properties by enhanced water dispersibility
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- P3-07** Liquid-phase adsorption simulation of drugs into metal-organic frameworks
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- P3-08** Preparation of nanocrystal-coated microparticles to improve dissolution of poorly water-soluble drugs and their tableting
Tooru Andoh, Kosuke Fukushima, Ai Fukuyama, Hideki Ichikawa Kobe Gakuin University
- P3-09** Effect of physical property of core particle on coating performance in dry particulate coating using a laboratory-made apparatus with vibration and rotating blade
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- P3-11** Nanoparticle synthesis of poorly water-soluble drug via spray drying process
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- P3-13** A facile approach to fabricate polysaccharide polymer-aminosilane hybrid microcapsules for drug delivery
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- P3-14** Gelatin microparticles prepared by solvent extraction process for suspension culture of mammalian cells
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- P3-15** Continuous synthesis of hollow silica nanoparticles after calcium carbonate synthesis as template
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- P3-16** Formation mechanism of PNIPAM copolymer nanogels with thermogelling ability
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- P4-03** Intracellular uptake and cytotoxicity of MOF
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- P4-04** Effect of ion species and particle surface properties on change in particle electrophoresis caused by changed applied electric field
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- P4-05** Impact dynamics in hierarchically structured granular materials
Fumiaki Okubo, Hiroaki Katsuragi Nagoya University
- P4-06** Effect of the surface properties of thiol-modified gold nanoparticles on translocation across lipid bilayer
Akane Mizooku, Hideya Nakamura, Shuji Ohsaki, Satoru Watano Osaka Prefecture University
- P4-07** Control of biofilm formation using hydrophilic titania nanoparticles
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- P4-08** Enhancement of cell membrane permeability by utilizing weak external electric field with charged nanoparticles
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- P4-09** Effect of exposure environment on adhesion and cytotoxicity of nanoparticles toward budding yeast and fission yeast
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- P4-10** The influence of surface functional groups on the triboelectrification of organic crystals
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- P5-04** Investigation on the formation of nanobubbles and their industrial application
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- P5-05** Heteroaggregation rates of oppositely charged colloidal particles in a mixing flow: effect of charge density
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- P5-06** Effect of solubility of organic solvents on whey protein separation
Ayumi Yamamoto, Mikio Yoshida, Yoshiyuki Shiwakawa Doshisha University
- P5-07** A novel method to evaluate dispersibility of nano-particle slurry using fluorescence spectrum analysis
Taichi Kanao, Noriaki Sano, Kyuya Nakagawa, Tetsuo Suzuki, Masaru Nishimura Kyoto University
- P5-08** Effect of mean particle surface distance on the flow characteristics of hetero-assembled highly concentrated slurry
Sena Tsunoda, Motoyuki Iijima, Junichi Tatami Yokohama National University
- P5-09** Solid lipid nanoparticles formation in flow process of supercritical fluid extraction emulsion
Thossaporn Wijakmatee, Yasuhiko Orita, Yusuke Shimoyama Tokyo Institute of Technology
- P5-10** DEM modelling the fragmentation of hard agglomerates
Lun Jian Li, Runyu Yang University of New South Wales

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- P6-01** Mechanochemically assisted synthesis of hematite nanoparticles via homogeneous precipitation
Takahiro Onizuka, Tomohiro Iwasaki Osaka Prefecture University
- P6-02** Microstructure and surface properties of dispersed cellulose nanofiber sol by planetary ball milling
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- P6-03** Fabrication of transparent silica glass components through imprinting process using photo-cross-linkable nanoparticle suspensions
Kengo Nisiyama, Junichi Tatami, Motoyuki Iijima Yokohama National University
- P6-04** Control of particle morphology change on copper powder using a planetary ball mill with DEM simulation
Heekyu Choi, Battsetseg Jargalsaikhan, Amgalan Bor, Khulan Uranchimeg, Jehyun Lee Changwon National University
- P6-05** Synthesis and characterization of cobalt ferrite nanoparticles by hydrothermal method for biomedical applications
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- P6-06** Preparation of low dielectric constant composite with hollow nanoparticles
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- P6-08** Fabrication of non-close-packed colloidal monolayers using SiO₂@polyelectrolyte gel
Sena Kumamoto, Fumiya Kuhara, Hidetaka Kawakita, Keisuke Ohto, Shintaro Morisada Saga University
- P6-09** Giant liposomes with controlled structures prepared by dewetting of double emulsion droplets
Midori Manabe, Takaichi Watanabe, Tsutomu Ono Okayama University
- P6-10** Design of photocurable pickering emulsions for shaping complicate structured porous SiO₂ components
Yoshihiko Yamanoi, Motoyuki Iijima, Junichi Tatami Yokohama National University
- P6-11** Preparation and dissolution behavior of multicomponent metal oxide particles
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- P6-12** Slacking of gate adsorption on metal-organic frameworks by molding and its dependence on degree of structural deformation
Homare Arima, Shotaro Hiraide, Minoru T. Miyahara Kyoto University
- P6-13** Effect of rare earth additives on the transparency of α -SiAlON ceramics
Kohei Aminaka, Junichi Tatami, Motoyuki Iijima Yokohama National University
- P6-14** Fabrication of translucent AlN ceramics by adding La₂O₃
Hasumi Kawabata, Junichi Tatami, Motoyuki Iijima Yokohama National University
- P6-15** Protruded indium tin oxide nanoparticles with high dispersibility in water for use in sustainable coatings
Ryoko Suzuki, Yasutaka Nishi, Masaki Matsubara, Atsushi Muramatsu, Kiyoshi Kanie Tohoku University / Nikon Corporation
- P6-16** Hydrothermal synthesis of monoclinic vanadium dioxide nanoparticles using ammonium ion intercalated vanadium pentoxide xerogels as precursors
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- P6-18** Photoluminescence property of new phosphor of Ce₂O₃- and P₂O₅-doped Ca₂SiO₄ phosphor
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- P6-19** Enhancement of the photoluminescence properties of the Li-Ta-Ti-O:Mn⁴⁺ red emitted phosphor
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Kai Kameyama, Shota Ando, Hiromi Nakano Toyohashi University of Technology
- P6-21** Enhancement of microwave-assisted nanoparticle synthesis process by addition of triton series surfactants
 Yustuke Asakuma, **Atsuya Shibatani**, Takahiro Takai University of Hyogo

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- P6-27** Mechanochemical synthesis and gas adsorption properties of a stable microporous Zn-based metal-organic framework CALF-20
Shota Kitai, Shunsuke Tanaka Kansai University
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- P6-29** Adhesion and diffusion behavior of hydrogen on Pd nanoparticles with electrostatic interactions
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- P7-03** Novel synthesis of porous nanostructured LiCoPO₄ particles as cathode material for lithium-ion batteries
Wenyu Cui, Takeru Nagashima, Ayaulym Belgibayeva, Izumi Taniguchi Tokyo Institute of Technology
- P7-04** Investigation of phenomena of wire explosion by pulsed discharge and of the required energy for phenomena generation
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- P7-05** Preparation of nano-tree structured WO₃ thin film by one-step flame synthesis and its photoelectrochemical performances
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- P7-06** A new interpretation about growth mechanism of TiO₂ nanorod structure on FTO glass in hydrothermal process
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- P7-08** Low temperature processing for Al-substituted LLZO by chemical solution deposition with molecular design
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- P7-11** Low-temperature preparation of garnet-type Li-ion solid-state electrolyte single-crystalline particles
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- P8-05** Lattice Boltzmann model for capillary forces between cylindrical particles at gas-liquid interface
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- P8-06** DEM simulations of cohesive particle behavior in a shear field
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Huyen Dao Thi, **Minh Nguyen Hai**, Kyo-Seon Kim Kangwon National University
- P8-14** Numerical analysis of spray drying process: effect of droplet size distribution
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