



**Conference Agenda**

**Session Overview**

**Date: Sunday, 26/June/2022**

10:00am -12:00pm	<b>Pre Course "Ideation"</b>
1:00pm -5:00pm	<b>Registration</b>
1:30pm -3:30pm	<b>Pre Course "The Basics of Mechanical Characterization of Soft Biological Tissue"</b> Lecturers: Nele Famaey & Seyed Ali Elahi
4:00pm -6:00pm	<b>Pre Course "Explainable Artificial Intelligence Methods in Biomedical Engineering for Supporting Medical Diagnosis"</b> Lecturer: Angela Lombardi
7:30pm -10:00pm	<b>Student Night</b> Venue: No Mercado restaurant, Market Ferreira Borges, R. da Bolsa 22

8:30am - 9:45am	<p><b>TR01.1: Cardiovascular biomechanics I: Developmental biomechanics and mechanobiology</b> Location: Archive Hall Chair: Selda Sherifova Chair: Stéphane Avril</p> <p>8:30am - 8:55am <b>PHYLOGENIC AND ONTOGENIC DETERMINANTS OF MECHANOTRANSDUCTION IN THE HUMAN AORTA</b> J.-B. Michel</p> <p>8:55am - 9:07am <b>FLUID MECHANICS OF THE ZEBRAFISH EMBRYONIC HEART TRABECULATION</b> A. G. Cairelli, R. W. Chow, J. Vermot, C. H. Yap</p> <p>9:07am - 9:19am <b>Fluid Mechanics of Fetal Aortic Valvuloplasty in Fetal Aortic Stenosis and Evolving HLHS</b> H. S. Wong, H. Wiputra, A. Tulzer, G. Tulzer, C. H. Yap</p> <p>9:19am - 9:31am <b>Biomechanical modelling of the aorta in adult zebrafish</b> M. Van Impe, M. Stampanoni, P. Sips, J. De Backer, P. Segers</p> <p>9:31am - 9:43am <b>HEMODYNAMICS-DRIVEN AORTIC GROWTH FOR GENETICALLY MODIFIED MICE MODELS</b> M. S. Bazzi, J. E. Wagenseil, V. H. Barocas</p>	<p><b>TR02.1: Implants / orthotics / prosthetics / devices I: Craniomaxillofacial</b> Location: Infante Hall Chair: Harry van Lenthe Chair: Dennis Janssen</p> <p>8:30am - 8:42am <b>An instrumented orthosis prototype for cranial correction</b> B. Garate, A. Zabala, A. Elawadly, S. Taylor, O. Jeelani, D. Dunaway, G. James, S. Schievano, A. Borghi</p> <p>8:42am - 8:54am <b>TOWARDS THE DESIGN OF A NOVEL NITINOL DISTRATOR FOR CRANIOFACIAL SURGERY</b> L. Zabalza, N. Rodriguez-Florez, D. Silva, O. Jeelani, G. James, D. Dunaway, J. Ong, S. Schievano, A. Borghi</p> <p>8:54am - 9:06am <b>A NOVEL METHOD TO MEASURE DISTRACTION FORCES DURING MID-FACE ADVANCEMENT</b> A. Zabala Monasterio, B. Garate Andikoeztea, S. Taylor, J. Ong, D. Dunaway, O. Jeelani, S. Schievano, A. Borghi</p> <p>9:06am - 9:18am <b>FINITE ELEMENT MODELLING OF A CRANIAL IMPLANT DURING IMPACT</b> R. Alves de Sousa, P. Santos, F. Fernandes</p> <p>9:18am - 9:30am <b>Finite Element Modelling of Acoustic Emissions for Dental Implant monitoring</b> G. Boron, R. Reuben, U. Wolfram</p> <p>9:30am - 9:42am <b>ON THE BIOMECHANICS OF RECONSTRUCTED MANDIBLES WITH CAD/CAM FIXATION DEVICES</b> G. Blesso, V. Orassi, C. Janka, C. Rendebach, S. Checa</p>	<p><b>TR03.1: Biomechanics of movement and posture I: Sensor-based evaluation of movement</b> Location: D. Maria Hall Chair: William R. Taylor Chair: Erica Beaucage-Gauvreau</p> <p>8:30am - 8:55am <b>REAL WORLD MONITORING OF GAIT: CHALLENGES AND SOLUTIONS FOR A COMPREHENSIVE TECHNICAL VALIDATION</b> C. Mazzà</p> <p>8:55am - 9:07am <b>VALIDATION OF AN INERTIAL-BASED GAIT ANALYSIS SYSTEM USING A SIX DEGREES-OF-FREEDOM JOINT SIMULATOR</b> A. Ortigas Vásquez, A. Maas, W. R. Taylor, T. M. Grupp</p> <p>9:07am - 9:19am <b>BIOMECHANICS IN THE WILD: VALIDATION OF A WEARABLE KINETIC MEASUREMENT SYSTEM</b> H. Wang, A. Basu, G. Durandau, M. Sartori</p> <p>9:19am - 9:31am <b>SINGLE IMU BASED OPEN-SOURCE AND LOW-COST GAIT EVENT DETECTION WEARABLE DEVICE</b> N. Breitman, A. Fischer</p> <p>9:31am - 9:43am <b>Kinematic changes during walking with whole-body vibration and psychomotor testing</b> A. P. Moorhead, A. Mazzoleni, A. Goggi, S. Marelli, G. Lorenzini, M. Tarabini</p>	<p><b>TR04.1: Mechanobiology I: Tools</b> Location: D. Luis Hall Chair: Hans Van Oosterwyck Chair: Daphne Weihs</p> <p>8:30am - 8:55am <b>CELLULAR FORCE EXERTION DURING VASCULAR INVASION: MEASUREMENT AND APPLICATION TO DISEASE</b> H. Van Oosterwyck</p> <p>8:55am - 9:07am <b>Quantitative phase microscopy-based cell viscoelasticity measurement by shear stress</b> J. Gumulec, T. Vicar, J. Chmelik, J. Navratil, J. Balvan, R. Kolar, L. Chmelikova, V. Cmiel, M. Masarik</p> <p>9:07am - 9:19am <b>PHOTO-SWITCHABLE BIO-INTERFACES FOR DYNAMIC CELL CULTURES</b> F. Mauro, C. Natale, V. Panzetta, P. A. Netti</p> <p>9:19am - 9:31am <b>MECHANOREGULATION OF CRISPR/CAS9 MEDIATED BONE CELL REPORTER MICE UNDER CYCLIC MECHANICAL LOADING</b> D. Yilmaz, F. Correia Marques, E. Wehrle, G. A. Kuhn, R. Müller</p>	<p><b>TR05.1: Soft tissue biomechanics I</b> Location: Porto Hall Chair: Maria José Gómez-Benito Chair: José Felix Rodriguez Matas</p> <p>8:30am - 8:42am <b>FRACTURE TOUGHNESS DETERMINATION OF MUSCLE TISSUE BASED ON AQLV MODEL DERIVED VISCOUS DISSIPATED ENERGY</b> O. J. Aryeetey, M. Frank, A. Lorenz, D. H. Pahr</p> <p>8:42am - 8:54am <b>Mechano-structural maturation of the bone callus tissue under distraction</b> P. Blázquez-Carmona, J. A. Sanz-Herrera, J. Mora-Macias, J. J. Toscano, J. Morgaz, J. Dominguez, E. Reina-Romo</p> <p>8:54am - 9:06am <b>ADVANTAGES OF ESTIMATING BIOMECHANICAL PROPERTIES OF THE CORNEA USING TORSIONAL WAVE ELASTOGRAPHY</b> I. H. Faris, J. Torres, A. Callejas, G. Rus</p> <p>9:06am - 9:18am <b>Mechanical measurements for clinical assessment of compartment syndrome</b> C. Tacchella, E. Clutton, Y. Chen, M. Crichton</p> <p>9:18am - 9:30am <b>THE IN-VITRO TEST CONDITIONS INFLUENCE THE BIOMECHANICAL PROPERTIES OF DEGENERATED LATERAL MENISCI</b> L. de Roy, O. Piquet, G. Teixeira, M. Weiske, H. Mayr, M. Seidenstücker, A. Seitz</p> <p>9:30am - 9:42am <b>TISSUE INTERNAL STRAINS COMPUTED BY A FINITE ELEMENT MODEL OF THE HUMAN HEEL AND MEASURED FROM MR IMAGES</b> A. Trebbi, M. Baillet, A. Perrier, Y. Payan</p>	<p><b>TR06.1: Biomaterials I</b> Location: Arrabida Hall</p> <p>8:30am - 8:42am <b>BIOREACTOR EVALUATION OF AN ANTIBACTERIAL AND OSTEOGENIC SILICON NITRIDE REINFORCED CRYOGEL SYSTEM</b> S. S. Lee, L. Laganenka, X. Du, W.-D. Hardt, S. J. Ferguson</p> <p>8:42am - 8:54am <b>Corroded magnesium-based scaffolds fatigue strain accumulation and mechanical behaviour under cyclic loading</b> R. Bonithon, S. Davis, M. Morgan, G. Blunn, A. Karali</p> <p>8:54am - 9:06am <b>MULTISCALE PERFORMANCES OF ELECTROSPUN BIOSTABLE DEVICES FOR TENDON AND LIGAMENT REPLACEMENT</b> A. Sensini, C. Gotti, C. Gualandi, M. V. Ricioppo, G. Marchiori, N. Sancisi, M. Fini, M. L. Focarete, L. Cristofolini, A. Zucchelli</p> <p>9:06am - 9:18am <b>DYNAMIC MECHANICAL ANALYSIS OF COLLAGEN FIBRILS AND ELECTROSPUN PLLA NANOFIBERS</b> M. Nalbach, A. Sensini, N. Motoi, M. Rufin, O. Andriotis, A. Zucchelli, G. Schitter, L. Cristofolini, P. Thurner</p> <p>9:18am - 9:30am <b>NATURE-INSPIRED MEMBRANES FOR ARTIFICIAL RESPIRATION -PRODUCTION OF MICRO-STRUCTURED POLYMER HOLLOW FIBERS</b> M. Pekovits, P. Ecker, F. Imran, J. A. Kalarus, M. Harasek, M. Gföhler</p> <p>9:30am - 9:42am <b>Nanofibre capped melt electrowritten grid structures mimicking the architecture of articular surfaces</b> M. Santschi, L. Bienz, M. Leunig, S. Ferguson</p>	<p><b>TR07.1: Computer aided diagnosis, planning and surgery I</b> Location: Miragaia Hall Chair: Jérôme Noailly Chair: Miguel Ángel Ariza Gracia</p> <p>8:30am - 8:55am <b>PRESENT AND FUTURE OF COMPUTER-AIDED DIAGNOSIS, PLANNING AND SURGERY</b> M. A. Perez Anson</p> <p>8:55am - 9:07am <b>AN INVESTIGATION OF SPARSE 3D POINT CLOUD REGISTRATION COST FUNCTIONS FOR ESTIMATING 3D POSE OF HUMAN BONE</b> D. A. Christie, R. Fluit, G. V. Durandau, M. Sartori, N. J. J. Verdonshot</p> <p>9:07am - 9:19am <b>PREDICTION OF GUIDEWIRE INDUCED AORTIC DEFORMATIONS DURING EVAR: FEA AND IN VITRO STUDY</b> M. Emendi, K.-H. Støverud, G. Tangen, H. Ulsaker, S. K. Dahl, V. E. Prot, T. Lange</p> <p>9:19am - 9:31am <b>IN-SILICO BIOMECHANICAL DESCRIPTORS TO STRATIFY REAL WORLD CASES OF PROXIMAL JUNCTION FAILURE IN SPINE SURGERY</b> M. Rasouligandomani, A. del Arco, F. Pellisé, M. González Ballester, F. Galbusera, J. Noailly</p>	<p><b>TR08.1: Dental biomechanics</b> Location: S. Joao Hall Chair: Christoph Bourauel Chair: Benedikt Sagl</p> <p>8:30am - 8:42am <b>Differences in TMJ loading between Mediotrusive and Laterotrusive Tooth Grinding</b> B. Sagl, M. Schmid-Schwab, E. Piehsinger, X. Rausch-Fan, I. Stavness</p> <p>8:42am - 8:54am <b>IMPACT OF SIMULATED TOOTHBRUSHING AND THERMOCYCLING ON SURFACE ROUGHNESS OF CAD/CAM RESIN MATRIX CERAMICS</b> L. Porojan, R. D. Vasiliiu, F. R. Toma, S. D. Porojan</p> <p>8:54am - 9:06am <b>Numerical and Experimental Assessment of Multirooted Root Analog Implants</b> M. Aldesoki, L. Keilig, I. Dörsam, C. Bourauel</p> <p>9:06am - 9:18am <b>THE EFFECT OF TRIMMING LINE GEOMETRY ON FORCE TRANSMISSION BY ORTHODONTIC ALIGNERS (A FINITE ELEMENT STUDY)</b> T. Elshazly, L. Ludger, A. Ghoneima, M. Abuzayda, C. Bourauel</p> <p>9:18am - 9:30am <b>DESIGN EVALUATION OF SIMPLIFIED CERAMIC CANTILEVER SINGLE-RETAINER RESIN-BONDED FIXED DENTAL PROSTHESES USING FEA</b> N. Hjort, P. Boitelle, I. Sailer, J.-P. Attal, A. Benoit</p> <p>9:30am - 9:42am <b>EFFICIENCY AND LEARNABILITY OF MAGNETIC MALLET AS A RETRIEVAL TOOL FOR DENTAL CROWNS: A PRELIMINARY STUDY</b> A. T. Lugas, G. Caraceni, G. Schierano, A. L. Audenino, D. Baldi, C. Bignardi, M. Terzini</p>
9:45am - 10:15am	Coffee Break							
10:15am - 11:40am	<p><b>TR01.2: Cardiovascular biomechanics II: Material characterization</b> Location: Archive Hall Chair: Selda Sherifova Chair: Stéphane Avril</p> <p>10:15am - 10:27am <b>Aortic media under radial tension: Global and local effects of relaxation</b> S. Sherifova, S. Avril, G. A. Holzapfel</p> <p>10:27am - 10:39am <b>Characterising dissection in aortic tissue: Effect of</b></p>	<p><b>TR02.2: Implants / orthotics / prosthetics / devices II: 3D Technology</b> Location: Infante Hall Chair: Harry van Lenthe Chair: Vasya Plesec</p> <p>10:15am - 10:40am <b>Harnessing 3D Printing to Optimise Medical Device Interaction with Soft Tissue</b> E. O'Ceirbhail</p> <p>10:40am - 10:52am</p>	<p><b>TR03.2: Biomechanics of movement and posture II: Modelling and simulation of movement</b> Location: D. Maria Hall Chair: Seyyed Hamed Hosseini Nasab Chair: Lennart Scheys</p> <p>10:15am - 10:27am <b>PATELLAR TENDON LOADING AND STIFFNESS DERIVED FROM IN VIVO LOADS AND KINEMATICS</b> P. F. Kneifel, P. Moewis, P. Damm, P. Schütz, J.</p>	<p><b>TR04.2: Mechanobiology II: In vitro / In silico</b> Location: D. Luis Hall Chair: Hans Van Oosterwyck</p> <p>10:15am - 10:27am <b>Mechanobiology-Based Rapid Diagnosis and Early Prognosis of Metastatic Risk in Cancer</b> D. Weihs</p> <p>10:27am - 10:39am <b>NANOMECHANICAL SIGNATURE OF FIBROSARCOMA:</b></p>	<p><b>TR05.2: Soft tissue biomechanics II</b> Location: Porto Hall Chair: Dulce Oliveira Chair: José Felix Rodriguez Matas</p> <p>10:15am - 10:27am <b>Inter-donor variability in the tensile and compressive behaviour of in vitro human thrombi</b> R. Cahalane, J. de Vries, M. de Maat, K. van Gaalen, H. van Beusekom, A. van der</p>	<p><b>TR06.2: Computational biology I</b> Location: Arrabida Hall Chair: Maria Angeles Perez Anson Chair: Aurélie Carlier</p> <p>10:15am - 10:40am <b>COMPUTATIONAL SIMULATIONS TO UNRAVEL CELL MECHANOTRANSDUCTION IN PATHOLOGICAL AND PHYSIOLOGICAL PROCESSES</b> M. J. Gómez-Benito</p> <p>10:40am - 10:52am</p>	<p><b>TR07.2: Computer aided diagnosis, planning and surgery II</b> Location: Miragaia Hall Chair: Jérôme Noailly Chair: Miguel Ángel Ariza Gracia</p> <p>10:15am - 10:27am <b>A numerical study of the impact on graft longevity from coronary artery bypass grafts' bulk-bone geometry</b> C. J. Bright, A. Deyranlou, S. Grant, A. Keshmiri</p>	<p><b>TR08.2: Experimental biomechanics I</b> Location: S. Joao Hall Chair: Luca Cristofolini Chair: Ingmar Fieps</p> <p>10:15am - 10:27am <b>DIGESTION OF COLLAGEN FIBRILS THROUGH MMP-1: LIVE TRACKING OF MECHANICS THROUGH NANOINDENTATION</b> M. Rufin, S. Jaritz, G. J. Schütz, P. J. Thurner, O. G. Andriotis</p>

<p>location and dissected layer <u>I. Rios-Ruiz</u>, M. Á. Martínez, E. Peña</p> <p>10:39am - 10:51am <b>GLOBAL AND LOCAL STIFFENING OF HUMAN THORACIC AORTAS UNDERGOING TEVAR IN VITRO: A MOCK-LOOP STUDY*</b></p> <p><u>E. Agrafiotis</u>, G. Sommer, C. Mayer, M. Grabenwöger, P. Regitnig, H. Mächler, G. A. Holzapfel</p> <p>10:51am - 11:03am Local Rupture Analysis of Atherosclerotic Human Carotid Plaques by Structural Imaging, DIC and Uniaxial Testing <u>S. Guvenir Torun</u>, P. de Miguel Munoz, H. Crielaard, H. J. Verhagen, A. van der Lugt, G. J. Kremers, A. C. Akyildiz</p> <p>11:03am - 11:15am <b>MECHANICAL CHARACTERIZATION OF PASSIVE MYOCARDIAL TISSUE PROPERTIES IN HEALTHY AND INFARCTED PORCINE HEARTS</b> <u>N. Laita</u>, M. Á. Martínez, M. Doblare, E. Peña</p> <p>11:15am - 11:27am <b>NON-HOMOGENEOUS GEOMETRICAL INFLUENCE ON RING-OPENING STRESS RECONSTRUCTION</b> <u>A. Utrera</u>, <u>M. Inostroza</u>, E. Rivera, D. Celentano, C. Garcia-Herrera</p> <p>11:27am - 11:39am Investigating local properties of atherosclerotic plaque caps using a tissue-engineered model <u>H. Crielaard</u>, T. B. Wissing, S. Guvenir Torun, P. de Miguel, R. M. Hengst, G. Kremers, F. J. H. Gijssen, K. van der Heiden, A. C. Akyildiz</p>	<p><b>3D PRINTED SOFT METAMATERIAL FORCE SENSORS FOR GAIT MONITORING USING TPU-GRAPHENE COMPOSITES</b> <u>I. Sanz-Pena</u>, N. Rubio Carrero, H. Xu, M. Hopkins</p> <p>10:52am - 11:04am <b>AN EXPERIMENTAL AND COMPUTATIONAL STUDY ON A PATIENTSPECIFIC 3D PRINTED TIGAL4V HEMIPELVIS PROSTHESIS</b> <u>L. Ciriello</u>, F. Danielli, R. Verga, F. Alemani, M. Cicero, J. F. M. Rodriguez, G. Pennati, L. La Barbera</p> <p>11:04am - 11:16am <b>CAN 3D-PRINTED VORONOI STRUCTURES REDUCE FRICTION IN ORTHOPAEDIC IMPLANTS?</b> <u>C. Hou</u>, I. Nemes-Károlyi, L. Pastrav, B. Vrancken, G. Kocsis, K. Denis, G. Szabenyi</p> <p>11:16am - 11:28am Additively manufactured microlattice structures for an innovative intervertebral device <u>F. Distefano</u>, G. Epasto, E. Guglielmino, R. Mineo</p>	<p>Dymke, W. R. Taylor, G. N. Duda, A. Trepczynski</p> <p>10:27am - 10:39am The effect of foot orientation modifications on knee joint biomechanics during different activities <u>Y. Wan</u>, L. Wade, P. McGuigan, J. Bilzon</p> <p>10:39am - 10:51am <b>CAN WALKING SPEED BE ACCURATELY ESTIMATED USING A MARKER-BASED GAIT EVENT DETECTION METHOD?</b> <u>T. Bonci</u>, F. Salis, K. Scott, L. Alcock, C. Becker, A. Cereatti, E. Gazit, C. Hansen, J. Hausdorff, W. Maetzler, P. Luca, L. Rochester, B. Sharrack, I. Vogiatzis, C. Mazzà</p> <p>10:51am - 11:03am Assessing the impact of a rehabilitation treatment with exoskeleton in pd: a musculoskeletal modelling approach <u>M. Romanato</u>, F. Fichera, F. Spolaor, D. Volpe, Z. Sawacha</p> <p>11:03am - 11:15am A Quality Check to Enable Reliable Multicentric Stereophotogrammetric Data Collection <u>K. Scott</u>, T. Bonci, L. Alcock, C. Hansen, L. Schwickert, E. Gazit, A. Cereatti, C. Mazzà</p> <p>11:15am - 11:27am <b>MUSCLE CONTRIBUTIONS TO CENTER OF MASS ACCELERATION IN SIMULATED CROUCH GAIT BY HEALTHY CHILDREN</b> C. Cardadeiro, F. João, R. Mateus, <u>A. P. Veloso</u></p> <p>11:27am - 11:39am <b>PROPRIOCEPTION, MUSCLE ACTIVITY AND TIBIAL TRANSLATION DURING HEEL STRIKE IN RUNNING: ROLE OF ACL SURGERY TYPE</b> <u>L. Bühl</u>, N. Bleichner, C. Nüesch, S. Müller, G. Pagenstert, C. Egloff, A. Mündermann</p>	<p><b>FROM SINGLE CELLS TO TISSUE LEVEL</b> <u>A. Stylianou</u>, K. Polemidiotou, F. Mpekris, T. Stylianopoulos</p> <p>10:39am - 10:51am Experimental investigation of Tropocollagen mechancis <u>A. Rohatschek</u>, P. Steinbauer, S. Baudis, P. Thurner</p> <p>10:51am - 11:03am Theoretical and Experimental Modelling of Cell and Tumour Growth B. Huxford, V. Kumar, L. McNamara, <u>E. McEvoy</u></p> <p>11:03am - 11:15am <b>COMBINED EXPERIMENTAL AND COMPUTATIONAL STUDY OF TENSIONAL HOMEOSTASIS IN CELL-SEEDED TISSUE-EQUIVALENTS</b> <u>D. Paukner</u>, J. F. Eichinger, J. D. Humphrey, C. J. Cyron</p> <p>11:15am - 11:27am <b>CREEP BEHAVIOR OF INDIVIDUAL COLLAGEN FIBRILS IN TENSION IS DEPENDENT ON CROSS-LINKING</b> M. Nalbach, N. Motoi, M. Rufin, <u>O. Andriotis</u>, G. Schitter, P. Thurner</p> <p>11:27am - 11:39am <b>PERFORMANCE OF LINEAR AND NONLINEAR APPROACHES IN TRACTION FORCE MICROSCOPY FOR COLLAGEN HYDROGELS</b> <u>A. Apollinar-Fernández</u>, J. Barrasa-Fano, M. Córdor, H. Van Oosterwyck, J. A. Sanz-Herrera</p>	<p>Lugt, A. Akyildiz, F. Gijssen</p> <p>10:27am - 10:39am A Bayesian constitutive model selection framework for biaxial mechanical testing of planar soft tissues: application to porcine aortic valves <u>A. Aggarwal</u>, L. T. Hudson, D. W. Laurence, C.-H. Lee, S. Pant</p> <p>10:39am - 10:51am <b>MECHANICAL PROPERTIES OF PLANTAR TISSUES: A COUPLED EXPERIMENTAL AND NUMERICAL APPROACH</b> <u>S. Pettenuzzo</u>, A. Berardo, E. Belluzzi, A. Pozzuoli, P. Ruggieri, R. Boscolo Berto, R. De Caro, E. L. Carniel, C. G. Fontanella</p> <p>10:51am - 11:03am <b>OPTIMIZATION OF SINGLE-SIDED NMR AND INDENTATION PROTOCOLS IN EVALUATING CARTILAGE STRUCTURE AND MECHANICS</b> <u>M. Berni</u>, C. Golini, C. Testa, N. F. Lopomo, L. Brizi, M. Baleani</p> <p>11:03am - 11:15am Structural mechanisms in soft fibrous tissues: Lessons from biomimetics <u>M. Sharabi</u></p> <p>11:15am - 11:27am <b>VISCOELASTIC PROPERTIES OF TUMOUR TISSUE: RELATION WITH STRUCTURE AND COMPOSITION</b> <u>A. Levillain</u>, C. B. Confavreux, M. Decaussin-Petrucci, E. Durieux, P. Paparel, K. Le-Bail Carval, L. Maillard, F. Bermond, D. Mitton, H. Follet</p> <p>11:27am - 11:39am Uniaxial tensile tests on human Fascia Lata: stress relaxation and failure phenomena from frozen cadavers L. Bonaldi, C. G. Fontanella, C. Stecco, <u>A. Berardo</u></p>	<p><b>MODELLING THE MECHANO-INFLAMMATORY REGULATION OF CHONDROCYTE IN EARLY OSTEOARTHRITIS</b> <u>M. Segarra-Queralt</u>, G. Piella, J. Noailly</p> <p>10:52am - 11:04am <b>A NOVEL TOP-DOWN NETWORK MODELLING APPROACH TO ESTIMATE CELL ACTIVITY IN MULTIFACTORIAL ENVIRONMENTS</b> <u>L. Baumgartner</u>, M. Á. González Ballester, J. Noailly</p> <p>11:04am - 11:16am <b>IN SILICO ANALYSIS OF THE INFLUENCE OF THE SUBSTRATE STIFFNESS ON THE EVOLUTION OF 3D CULTURES OF GLOBLASTOMA</b> <u>M. Pérez-Aliacar</u>, L. Palos, C. Bayona, J. Ayensa-Jiménez, I. Ochoa, M. Doblare</p> <p>11:16am - 11:28am Simulation of piezoelectric scaffold for bone regeneration <u>V. Badali</u>, M. Mohammadkhan, S. Checa, M. M.Zehn</p> <p>11:28am - 11:40am <b>CELLULAR SENEESCENCE IN A MECHANOBIOLOGICAL MODEL OF LONGITUDINAL BONE GROWTH OF THE FEMUR</b> <u>A. Lipphaus</u>, A. Wegener-Panzer, R.-B. Tröbs, U. Witzel</p>	<p>10:27am - 10:39am <b>TOLERANCE ANGLE DETERMINATION FOR PEDICULAR SCEW INSERTION</b> <u>L. Leblond</u>, Y. Godio-Rabouet, Y. Glard, M. Evin</p> <p>10:39am - 10:51am A web platform for data-driven real-time modeling and visualizing cardiovascular problems <u>N. Demo</u>, P. Siena, M. Girfoglio, M. Conti, G. Rozza, F. Auricchio</p> <p>10:51am - 11:03am <b>A BONE-REMODELING DRIVEN NUMERICAL FRAMEWORK FOR HIP PROSTHESIS DESIGN</b> <u>F. Rotini</u>, S. Marconi, G. Alaimo</p> <p>11:03am - 11:15am <b>EVALUATION OF PHARMACOLOGICAL TREATMENTS FOR OSTEOPOROSIS USING DXA-BASED 3D FINITE ELEMENT MODELS</b> <u>C. Ruiz Wills</u>, M. Qasim, R. Winzenrieth, S. Di Gregorio, L. Del Rio, L. Humbert, J. Noailly</p> <p>11:15am - 11:27am <b>INFLUENCE OF PLATE DESIGN ON SUBCONDYLAR FRACTURE FIXATION: A COMPARATIVE FINITE ELEMENT ANALYSIS</b> <u>A. GUPTA</u>, A. DUTTA, K. MUKHERJEE</p> <p>11:27am - 11:39am Left Ventricular Assist Device surgical optimisation using Computational Fluid Dynamics <u>G. B. López-Santana</u>, A. De Rosis, A. Keshmiri</p>	<p>10:27am - 10:39am Experimental validation of a mechanistic model of the Berlin Heart EXCOR using a mock circulation loop <u>V. Yuan</u>, L. Rompani, F. De Gaetano, M. L. Costantino</p> <p>10:39am - 10:51am Reproducible generation of predefined tibia fractures <u>K. Wickert</u>, M. Roland, A. Andres, S. Diebels</p> <p>10:51am - 11:03am How does kinematic alignment influence femorotibial kinematics in medial stabilised TKA compared to mechanical alignment? <u>L. Bauer</u>, M. Woiczinski, C. Thorwächter, P. Müller, B. Holzapfel, T. Niethammer, J.-M. Simon</p> <p>11:03am - 11:15am <b>DESIGN OF BIOMECHANICAL TESTING DEVICE FOR THE PELVIS INCLUDING GAIT MUSCLE FORCES</b> <u>A. Soliman</u>, P.-L. Ricci, S. Kedziora, J. Kelm, T. Gerich, S. Maas</p> <p>11:15am - 11:27am Development of a physical twin for cardiovascular life-support devices analysis and comparison <u>E. Vignali</u>, E. Gasparotti, F. Bardi, S. Prizio, D. Haxhiademi, P. Del Sarto, S. Celi</p> <p>11:27am - 11:39am <b>Mechanical performance of hybrid fibrous structures for tendon repair</b> T. Peixoto, M. A. Lopes, R. Fangueiro, <u>R. M. Guedes</u></p>
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11:45am - 12:30pm	Keynote lecture 1: Personalized modeling of Alzheimer's disease, Ellen Kuhl
12:30pm - 1:15pm	Lunch Break
1:15pm	<b>PS1: Poster session 1</b>
2:00pm	<p><b>A voronoi-based homogenization method for trabecular microachitecture based on patient-specific micro-CT</b> <u>Z. Li</u>, S. Zhu, Z. Wu</p> <p><b>SIMUALTION OF CELLULAR PROLIFERATION USING THE RPMI MESHLESS METHOD</b> <u>M. I. Araújo Barbosa</u>, J. A. O. Pinto Belinha, R. Natal Jorge, A. Xavier de Carvalho</p> <p><b>BIOMECHANICAL FINITE ELEMENT METHOD MODEL OF THE PROXIMAL CARPAL ROW AND EXPERIMENTAL CHARACTERIZATION OF THE INTEROSSEOUS</b> <u>R. Marqués</u>, J. Melchor, G. Rus, P. Hernández, O. Roda, I. Sánchez-Montesinos</p> <p><b>A NUMERICAL APPROACH TO THE CALLUS FORMATION IN BONE FRACTURE HEALING</b> <u>J. M. Naveiro</u>, L. Gracia, J. Rosell, S. Puértolas</p> <p>Intracranial Aneurysm Predictions With The Use Of Morphometric Features In a Machine Learning Approach <u>N. Aristokleous</u>, K. G. Achilleos, M. Hadjicharalambous, A. S. Anayiotos, C. S. Pattichis, V. Vavourakis</p>

**OVERCOMING A "FORBIDDEN PHENOTYPE": THE PARROT'S HEAD SUPPORTS, PROPELS, AND POWERS TRIPEDAL LOCOMOTION**

M. W. Young, E. Dickinson, N. D. Flaim, M. C. Granatosky

**On the hindlimb biomechanics of the avian take-off leap**

E. Meilak, P. Provini, C. Palmer, N. J. Gostling, M. O. Heller

**SALBUTAMOL TRANSPORT AND DEPOSITION IN THE CAT AIRWAYS UNDER DIFFERENT BREATHING CONDITIONS AND PARTICLE SIZES**

R. Fernandez-Parra, C. Reinerio, P. Pey, M. Malve

**Evaluation of trunk muscle antagonism predictions by multi-body models**

A. Caimi, S. J. Ferguson, D. Ignasiak

**ASSESSMENT OF SAGITTAL BALANCE IN THE DISTAL JUNCTIONAL PATHOLOGY IN THE LUMBAR SPINE: A RETROSPECTIVE ANALYSIS**

S. Montanari, C. Griffoni, L. Cristofolini, G. Barbanti Brodano

**THE INFLUENCE OF THE GRADE OF DISC DEGENERATION ON THE BIOMECHANICAL RESPONSE OF LUMBAR SPINE**

K. Khalaf, Z. Khoz, M. Nikkhoo

**Recreating articular cartilage's zonal fibre alignment on 3D electrospun scaffolds**

A. Semitela, A. L. Pereira, A. Capitão, A. F. Mendes, P. A. A. P. Marques, A. Completo

**BIOMECHANICAL CHARACTERIZATION OF TPMS SCAFFOLDS FOR BONE AND CARTILAGE TISSUE ENGINEERING**

J. E. Santos, A. Lombard, T. Pires, A. P. G. Castro, P. R. Fernandes

**DESIGN AND EXPERIMENTAL STUDY OF TORSIONAL WAVE BIOREACTOR TO EVALUATE EFFECT ON MELANOMA STEM CELL**

M. Hurtado, C. Griñán-Lisón, G. Jiménez, E. López, D. Martínez-Moreno, M. J. Jiménez, J. A. Marchal, J. M. Melchor, G. Rus

**Hybrid membrane as innovative materials for biomedical applications**

M. Todesco, A. Martella, S. Imran, M. Casarin, G. Gerosa, C. G. Fontanella, A. Bagno

**A BIOINSPIRED ORTHOPAEDIC BIOMATERIAL WITH TUNABLE MECHANICAL PROPERTIES BASED ON SINTERED TITANIUM FIBRES**

M. Rüger, A. Seitz, K. Nuss, B. von Rechenberg, D. Seitz, C. Kostmann, P. Quadbeck, O. Andersen, C. Collins

**EFFECTS OF POLOXAMER ADDITIVES ON STRENGTH, INJECTABILITY OF BETA-TRICALCIUM PHOSPHATE CEMENT**

Y. Kim, K. Hamada

**Gelatin/cellulose nanofibril composite: a promising formulation for injection and bioprinting purposes**

S. Nejati, L. Mongeau

**EFFECT OF CONDUCTION GAPS AND INCREASED COLLECTOR ROTATION SPEED ON ELECTROSPUN PCL MATRICES**

E. G. Bissacco, A. Amicone, M. X T Santschi, S. J Ferguson

**BIOLOGICAL AND MECHANICAL PROPERTIES OF AN EXPERIMENTAL DENTAL ALGINATE MODIFIED FOR SELF DISINFECTION**

L. Singer, C. SzeKat, G. Bierbaum, C. Bourauel

**PRELIMINARY APPROACH OF AN ALTERNATIVE SOLUTION FOR THE BREAST IMPLANT SHELL**

A. M. Teixeira, A. D. André, B. Areias, P. Martins

**Evaluation of marker-based motion capturing to characterize basic hand movements in rheumatic patients**

B. L. Coppens, S. Heinrich, U. Puthane, D. Berisha, K. Tascilar, A. Kleyer, D. Simon, J. Bräunig, J. Penner, M. Vossiek, V. Schönau, S. Bayat, G. Schett, S. Leyendecker, A.-M. Liphardt

**QUANTIFICATION OF POST-OPERATIVE CORRECTION OF FOOT POSTURE THROUGH NEW ANATOMICAL REFERENCE SYSTEMS**

M. Conconi, A. Pompili, N. Sancisi, A. Leardini, S. Durante, C. Belvedere

**THE KINEMATICS OF THE FOOT DURING DROP JUMPS: A SIX-SEGMENT FOOD MODEL APPROACH**

L. Fennen, R. Dubbeldam, H. Wagner

**TIGHTLY COUPLED INERTIAL AND RADIO-BASED FOOT-WORN SENSORS FOR AMBULATORY SPATIAL GAIT ANALYSIS**

F. J. Wouda, I. Bilal, U. Sakthivelu

**EFFECTS OF HANDLE-HEIGHT ON GAIT KINETICS IN OLDER ADULTS WHILE WALKING WITH A ROLLATOR**

M. A Avalos, Y.-H. Kwon, K. Tulching-Francis, D. Nichols, J. Zhang, N. Tuttle

**EFFECT OF SENSOMOTORIC INSOLES ON POSTURAL STABILITY IN KIDS WITH CEREBRAL PALSY**

S. Bartošová, V. Nováček

**ULTRASOUND IMAGING OF BONE CORTEX: BEAMFORMING OPTIMIZATION FOR OSTEOPOROTIC BONES**

A. Sall Dia, G. Renaud, Q. Grimal

**ESTIMATION OF WALL VISCOELASTIC PARAMETERS FROM THE PRESSURE AND DIAMETER CURVE OF A CAROTID ARTERY**

K. Rheg, J. Shin

**USING HYPER- OR LINEAR- PROPERTIES DOES NOT AFFECT PREDICTIVE CAPABILITY OF VULNERABLE CORONARY PLAQUES**

M. Stefanati, G. Dubini, M. R Bennett, Z. Teng, J. F. Rodriguez Matas

**Analysis of the influence of plaques composition and geometry on drug transport from drug eluting stents**

J. Escuer, E. Peña, E. Pina, M. A. Martínez

**Numerical study of non-Newtonian effects on thrombus formation under venous flow conditions**

V. Dušková, A. Jonášová, S. Plánička, J. Vimmr

**The effect of tissue preservation on the mechanical behavior of porcine aorta**

H. Fehervary, K. Vander Linden, M. Pétré, N. Famaey

**NUMERICAL ANALYSIS OF THE HEMODYNAMICS AND PERFORMANCE OF A MINIATURE VENTRICULAR ASSIST DEVICE**

Y. Gabso, M. Rosenfeld, I. Avrahami

**CHANGES IN NUCLEAR MORPHOLOGY CORRELATE WITH INVASIVENESS IN BREAST CANCER CELLS**

B. Zbiral, A. Weber, M. d. Vivanco, J. L. Toca-Herrera

**CULTURE OF PORCINE BONE EXPLANTS UNDER COMPRESSIVE LOADING**

E. E. A. Cramer, L. M. Kock, D. Wanders, K. Ito, S. Hofmann

**COMPUTATIONAL MODELING REVEALS ROLE OF PROXIMITY-DRIVEN, NONCONTACT CELL-CELL INTERACTIONS IN CANCER INVASIVENESS**

M. Tulchinsky, [D. Weihs](#)

**Cell's Sense of Slope**

[C. Frascogna](#), V. Panzetta, P. A. Netti

**MICROFLUIDIC PLATFORM TO STUDY THE ROLE OF DYNAMIC MECHANICAL LOADING ON CELL FATE AND BEHAVIOR**

[S. Saporito](#), V. Panzetta, P. A. Netti

**Large-scale quantification of osteocyte morphometry and protein expression from murine bone histology**

[F. Correia Marques](#), D. Yilmaz, E. Wehrle, R. Müller

**MECHANICAL ASPECTS OF DRUG-COATED BALLOON ANGIOPLASTY DETERMINING THE EFFICIENCY OF THE COATING TRANSFER**

[E. Stratakos](#), L. Petrini, G. Pennati

**PROXIMAL FEMUR BONE MINERAL DENSITY IN OSTEOPOROTIC PATIENTS: A REVIEW OF PLACEBO GROUPS IN CLINICAL TRIALS**

[S. Oliviero](#), M. Viceconti

**Growth orientation, and not heterogeneous growth rates, dominates zebrafish jaw joint morphogenesis**

[J. Godivier](#), E. A. Lawrence, C. L. Hammond, N. C. Nowlan

**NETWORK MODELLING FOR NUCLEUS PULPOSUS CELL ACTIVITY IN EARLY INTERVERTEBRAL DISC DEGENERATION**

[S. Tseranidou](#), M. Segarra-Queralt, J. Piñero, J. Noailly

**Plantar pressure data reconstruction based on reduced data using compressive sensing technique**

[Z. Kamal](#), E. Hekman, G. Verkerke

**COMPARISON BETWEEN TRANSTIBIAL AND ANTEROMEDIAL PORTAL ACL RECONSTRUCTION THROUGH FINITE ELEMENT ANALYSIS**

[K. Risvas](#), K. Moustakas

**NON-INVASIVE METHOD OF FRACTIONAL FLOW RESERVE ESTIMATION IN PATIENTS SUFFERING FROM ISCHEMIC HEART**

[K. Jankowski](#), A. Nieroda, M. Pawlikowski

**THE INFLUENCE OF THE IMPLANT GEOMETRY CONCEPTS IN BONE STRAINS DISTRIBUTION**

C. Gomes, M. Mesnard, [A. Ramos](#)

**Precision Rehabilitation: Targeted assistance of individual muscles via exoskeletons**

T. Rodrigues, J. Ferreira, H. van der Kooij, M. Sartori, [G. Durandau](#)

**In Vitro Ovine Model Confirms Importance of Screw Positioning for Stability of Bone-Fracture Treatment**

T. Zumbrunn, [S. Comtesse](#), A. von Keudell, S. J. Ferguson

**DEVELOPMENT AND VALIDATION OF CUSTOM-MADE MARKER SETS FOR MICRO-MOVEMENT ANALYSIS**

M. Sukopp, J. Schwer, L. de Roy, A. Ignatius, [A. M. Seitz](#)

**An inverse dynamic active hybrid model to predict effects of the intra-abdominal pressure on the lumbar spine**

[R. Remus](#), A. Lipphaus, A. Hoffmann, M. Neumann, B. Bender

**Forward dynamic simulation of a detailed thoracolumbar spine model under gravitational load**

[M. Hammer](#), L. Meszaros-Beller, J. M. Riede, S. Schmitt

**VERTEBRAL BODY TETHERING VS SPINAL FUSION: LOOKING BEYOND THE RADIOGRAPHICAL OUTCOME**

[T. Ackermans](#), S. Schelfaut, P. Severijns, A. Van Campenhout, L. Moke, P. Moens, L. Scheyns

**ASSESSING BONE ULTRASTRUCTURE VIA NANOSCALE X-RAY COMPUTED TOMOGRAPHY AND QUANTITATIVE POLARIZED RAMAN SPECTROSCOPY**

[T. Kochetkova](#), T. Kormilina, S. Englisch, D. Drobek, J. Wirth, B. Apeleo Zubiri, O. Braun, M. Calame, S. Remund, B. Neuenschwander, J. Michler, P. Zysset, E. Spiecker, J. Schwiedrzik

**THE EFFECT OF MICROSTRUCTURAL ANISOTROPY ON LOAD-BEARING CAPACITY OF THE ENTIRE HUMAN FEMUR**

M. Branni, M. Taylor, E. Perilli, [S. Martelli](#)

**Internal Strain Field of a Human Tibia with Titanium Tibial Tray during Stair Descent: A micro-CT and DVC Analysis**

[L. S Wearne](#), S. Rapagna, M. Awadalla, M. Taylor, E. Perilli

**UNDERSTANDING BONE MATURITY: PROPERTIES AT THE INTERSTITIAL AND OSTEONAL LAMELLAR LEVEL**

A. Bonicelli, H. McGivern, E. F. Kranioti, B. Xhemali, [P. Zioupos](#)

**Graft positioning during the Latarjet procedure: computational analysis of shoulder stability and contact**

R. Martins, [C. Quental](#), J. Folgado, C. de Campos Azevedo, A. C. Ângelo

**EFFICACY OF KARTING NECK BRACES IN REDUCING NECK INJURIES IN ROLLOVER ACCIDENTS: A FINITE ELEMENT STUDY**

[W. WEI](#), M.-H. Beauséjour, N. Bailly, M. Llari, Z. Xiao, P. Panichelli, P.-J. Arnoux

**BIOMECHANICAL ANALYSIS OF THE CORRELATION BETWEEN MID-SHAFT ATYPICAL FEMORAL FRACTURE AND VARUS DEFORMATION**

[M. Severyns](#), D. Belaid, K. Aubert, T. Vendeuvre, A. Germaneau

**COMPARISON OF THE LOWER EXTREMITY DYNAMICS OF THE ELDERLY FEMALE, HIII 50TH MALE AND HIII 5TH FEMALE DUMMIES**

[A. Schäuble](#), F. Zippel, T. Wackenroder, P. Rucker, T. Kinsky

**Numerical simulation of stress-shielding at the bone-implant interface under shear loading**

Y. Hériveaux, S. Le Cann, M. Fraulob, [E. Vennat](#), V.-H. Nguyen, G. Haïat

**LOW-PROFILE DUAL MINI-FRAGMENT PLATING OF DIAPHYSEAL CLAVICLE FRACTURES. A BIOMECHANICAL STUDY.**

T. Pastor, M. Knobe, [D. Ciric](#), I. Zderic, B. J. van de Wall, I. F. Rompen, L. Visscher, B. C. Link, R. Babst, G. Richards, B. Gueorguiev, F. J. Beeres

**BIOMECHANICAL ANALYSIS OF SEVERAL HINGED TKA FEATURES IN WELL-ALIGNED AND VALGUS/VALGUS KNEE**

[E. Bori](#), F. Armaroli, L. Maestripietri, B. Innocenti

**Intramedullary nails vs. bone plate at the proximal humerus - Computersimulation**

[S. Lehner](#)

**FORCE AND SWIMMING PERFORMANCE: POOL AND OPEN WATER**

[P. CHAINOK](#), R. Masjui, N. Phewkham, P. Tummark, R. Zacca

**Musculoskeletal analysis of elbow stability for common injury patterns**

**FEASIBILITY STUDY TO TRANSFER MUSKULOSKELETAL MODEL DATA TO A 6 DOF JOINT SIMULATOR**

P. Henke, L. Ruehrmund, M. Keppach, J.-O. Sass, I. Soodmand, E. Kleist, C. Woernle, R. Bader

**Effect of coracoacromial ligament release in shoulder biomechanics: a preliminary in-vitro study**

I. Santos, K. Borst, S. Hoffmann, Y. Chevalier, H. Traxler, P. E. Müller, M. Pietschmann

**Implementation of an automated method for the selection of subject-specific muscle insertion points**

V. Maioli, G. Biesso, I. Fleps, S. Ferguson, P. Vena, B. Helgason, A. Baker

**A PIPELINE TO CONVERT OPENSIM MUSCULOSKELETAL MODELS INTO MUJOCO PRESERVING ANATOMICAL CONSISTENCY**

H. Wang, V. Caggiano, G. Durandau, V. Kumar, M. Satori

**Modelling the eye lens: influence of capsular thickness on lens accommodation**

L. Ye, K. P. Barbara

**CHARACTERIZATION OF CORNEAL VISCOSITY USING TORSIONAL WAVES**

J. M. Cortés Cortés, A. M. Callejas Zafra, I. Hatem Faris, G. Rus Carlborg

**BIOMECHANICAL CHARACTERIZATION AND MODELING OF HUMAN LENTICULES**

M. H. Nambiar, L. Liechti, H. Studer, A. S. Roy, T. G. Seiler, P. Büchler

**A MESHLESS METHOD TO STUDY THE EFFECT OF VEGF DIFFUSION IN CAPILLARY NETWORK MORPHOLOGY**

T. Sousa, A. Guerra, J. Belinha, R. Natal Jorge

**UNUSUAL PHALANGAL PROPORTIONS IMPROVE GRASPING POTENTIAL IN BIRDS, MAMMALS, AND BIOINSPIRED DESIGN**

M. Granatosky, M. Young, N. Flaim, L. Faltings, M. Singh, E. Dickinson

**DESIGN AND EXPERIMENTAL STUDY OF ULTRASONIC WAVE BIOREACTOR TO EVALUATE EFFECT ON TUMORS**

M. Hurtado, C. Griñán-Lisón, G. Jiménez, E. López, D. Martínez-Moreno, J. A. Marchal, J. M. Melchor, G. Rus

**NUMERICAL AND EXPERIMENTAL EVALUATION OF THE BULGE TEST IN THE CHARACTERISATION OF THE BIOLOGICAL SOFT TISSUES**

E. Gasparotti, S. Quartieri, E. Vignali, F. Bardi, R. Lazzeri, S. Celi

**ADAPTIVE QUASI-LINEAR MODEL – UNIVERSAL MATERIAL PARAMETERS OF LIVER TISSUE FOR DIFFERENT LOAD CASES?**

M. Frank, O. J. Aryeetey, S.-J. Esterman, D. H. Pahr

**ESTIMATION OF TIBIA AXES ON PARTIAL DISTAL SCANNER IMAGES : A NOVEL APPROACH IN THREE DIMENSIONS**

M. S. Dufrenot, S. Siegler, M. Donnez, M. Donnez, F. Lintz, P. Chabrand

**BIOMECHANICAL ANALYSIS OF RUNNING AND ASSOCIATED INJURES BASED ON A LITERATURE REVIEW**

M. L. Martínez Pinedo, L. D. Parra Gómez, C. Cifuentes-De La Portilla

<p>2:00pm - 3:30pm</p>	<p><b>TR01.3: Clinical Biomechanics Awards Session</b> Location: Archive Hall</p> <p>2:00pm - 2:12pm <b>BIOMECHANICS INDEX FOR DIABETIC FOOT RISK CLASSIFICATION</b> A. Guiotto, G. Bortolami, A. Ciniglio, F. Spolaor, G. Guarneri, A. Avogaro, F. Cibin, F. Silvestri, <u>Z. Sawacha</u></p> <p>2:12pm - 2:24pm <b>Biomechanical Evaluation of Diagnostic Tests for Rotator Cuff Lesions</b> <u>J. Menze</u>, T. Rojas, M. A. Zumstein, S. J. Ferguson, K. Gerber</p> <p>2:24pm - 2:36pm <b>EFFECT OF ALENDRONATE ON BONE FRACTURE TOUGHNESS IN OSTEOGENESIS IMPERFECTA</b> <u>A. Muñoz</u>, A. Carriero</p> <p>2:36pm - 2:48pm <b>APPLICATION OF COG THREADS FOR VAGINAL WALL PROLAPSE REPAIR: EX-VIVO STUDY</b> R. Rynkevici, C. Soares, L. Hympanova, <u>E. Silva</u>, T. Mascarenhas, P. Martins</p>	<p><b>TR02.3: Implants / orthotics / prosthetics / devices III: Fracture repair</b> Location: Infante Hall</p> <p>2:00pm - 2:25pm <b>MODELLING MECHANICAL DEMANDS ARISING FROM CLINICAL REQUIREMENTS FOR FRACTURE FIXATION</b> <u>P. Pankaj</u></p> <p>2:25pm - 2:37pm <b>Light-Curable Fixation Comparable with Plates in Torsion</b> <u>P. Schwarzenberg</u>, T. Colding-Rasmussen, D. J. Hutchinson, D. Mischler, P. Horstmann, M. Moerk Peterson, M. Malkoock, C. Wong, P. Varga</p> <p>2:37pm - 2:49pm <b>Articular contact vs. embedding: The effect of boundary conditions on volar plate fixation at the distal radius</b> L. Berger, D. H. Pahr, <u>A. Synek</u></p> <p>2:49pm - 3:01pm <b>AFFORDABLE SOLUTION FOR LOW AND MIDDLE-INCOME COUNTRIES: UNILATERAL EXTERNAL FIXATOR</b> <u>M. Saeidi</u>, S. Barnes, M. Berthoume, S. R. Holthof, A. M. J. Bull, J. Jeffers</p> <p>3:01pm - 3:13pm <b>BIOMECHANICAL ANALYSIS OF</b></p>	<p><b>TR03.3: Hard tissue I: Tissue interactions / devices III: Fracture repair</b> Location: D. Maria Hall Chair: <u>Uwe Wolfram</u> Chair: Pia Stefanek</p> <p>2:00pm - 2:25pm <b>MINERALIZED FIBROCARILAGE AS A HIGHLY TUNABLE TISSUE ALLOWING THE INTEGRATION OF TENDON INTO BONE</b> <u>D. Ruffoni</u></p> <p>2:25pm - 2:37pm <b>COLD-WATER CORALS RETAIN OUTSTANDING TISSUE STRENGTH BUT LOSE TISSUE STIFFNESS IN ACIDIFIED WATERS</b> <u>U. Wolfram</u>, M. Peña Fernández, S. McPhee, E. Smith, R. Beck, J. Shephard, M. Roberts, S. Hennige</p> <p>2:37pm - 2:49pm <b>DEGREE OF MINERALIZATION AND MINERALIZED COLLAGEN FIBRE ORIENTATION PREDICTS THE ELASTIC MODULUS OF BONE IN OSTEOGENESIS IMPERFECTA</b> <u>M. Indermaur</u>, T. Kochetkova, D. Casari, B. Willie, J. Michler, J. Schwiedrzik, P. Zysset</p> <p>2:49pm - 3:01pm <b>Thermal Activation Analysis of Hydrated Lamellar Ovine Bone</b> <u>C. R. P. Peruzzi</u>, T. Kochetkova, S. Remund, B. Neuenschwander, J. Michler, J. Schwiedrzik</p> <p>3:01pm - 3:13pm <b>Mineral content and biomechanical properties of fibrolamellar bone</b></p>	<p><b>TR04.3: Musculoskeletal biomechanics I: Multiple topics</b> Location: D. Luis Hall Chair: <u>Ilse Jonkers</u></p> <p>2:00pm - 2:25pm <b>MECHANOSENSING IN BONE USING FLUID FLOW THROUGH NETWORKS</b> <u>R. Weinkamer</u></p> <p>2:25pm - 2:37pm <b>A REPRESENTATIVE VOLUME ELEMENT FOR BONE EXTRACELLULAR MATRIX</b> <u>E. Alizadeh</u>, D. Casari, J. Michler, J. Schwiedrzik, P. Zysset</p> <p>2:37pm - 2:49pm <b>TEMPORAL CHANGES IN THE BONE MICROENVIRONMENT PRIOR TO AND FOLLOWING OVERT BREAST-CANCER OSETOLYSIS</b> <u>A. S. Verbruggen</u>, R. M. Dwyer, E. C. McCarthy, L. M. McNamara</p> <p>2:49pm - 3:01pm <b>Towards an in silico bioregulatory model of osteogenesis and sprouting angiogenesis in 3D</b> <u>L. Lafuente-Gracia</u>, M. Barzegari, L. Geris</p> <p>3:01pm - 3:13pm <b>Altered mechanical loading in amputees results in mild signs of knee degeneration 8 years post trauma</b> <u>F. P. Behan</u>, A. N. Bennett, A. M. J. Bull</p> <p>3:13pm - 3:25pm <b>FATIGUE ANALYSIS USING ELECTROMYOGRAPHY</b></p>	<p><b>TR05.3: Soft tissue biomechanics III</b> Location: Porto Hall Chair: <u>José Félix Rodríguez Matas</u> Chair: <u>Maria José Gómez-Benito</u></p> <p>2:00pm - 2:12pm <b>HIGH FIDELITY SIMULATION OF CEREBRAL ANEURYSM WITH FLOW-DIVERTER</b> <u>E. Hachem</u></p> <p>2:12pm - 2:24pm <b>A COMPUTATIONAL METHODOLOGY FOR STUDYING THE MURINE BLOOD-BRAIN BARRIER HEMODYNAMICS</b> S. Mañosas, A. Sanz, C. Ederra, A. Urbiola, E. Rojas de Miguel, A. Ostiz, I. Cortés, N. Ramírez, C. Ortiz de Solórzano, A. Villanueva, <u>M. Malve</u></p> <p>2:24pm - 2:36pm <b>HOW MACROSCOPIC TISSUE DEFORMATION AFFECTS THE BRAIN'S MICROSTRUCTURE</b> <u>N. Reiter</u>, F. Paulsen, S. Budday</p> <p>2:36pm - 2:48pm <b>Characterization of Mechanical Damage on the Esophageal Wall of Chronic-hypoxic Lambs</b> <u>A. Bezmalinovic</u>, C. García-Herrera</p> <p>2:48pm - 3:00pm <b>Non-linear homogenization of soft tissues: application to</b></p>	<p><b>TR06.3: Computational biology II</b> Location: Arrabida Hall Chair: <u>Maria Angeles Perez Anson</u> Chair: <u>Richie Gill</u></p> <p>2:00pm - 2:12pm <b>COMPUTATIONAL EVIDENCE FOR A MULTI-LAYER CROSSTALK BETWEEN CADHERIN-11 AND PDGFR SIGNALING</b> <u>Z. Karagöz</u>, F. Passanha, L. Roberst, M. van Griensven, V. L. S. LaPointe, A. Carlier</p> <p>2:12pm - 2:24pm <b>Unravelling the impact of prenatal muscle forces on the dynamic cell behaviours driving joint growth in mice</b> <u>J. Godivier</u>, Y. Huang, A. J. Bodey, C. L. Hammond, H. Isaksson, N. C. Nowlan</p> <p>2:24pm - 2:36pm <b>Agent-based simulations of bone remodelling including osteomorphs predict rapid bone loss post denosumab</b> <u>C. Ledoux</u>, D. Boaretti, J. J. Kendall, V. S. Cheong, P. Collins</p> <p>2:36pm - 2:48pm <b>A Multiscale, Mechanobiological Model of Cortical Bone Adaptation due to PTH and Mechanical Loading</b> <u>C. J. Miller</u>, E. Pickering, E. Dall'ara, V. S. Cheong, P. Pivonka</p> <p>2:48pm - 3:00pm <b>Agent-based in-silico model for Multiple Myeloma tumor growth analysis</b> <u>P. Urdetix</u>, M. H. Doweidar</p> <p>3:00pm - 3:12pm <b>IN SILICO IMMUNOFLUORESCENCE: A NOVEL APPROACH TO CALIBRATE</b></p>	<p><b>TR07.3: Ocular biomechanics I</b> Location: Miragaia Hall Chair: <u>Miguel Angel Ariza Gracia</u> Chair: <u>Philippe Buechler</u></p> <p>2:00pm - 2:25pm <b>The biomechanics of the eye lens and accommodative system: clinical opportunities and biomechanical challenges</b> <u>B. Pietschonek</u>, K. Wang</p> <p>2:25pm - 2:37pm <b>TISSUE BIOMECHANICS AND PARAMETER IDENTIFICATION OF EX VIVO PORCINE CORNEAL TISSUE</b> <u>M. H. Nambiar</u>, L. Liechti, F. Mueller, W. Bernau, T. G. Seiler, P. Büchler</p> <p>2:37pm - 2:49pm <b>A MECHANICAL MODEL OF EXUDATIVE MACULAR OEDEMA</b> <u>A. Ruffini</u>, M. Dvoriashyna, R. Repetto</p> <p>2:49pm - 3:01pm <b>Mechanical Modeling Of Localized Cross-Linking Pattern In Human And Porcine Corneas</b> <u>M. Frigelli</u>, P. Büchler, S. Kling</p> <p>3:01pm - 3:13pm <b>A THEORETICAL MODEL OF AQUEOUS HUMOUR PRODUCTION</b> M. Dvoriashyna, A. J. E. Foss, E. A. Gaffney, <u>R. Repetto</u></p> <p>3:13pm - 3:25pm <b>DOES CORNEAL STIFFNESS PLAY A</b></p>	<p><b>TR08.3: 3D printing in biomedicine</b> Location: S. Joao Hall Chair: <u>Henrique Amorim Almeida</u></p> <p>2:00pm - 2:12pm <b>MECHANICAL PROPERTIES OF 3D-PRINTED GLASS-CERAMIC SCAFFOLDS ASSESSED THROUGH MICRO-CT-BASED FINITE ELEMENT MODELS</b> <u>L. D'Andrea</u>, F. Bairo, E. Verné, D. Gastaldi, P. Vena</p> <p>2:12pm - 2:24pm <b>3D BIOPRINTING OF ECM-BASED MULTI-LAYERED SEGMENTS OF TUBULAR CONSTRUCTS</b> <u>F. Potere</u>, G. A. Croci, P. Petrinì, F. Boschetti, S. Mantero</p> <p>2:24pm - 2:36pm <b>DESIGN AND FUNCTIONAL EVALUATION OF A 3D PRINTABLE CUSTOM PROSTHESIS FOR TALUS REPLACEMENT</b> <u>F. Danielli</u>, F. Berti, L. La Barbera, A. Nespoli, C. G. Fontanella, S. Pettenuzzo, T. Villa, L. Petrinì</p> <p>2:36pm - 2:48pm <b>MATRIGEL COAXIAL BIOPRINTING FOR IN VITRO CANCER MODELS</b> <u>P. DE STEFANO</u>, E. BIANCHI, M. BASHA, R. BIANCHI, G. DUBINI</p> <p>2:48pm - 3:00pm</p>
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	<p><b>HELICAL VERSUS STRAIGHT PLATING OF PROXIMAL THIRD HUMERAL SHAFT FRACTURES</b></p> <p><u>I. Zderic</u>, T. Pastor, K. van Knegsel, B.-C. Link, F. J. Beeres, F. Migliorini, R. Babst, S. Nebelung, B. Ganse, C. Schoeneberg, B. Gueorguiev, M. Knoke</p> <p>3:13pm - 3:25pm</p> <p><b>THE INFLUENCE OF SCREW CONFIGURATIONS ON LCP UNDER THE TIME-DEPENDENT CALLUS HEALING PROCESS</b></p> <p><u>Z. Li</u>, Z. Ding, S. Zhu, Z. Wu</p>	<p><u>A. Cantamessa</u>, P. Muraro, Y. Delaunoy, P. Compère, S. Blouin, M. A. Hartmann, D. Ruffoni</p> <p>3:13pm - 3:25pm</p> <p><b>OPTIMISING METHODS OF MODELLING OSTEOCHONDRAL GRAFTS IN HUMAN TIBIOFEMORAL JOINTS</b></p> <p>G. A. Day, A. C. Jones, M. Mengoni, <u>R. K Wilcox</u></p>	<p><b>DRIVEN MUSCULOSKELETAL TRUNK MODELS</b></p> <p><u>M. I. Mohamed Refai</u>, H. Wang, A. Moya-Esteban, M. Sartori</p>	<p>tendons and arteries</p> <p><u>C. Morin</u>, C. Hellmich, S. Avril</p> <p>3:00pm - 3:12pm</p> <p><b>MESH ANCHORING TECHNIQUE IN UTERINE PROLAPSE REPAIR SURGERY: A FINITE ELEMENT ANALYSIS</b></p> <p><u>E. Silva</u>, R. Rynkevici, S. Brandão, T. Mascarenhas, A. Augusto Fernandes</p> <p>3:12pm - 3:24pm</p> <p><b>PORCINE KNEE CARTILAGE MAPS DETERMINED WITH AUTOMATED INDENTATION AND CHARACTERIZED BY MACHINE LEARNING</b></p> <p>E. Hamsayeh Abbasi Niasar, <u>L. Li</u></p>	<p><b>MECHANOREGULATORY MODELS OF EARLY BONE FRACTURE HEALING</b></p> <p><u>E. Borgjani</u>, G. Nasello, C. Schlundt, K. Schmidt-Bleek, L. Geris</p> <p>3:12pm - 3:24pm</p> <p><b>Umbrella Sampling for the estimation of the free energy barrier of Pi release in myosin</b></p> <p><u>R. Manevy</u>, M. Caruel, F. Detrez, I. Navizet</p>	<p><b>ROLE IN POST-SURGICAL CORNEAL ECTASIA?</b></p> <p><u>B. Fantaci</u>, B. Calvo Calzada, J. Grasa Orús, M. A. Ariza Gracia</p>	<p><b>MECHANICAL REPLICA OF SOFT TISSUES: A STRUCTURAL APPROACH</b></p> <p><u>V. Serantoni</u>, C. Roubly, J. Boisson</p> <p>3:00pm - 3:12pm</p> <p>An in-silico model for cells extrusion in bioprinting</p> <p><u>G. Santesarti</u>, G. Vairo, F. Viola, R. Verzicco, M. Marino</p> <p>3:12pm - 3:24pm</p> <p><b>BIOMECHANICAL FAILURE BEHAVIOUR OF 3D PRINTED FEMORAL BONES COMPARED TO ARTIFICIAL AND HUMAN BONES</b></p> <p><u>K. Nägl</u>, A. Reisinger, D. H. Pahr</p> <p>3:24pm - 3:36pm</p> <p><b>FINITE ELEMENT MODELING OF BIPHASE CALCIUM PHOSPHATE BONE SCAFFOLDS: AN EXPLORATORY STUDY</b></p> <p>N. Rosa, S. Olhero, P. Torres, R. Natal, <u>M. Parente</u></p>	
3:30pm - 4:00pm	Coffee Break							
4:00pm - 5:00pm	<p><b>Student A.: ESB Student Award</b></p> <p>4:00pm - 4:12pm</p> <p><b>Assessing the performance of thrombectomy devices with in silico models</b></p> <p><u>S. Bridio</u>, G. Luraghi, P. R. Konduri, N. Arrarte Terreros, H. A. Marquering, C. B. Majoie, J. F. Rodriguez Matas, F. Migliavacca</p> <p>4:12pm - 4:24pm</p> <p><b>Predicting surgical outcomes across nine corrective techniques for sagittal craniosynostosis</b></p> <p><u>C. Cross</u>, R. H Khonsari, G. Paternoster, E. J Arnaud, D. Larysz, L. Kölbl, D. Johnson, Y. Ventikos, M. Moazen</p> <p>4:24pm - 4:36pm</p> <p><b>ANGIOGRAPHY-DERIVED WALL SHEAR STRESS TOPOLOGICAL SKELETON VARIABILITY PREDICTS MYOCARDIAL INFARCTION</b></p> <p><u>M. Lodi Rizzini</u>, A. Candraeva, D. Gallo, J.-P. Aben, C. Chiastra, C. Collet, U. Morbiducci</p> <p>4:36pm - 4:48pm</p> <p><b>Biomechanics and mechanobiology of mineralized fibrocartilage at the tendon-bone attachment</b></p> <p><u>A. Tits</u>, S. Blouin, M. Rummeler, J.-F. Kaux, P. Drion, G. H. van Lenthe, R. Weinkamer, M. A. Hartmann, D. Ruffoni</p>							
5:00pm - 6:00pm	<p><b>TR01.4: Cardiovascular biomechanics III: Treatment design &amp; clinical outcome</b></p> <p>Location: Archive Hall Chair: Nele Famaey Chair: Mathias Peirlinck</p> <p>5:00pm - 5:12pm</p> <p><b>Myocardial Biomechanics of Left Atrial Ligation Chick Embryonic Model of Hypoplastic Left Heart Syndrome</b></p> <p><u>S. S. Lashkarinia</u>, W. X. Chan, Z. Yu, H. B. Siddiqui, M. Coban, B. Sevgin, K. Pekkan, C. H. Yap</p> <p>5:12pm - 5:24pm</p> <p><b>Finite element simulations of the Cardioband procedure for the treatment of the regurgitant mitral valve</b></p> <p><u>E. Gasparotti</u>, E. Vignali, M. Mariani, S. Berti, S. Celi</p> <p>5:24pm - 5:36pm</p> <p><b>ON THE RELATIONSHIP BETWEEN KINETIC ENERGY AND HELICITY IN PROSTHETIC HEART VALVES HEMODYNAMICS</b></p> <p><u>D. Gallo</u>, M. D. De Tullio, U. Morbiducci</p> <p>5:36pm - 5:48pm</p> <p><b>A PHENOMENOLOGICAL DEGRADATION MODEL TO PREDICT THE LONG-TERM PERFORMANCE OF A POLYMERIC SCAFFOLD</b></p> <p><u>C. J. Fluzza</u>, K. Polak-Krasna, G. Poletti, L. Antonini, G. Pennati, W. Ronan, T. J. Vaughan</p> <p>5:48pm - 6:00pm</p>	<p><b>TR02.4: Implants / orthotics / prosthetics / devices IV: Total hip arthroplasty</b></p> <p>Location: Infante Hall Chair: Dennis Janssen</p> <p>5:00pm - 5:12pm</p> <p><b>A FINITE ELEMENT MODEL TO PREDICT THE RISK OF INTRAOPERATIVE FRACTURES IN NEW CEMENTLESS HIP STEM DESIGNS</b></p> <p><u>M. Petrucci</u>, A. A. La Mattina, C. Curreli, M. Viceconti</p> <p>5:12pm - 5:24pm</p> <p><b>Combined multibody and finite element analyses for the evaluation of the taper junction in THA</b></p> <p><u>G. Putame</u>, F. A. Bologna, M. Terzini, A. L. Audenino</p> <p>5:24pm - 5:36pm</p> <p><b>Femoral Fracture Prevention via Vibration Analysis during Total Hip Arthroplasty</b></p> <p><u>G. Athanassoulis Makris</u>, M. Timmermans, L. Pastrav, Q. Goossens, M. Mulier, G. Vles, W. Desmet, K. Denis</p> <p>5:36pm - 5:48pm</p>	<p><b>TR03.4: Patient-specific modelling I</b></p> <p>Location: D. Maria Hall Chair: Sebastian Laporte</p> <p>5:00pm - 5:12pm</p> <p><b>COMPARATIVE VALIDATION OF TWO PATIENT-SPECIFIC MODELLING PIPELINES FOR PREDICTIVE KNEE JOINT FORCES</b></p> <p><u>D. Princelle</u>, G. Davico, M. Viceconti</p> <p>5:12pm - 5:24pm</p> <p><b>SIGNATURE OF DISEASE PROGRESSION IN KNEE OSTEOARTHRITIS: INSIGHT FROM AN INTEGRATED MULTI-SCALE MODELING APPROACH</b></p> <p><u>I. Mohout</u>, A. Esrafilian, S. A. Elahi, B. A. Killen, R. K. Korhonen, S. Verschuere, F. Luyten, I. Jonkers</p> <p>5:24pm - 5:36pm</p> <p><b>SHOULD ROBOTIC-ASSISTED TKA RECONSTRUCT PREMORBID STAGE? THE EFFECTS OF OSTEOPHYTES ON KNEE FUNCTIONALITY</b></p> <p><u>P. Tzanetis</u>, K. de Souza, S. Robertson, R. Fluit, B. Koopman, N. Verdonschot</p> <p>5:36pm - 5:48pm</p> <p><b>Intra-subject variability of femoral growth simulations based on</b></p>	<p><b>TR04.4: Musculoskeletal biomechanics II: Upper limb</b></p> <p>Location: D. Luis Hall</p> <p>5:00pm - 5:12pm</p> <p><b>Effect of shape and size of supraspinatus tears in rotator cuff strain distribution: an in-vitro study</b></p> <p><u>I. Santos</u>, L. Pichler, C. Thorwächter, M. Saller, H. Traxler, P. E. Müller</p> <p>5:12pm - 5:24pm</p> <p><b>SHOULDER POSITIONING DURING SUPERIOR CAPSULAR RECONSTRUCTION: A COMPUTATIONAL ANALYSIS</b></p> <p><u>M. Antunes</u>, C. Quental, J. Folgado, C. de Campos Azevedo, A. C. Angelo</p> <p>5:24pm - 5:36pm</p> <p><b>THE POSITION OF THE SCAPULA INFLUENCES THE DISTANCE BETWEEN LIGAMENTOUS INSERTION OF THE AC AND CC LIGAMENTS</b></p> <p>J. C. Katthagen, J. Sušiek, M. J. Raschke, E. Herbst, F. Dyrna, O. Riesenbeck, J. Wermers, <u>S. Oenning</u></p> <p>5:36pm - 5:48pm</p> <p><b>GLENOHUMERAL JOINT FORCE PREDICTION WITH MACHINE LEARNING</b></p> <p><u>P. Eghballi</u>, F. Becce, P. Goetti, P. Büchler, D. Pioletti, A. Terrier</p>	<p><b>TR05.4: Soft tissue biomechanics IV</b></p> <p>Location: Porto Hall Chair: Dulce Oliveira Chair: Maria José Gómez-Benito</p> <p>5:00pm - 5:12pm</p> <p><b>In vivo unloading of rat Achilles tendons leads to a delayed collagen structural response to in situ loading</b></p> <p><u>I. Silva Barreto</u>, M. Pierantoni, M. Hammerman, A. Diaz, J. Engqvist, P. Eliasson, H. Isaksson</p> <p>5:12pm - 5:24pm</p> <p><b>Development of a finite element model to simulate childbirth-related injuries</b></p> <p><u>R. Moura</u>, D. Oliveira, M. Parente, T. Mascarenhas, R. Natal Jorge</p> <p>5:24pm - 5:36pm</p> <p><b>Mechanical characterization of the fetal membrane as a bilayer structure</b></p> <p><u>D. Fidalgo</u>, D. Oliveira, K. Myers, E. Malanowska, M. Parente, R. Natal</p> <p>5:36pm - 5:48pm</p> <p><b>MECHANICAL LOADING PROMOTES ANGIOGENESIS: A</b></p>	<p><b>TR06.4: Round table on Technology Transfer in Biomechanics</b></p> <p>Location: Arrabida Hall Mrs. Tine Van Lommel, Leuven Research and Development Mrs. Maria Oliveira, Start-up from Porto area I: Patricia Lopes, Materialise NV Markus Windolf, AO Foundation Prof. Wafa Skalli, ParisTech</p> <p>5:00pm - 5:12pm</p> <p><b>A detailed methodology to model the non contact tonometry: a fluid-structure interaction study.</b></p> <p><u>E. Redaelli</u>, J. Grasa Orús, J. F. Rodríguez Matas, B. Calvo Calzada, G. Luraghi</p> <p>5:12pm - 5:24pm</p> <p><b>A NOVEL TECHNIQUE FOR RETINA BIOMECHANICAL CHARACTERIZATION</b></p> <p><u>B. Belgio</u>, F. Berti, S. Mantero, F. Boschetti</p> <p>5:24pm - 5:36pm</p> <p><b>Computational study of retinal blood flow coupled to a global circulation model</b></p> <p><u>A. Casalucci</u>, L. O. Muller, A. Sivilgia, E. Toro, R. Repetto</p>	<p><b>TR07.4: Ocular biomechanics II</b></p> <p>Location: Miragaia Hall Chair: Miguel Angel Ariza Gracia Chair: Philippe Buechler</p> <p>5:00pm - 5:12pm</p> <p><b>A detailed methodology to model the non contact tonometry: a fluid-structure interaction study.</b></p> <p><u>E. Redaelli</u>, J. Grasa Orús, J. F. Rodríguez Matas, B. Calvo Calzada, G. Luraghi</p> <p>5:12pm - 5:24pm</p> <p><b>Spatially-Resolved Proteomics and Micromechanics of Human Meniscus</b></p> <p><u>M. Handelshauer</u>, O. G. Andriotis, M. Marchetti-Deschmann, P. J. Thurner</p> <p>5:24pm - 5:36pm</p> <p><b>Primary stability of a press-fit cup combined with impaction grafting in an acetabular defect model</b></p> <p><u>R. A. Schierjott</u>, G. Hettich, M. Baxmann, F. Morosato, L. Cristofolini, T. M. Grupp</p> <p>5:36pm - 5:48pm</p> <p><b>Permeability Test Bench for Characterizing Hard and Soft Scaffold</b></p>	<p><b>TR08.4: Experimental biomechanics II</b></p> <p>Location: S. Joao Hall Chair: Ingmar Fleps Chair: Ingmar Fleps</p> <p>5:00pm - 5:12pm</p> <p><b>Combining numerical and experimental approaches to assess the tangential debonding of coin-shaped implants</b></p> <p>Y. Hériveaux, <u>S. Le Cann</u>, K. Immel, E. Vennat, V.-H. Nguyen, R. A. Sauer, G. Haïat</p> <p>5:12pm - 5:24pm</p> <p><b>Computational study of retinal blood flow coupled to a global circulation model</b></p> <p><u>A. Casalucci</u>, L. O. Muller, A. Sivilgia, E. Toro, R. Repetto</p>

<p><b>A NOVEL MODEL FOR THE HEMODYNAMICS OF CEREBRAL ANEURYSMS TREATED WITH ENDOVASCULAR COILS BASED ON SYNCHROTRON IMAGING AND EXPERIMENTAL VALIDATION</b></p> <p>J. Romero Bhathal, S. Faisal, F. Chassagne, L. Marsh, M. Levitt, C. Geindreau, <u>A. Aliseda</u></p>	<p><b>DVC: A NEW DIAGNOSIS METHOD FOR MICROMOTION AND REMAINING ATTACHMENT LOOSENING OF HIP ARTHROPLASTY</b></p> <p><u>M. Severyns</u>, K. Aubert, V. Valle, T. Vendeuve, A. Germaneau</p> <p>5:48pm - 6:00pm <b>Advances in Fixation Strength of Reorientating Rectangular Triple Pelvic Innomate Osteotomy</b></p> <p>J. Richter, <u>D. Ciric</u>, K. Kalchschmidt, C. D'Aurelio, A. Pommer, J. Dauwe, B. Gueorguiev</p>	<p>personalized finite element models</p> <p><u>W. Koller</u>, A. Baca, H. Kainz</p> <p>5:48pm - 6:00pm <b>SUBJECT SPECIFIC LOWER LIMB ANTHROPOMETRIC REGRESSION WITH LONG, SHORT AND NO COUNTERMOVEMENT PERFORMANCE</b></p> <p><u>C. Rodrigues</u>, M. Correia, J. Abrantes, M. Benedetti, J. Nadal</p>	<p>5:48pm - 6:00pm <b>Personalised approach to restoration of arm function in people with tetraplegia: identifying muscle weakness</b></p> <p><u>M. Seyres</u>, D. Blana, N. Postans, R. J. O'Connor, S. Pickard, E. K. Chadwick</p>	<p><b>COMPUTATIONAL APPROACH</b></p> <p><u>A. Guerra</u>, J. Belinha, R. Natal Jorge</p>		<p>for Tissue Engineering Applications</p> <p><u>B. Masante</u>, S. Gabetti, C. Massini, R. Tassi, F. Mochi, C. Del Gaudio, A. Schiavi, D. Massai</p> <p>5:48pm - 6:00pm <b>INTEGRATING <math>\mu</math>CT AND INDENTATION PROTOCOLS TO ASSESS STRUCTURE AND MECHANICS OF ARTIFICIAL MENISCUS IMPLANTS</b></p> <p>M. Berni, <u>G. Marchiori</u>, M. Fini, M. Zingales, C. Trombino, S. Di Paolo, S. Zaffagnini, N. F. Lopomo, M. Baleani</p>
6:00pm - 7:00pm	Women in Biomechanics					
7:00pm - 9:30pm	Welcome Reception					



7:30am - 8:15am	Meet the PI - Student Breakfast networking event							
8:30am - 9:45am	<p><b>TR01.5: Implants / orthotics / prosthetics / devices V: Total knee arthroplasty</b> Location: Archive Hall Chair: William R. Taylor</p> <p>8:30am - 8:42am <b>IN VIVO CONTACT MECHANICS IN TOTAL KNEE ARTHROPLASTY IS GOVERNED BY THE IMPLANT CONFORMITY</b> <u>S. H. Hosseini Nasab, B. Szazi, C. Smith, P. Schütz, B. Postolka, W. R. Taylor</u></p> <p>8:42am - 8:54am Cruciate retaining total knee arthroplasty systems may be unsuccessful in avoiding anterior femoral shift despite different bearing geometry. <u>P. Moewis, H. Hommel, A. Trepczynski, L. Krahl, G. Duda</u></p> <p>8:54am - 9:06am <b>BIOMECHANICAL ANALYSIS OF FLEXIBLE FEMORAL CONES IN HINGED TOTAL KNEE ARTHROPLASTY</b> <u>B. Innocenti</u></p> <p>9:06am - 9:18am <b>DYNAMIC KNEE JOINT LINE ORIENTATION IS NOT A RELIABLE PREDICTOR OF CONTACT LOAD DYNAMICS IN VIVO</b> <u>A. Trepczynski, P. Moewis, P. Damm, P. Schütz, J. Dymke, H. Hommel, W. R. Taylor, G. N. Duda</u></p> <p>9:18am - 9:30am <b>UNDERSTANDING KNEE STABILITY AFTER TKA BY MEANS OF DYNAMIC VIDEOFLUOROSCOPY</b> <u>L. Rao, N. Meister, N. Horn, W. R. Taylor, B. Postolka, S. Preiss, P. Schütz</u></p> <p>9:30am - 9:42am <b>BIOMECHANICAL ANALYSIS OF DIFFERENT LEVEL OF CONSTRAINT IN TOTAL KNEE ARTHROPLASTY DURING DAILY ACTIVITIES</b> <u>E. Borj, S. Pianigiani, L. Rapallo, G. Innocenti, B. Innocenti</u></p>	<p><b>TR02.5: Cardiovascular biomechanics IV: Computational methods</b> Location: Infante Hall Chair: Selda Sherifova Chair: Stéphane Avril</p> <p>8:30am - 8:42am <b>SEGMENTATION AND MECHANICAL CHARACTERIZATION OF ATHEROSCLEROTIC PLAQUES.</b> <u>Á. T. Latorre Molins, M. A. Martínez Barca, M. Cilla Hernández, J. Ohayon, E. Peña Baquedano</u></p> <p>8:42am - 8:54am <b>ARTIFICIAL NEURAL NETWORK FOR PREDICTION OF MECHANICAL PROPERTIES OF ATHEROMA PLAQUE</b> <u>R. Caballero Masa, M. A. Martínez Barca, E. Peña Baquedano</u></p> <p>8:54am - 9:06am On the CFD Modelling of Hemodynamics in Unruptured Intracranial Aneurysms <u>P. Jeken Rico, A. Goetz, R. Nemer, P. Melliga, A. Larcher, J. Viquerat, A. F. Sanchez, Y. Özpeynirci, T. Liebig, E. Hachem</u></p> <p>9:06am - 9:18am <b>PULSE WAVE VELOCITY AS A GUIDE TO REDUCE THE MATERIAL PARAMETERSPACE IN ARTERIAL COMPUTATIONAL BIOMECHANICS</b> <u>L. Gheysen, L. Maes, N. Famaey, P. Segers</u></p> <p>9:18am - 9:30am <b>FLUID STRUCTURE INTERACTION MODELING OF COMPLIANT AORTIC VALVES USING THE LATTICE BOLTZMANN CFD AND FEM METHODS</b> <u>A. Morany, K. Lavon, R. Bardón, B. Kovarovic, A. Hamdan, D. Bluestein, R. Haj-Ali</u></p> <p>9:30am - 9:42am Computational Modelling of the Effect of Infarct Stiffening on Local Myofiber Mechanics <u>K. L. P. M. Janssens, M. Kraemer, P. H. M. Bovendeerd</u></p>	<p><b>TR03.5: Patient-specific modelling II</b> Location: D. Maria Hall Chair: Claudio Vergari</p> <p>8:30am - 8:42am <b>Towards a repository of patient-specific intervertebral discs finite element models</b> <u>E. Muñoz-Moya, M. Rasouligandomani, C. Ruiz Willis, G. Piella, J. Noailly</u></p> <p>8:42am - 8:54am <b>LUMBAR INTERVERTEBRAL DISC 3D SEGMENTATION FOR BIOMECHANICAL SIMULATION</b> <u>R. Matos, P. R. Fernandes, N. M. P. L. Matela, A. P. G. Castro</u></p> <p>8:54am - 9:06am <b>EFFECT OF INSTRUMENTATION INACCURACIES ON BIOMECHANICAL AND COMPUTATIONAL FAILURE RISK OF FRACTURE FIXATIONS</b> <u>D. Mischler, L. Tenisch, J. F. Schader, J. Dauwe, B. Gueorguiev, M. Windolf, P. Varga</u></p> <p>9:06am - 9:18am <b>VERTEBRAL STRENGTH PREDICTION FROM SINGLE ENERGY BIPLANAR RADIOGRAPHS</b> <u>C. Heidsieck, L. Gajny, J.-Y. Lazennec, C. Travert, W. Skalli</u></p> <p>9:18am - 9:30am <b>PATIENT SPECIFIC GROWTH MODEL FOR CRANIOSYNOSTOSIS</b> <u>M. Geoffroy, M. Abbad Andaloussi, P.-M. François, R. H. Khonsari, S. Laporte</u></p> <p>9:30am - 9:42am <b>MODELLING STRATEGIES FOR ORTHOGNATHIC SURGERY: MECHANICAL OPTIMIZATION OF PATIENT-SPECIFIC PLATES</b> <u>I. Rota, A. Giglio, F. Grecchi, M. Bonacina, D. Gastaldi</u></p>	<p><b>TR04.5: Tissue engineering I</b> Location: D. Luis Hall Chair: Gwendolien Reilly Chair: Alberto Sensini</p> <p>8:30am - 8:42am <b>PATIENT SPECIFIC OSTEOGENESIS IMPERFECTA BONE ORGANOID DEMONSTRATE INCREASED TISSUE MINERALIZATION</b> <u>J. K. Griesbach, A. de Leeuw, T. Minacci, P. J. Lim, M. Rüger, M. Rohrbach, C. Giunta, R. Müller</u></p> <p>8:42am - 8:54am <b>Towards controlled formation and resorption in a 3D human in vitro bone remodeling model.</b> <u>B. de Wildt, L. Cuyper, K. Ito, S. Hofmann</u></p> <p>8:54am - 9:06am <b>3D electropun arcade-like scaffolds for articular cartilage</b> <u>A. Semitela, C. Sousa, A. F. Mendes, P. A. A. P. Marques, A. Completo</u></p> <p>9:06am - 9:18am <b>Automated Parallel Bioreactor Platform Combining Perfusion and PEMF Stimulation</b> <u>S. Gabetti, F. Daou, B. Masante, G. Putame, A. Sanginario, E. Zenobi, F. Mochi, C. Del Gaudio, C. Bignardi, L. Rimondini, A. Cochis, D. Massai</u></p> <p>9:18am - 9:30am <b>WALL SHEAR STRESS ANALYSIS TOWARDS THE OPTIMAL DESIGN IN TPMS TISSUE ENGINEERING SCAFFOLDS</b> <u>T. Pires, A. P. G. Castro, P. R. Fernandes</u></p> <p>9:30am - 9:42am <b>COMPOSITE METHACRYLOYL GELATIN-BASED HYDROGELS FOR BONE TISSUE ENGINEERING APPLICATIONS</b> <u>G. Ciardelli, R. Laurano, R. Pappalardo, V. Chiono, M. Boffito</u></p>	<p><b>TR05.5: Spine biomechanics I</b> Location: Porto Hall</p> <p>8:30am - 8:42am <b>IN VITRO TESTING OF HYDROGELS FOR THE IVD THERAPY USING A NOVEL ORGAN CULTURE APPROACH: CHONDROITINASE OR PAPAINE?</b> <u>J. U. Jansen, G. Q. Teixeira, A. Vernengo, S. Grad, K. Benz, C. Neidinger-Wilke, H.-J. Wilke</u></p> <p>8:42am - 8:54am <b>USE OF DISPLACEMENTS FIELD TO VALIDATE SUBJECT-SPECIFIC FINITE ELEMENT MODELS OF SPINE SEGMENTS WITH METASTASIS</b> <u>C. Garavelli, C. Curreli, A. Aldieri, E. Paoli, M. Palanca, L. Cristofolini, M. Viceconti</u></p> <p>8:54am - 9:06am <b>DESIGN AND CHARACTERISATION OF A NOVEL TI-PVA/PAAM ARTIFICIAL INTERVERTEBRAL DISC</b> <u>X. Du, L. Kölle, D. Schümperlin, S. J. Ferguson</u></p> <p>9:06am - 9:18am <b>DEVELOPMENT OF IMAGE-BASED MULTIPHASIC MODELS OF THE INTERVERTEBRAL DISC</b> <u>I. Fleps, E. Morgan</u></p> <p>9:18am - 9:30am <b>BIOMECHANICAL COMPARISON BETWEEN POLY AXIAL AND OAK SCREWS FOR THORACOLUMBAR FRACTURE REDUCTION</b> <u>A. Y. Moufid, F. Zot, A. Duits, M. Severyns, A. Germaneau, T. Vendevre</u></p> <p>9:30am - 9:42am <b>THE INFLUENCE OF LOADING CONDITIONS ON THE PRINCIPAL AND NON-PRINCIPAL STIFFNESS OF CERVICAL DISC PROSTHESIS</b> <u>H. Ansariipour, S. J. Ferguson, M. Flohr</u></p>	<p><b>TR06.5: Clinical and translational biomechanics / in silico trials I</b> Location: Arrabida Hall Chair: Richie Gill Chair: Marco Viceconti</p> <p>8:30am - 8:42am <b>A parametric study to improve surgical planning of spring-assisted posterior vault expansion</b> <u>L. Deliege, K. Ramdat Misier, G. James, J. Ong, D. Dunaway, N. O. O. Jeelani, S. Schievano, A. Borghi</u></p> <p>8:42am - 8:54am <b>ASSESSING CREDIBILITY OF A MULTISCALE MODEL FOR JOINT REPLACEMENTS SOLUTIONS</b> <u>C. Curreli, S. Huebner, A. Di Pietro, G. Davico, M. Viceconti</u></p> <p>8:54am - 9:06am <b>A MODELING FRAMEWORK TO ENABLE THE DIFFERENTIAL DIAGNOSIS FOR THE LOSS OF MUSCLE FORCE</b> <u>G. Davico, L. Labanca, F. Bottin, F. Baruffaldi, M. G. Benedetti, M. Viceconti</u></p> <p>9:06am - 9:18am <b>Reliability of fluoroscopic assessment of glenohumeral translation during a 30° shoulder abduction test</b> <u>E. Croci, M. Künzler, S. Börlin, F. Eckers, C. Nüesch, D. Baumgartner, A. M. Müller, A. Mürdermann</u></p> <p>9:18am - 9:30am <b>FORM AND FUNCTION IN THE TAIL FEATHERS OF CLIMBING BIRDS</b> <u>M. Granatosky, M. Young, N. Flaim, D. Deleon, B. Zou, B. Bas, L. Reader, E. Dickinson</u></p> <p>9:30am - 9:42am <b>Neural Network Finite Element Modeling of the Heart Mechanics</b> <u>W. Zhang, M. S. Sacks</u></p>	<p><b>TR07.5: Artificial intelligence in biomechanics + Robots in biomechanics</b> Location: Miraglia Hall Chair: Massimo Sartori</p> <p>8:30am - 8:42am <b>Examination of 2D markerless motion capture for sagittal and frontal joint angles of the knee and hip</b> <u>L. Wade, L. Needham, M. Evans, M. P. McGugin, S. Colyer, D. Cosker, J. Bilzon</u></p> <p>8:42am - 8:54am <b>INTEGRATING ANN-BASED REAL-TIME JOINT FORCE PREDICTION WITH DEEP AUTO-REGRESSIVE GOAL-DRIVEN MOTION SYNTHESIS</b> <u>I. Loi, E. I. Zacharakis, K. Moustakas</u></p> <p>8:54am - 9:06am <b>CONTROL SYSTEM OF A MUSCULAR CONTROLLED, EXPERIMENTAL GLENOHUMERAL SIMULATOR</b> <u>J. Genter, G. Rauter, M. Rohner, A. M. Müller, A. Mürdermann, D. Baumgartner</u></p> <p>9:06am - 9:18am <b>Interfacing Neuromusculoskeletal Models With Exoskeletons For Controlling Neuro-Musculotendon Parameters In Vivo</b> <u>G. Durandau, H. van der Kooij, M. Sartori</u></p> <p>9:18am - 9:30am <b>FORM AND FUNCTION IN THE TAIL FEATHERS OF CLIMBING BIRDS</b> <u>M. Granatosky, M. Young, N. Flaim, D. Deleon, B. Zou, B. Bas, L. Reader, E. Dickinson</u></p> <p>9:30am - 9:42am <b>Neural Network Finite Element Modeling of the Heart Mechanics</b> <u>W. Zhang, M. S. Sacks</u></p>	<p><b>TR08.5: Respiratory biomechanics</b> Location: S. Joao Hall Chair: Sam Bayat</p> <p>8:30am - 8:42am <b>The effect of prone and supine position ventilation on alveolar overdistension and collapse</b> <u>S. Quicken, U. Strauch, E. van Engelen, M. van Mil, F. van de Vosse</u></p> <p>8:42am - 8:54am <b>HOW LUNG LESIONS LOCATION IN ARDS MODIFIES RESPIRATORY BIOMECHANICS? A COMPUTATIONAL FRAMEWORK</b> <u>C. Bruna-Rosso, S. Boussem</u></p> <p>8:54am - 9:06am <b>SPHERICAL, TRANSPARENT AND STRETCHABLE MEMBRANES FOR REPLICATING THE ALVEOLAR INTERFACE IN-VITRO</b> <u>L. Cacopardo, N. Guazzelli, P. Signorello, A. Ahluwalia</u></p> <p>9:06am - 9:18am <b>SIMULATION OF FLUID-STRUCTURE INTERACTION OF FLOW IN COLLAPSIBLE TUBES: A SIMPLIFIED MODEL FOR OBSTRUCTIVE SLEEP APNEA</b> <u>B. Akbar, S. G. Johnson, P. R. Leinan, B. Müller</u></p> <p>9:18am - 9:30am <b>ASTHMA SEVERITY LEVELS MONITORING BASED ON EEG SIGNALS USING NOVEL CLASSIFICATION ALGORITHMS</b> <u>A. Ratnovsky, R. Haba, G. Singer, M. R. Kramer, S. Naftali</u></p>
9:45am - 10:15am	Coffee Break							
10:15am - 11:40am	<p><b>TR01.6: Implants / orthotics / prosthetics / devices VI: Multiple topics (Total knee arthroplasty, Fracture repair)</b> Location: Archive Hall</p> <p>10:15am - 10:27am <b>Standardized In Vivo Knee Implant Kinetics and Kinematics and their Application to Implant Wear Simulation</b> <u>M. J. Dreyer, A. Trepczynski, B. Weisse,</u></p>	<p><b>TR02.6: Cardiovascular biomechanics V: Thrombi and plaques</b> Location: Infante Hall Chair: Selda Sherifova Chair: Stéphane Avril</p> <p>10:15am - 10:40am <b>CHALLENGES OF VALIDATING COMPUTATIONAL THROMBOSIS MODELS</b> <u>K. B. Manning</u></p> <p>10:40am - 10:52am</p>	<p><b>TR03.6: Hard tissue biomechanics II: Bone tissue level</b> Location: D. Maria Hall Chair: Vee San Cheong Chair: Gianluca Tozzi</p> <p>10:15am - 10:27am <b>Replicability of a finite element model to quantify human femur failure load</b> <u>M. GARDEGARONT, A. Sas, F. Bermond, C. Confavreux, J.-B. Piat, G. H. van Lenthe, H. Follet, D. Mitton</u></p>	<p><b>TR04.6: Biomedical imaging I</b> Location: D. Luis Hall Chair: Dieter Pahr Chair: Uwe Wolfgram</p> <p>10:15am - 10:40am <b>X-RAY BASED 3D HISTOLOGY OF BIOLOGICAL TISSUES</b> <u>G. Kerckhofs</u></p> <p>10:40am - 10:52am <b>The osteocyte lacuno-canalicular network at the bone-implant interphase imaged with</b></p>	<p><b>TR05.6: Spine biomechanics II</b> Location: Porto Hall Chair: André P. G. Castro</p> <p>10:15am - 10:40am <b>MULTISCALE BIOMECHANICAL AND STRUCTURAL PROPERTIES OF LUMBAR INTERVERTEBRAL DISCS: MECHANISMS OF INJURY</b> <u>J. J. Costi</u></p>	<p><b>TR06.6: Clinical and translational biomechanics / in silico trials II</b> Location: Arrabida Hall Chair: Richie Gill Chair: Marco Viceconti</p> <p>10:15am - 10:40am <b>Translational Computational Studies Toward Preventing Post-Traumatic Osteoarthritis After Joint Injury</b> <u>R. K Korhonen, D. D Anderson</u></p>	<p><b>TR07.6: Artificial intelligence in biomechanics II</b> Location: Miraglia Hall Chair: Konstantinos Moustakas Chair: Idris Avrahami</p> <p>10:15am - 10:40am <b>Hemodynamical Study of a Novel Percutaneous Left Ventricle Assist Device</b> <u>I. Avrahami</u></p> <p>10:40am - 10:52am</p>	<p><b>TR08.6: Advance computing for biomechanics I</b> Location: S. Joao Hall</p> <p>10:15am - 10:27am <b>A non intrusive data-driven reduced order model framework for cardiovascular problems</b> <u>M. Girfoglio, P. Siena, N. Demo, M. Conti, G. Rozza, F. Auricchio</u></p> <p>10:27am - 10:39am</p>

W. R. Taylor, P. Damm, C. R. Smith	<b>THE INFLUENCE OF PLAQUE STRUCTURAL STRESS AND WALL SHEAR STRESS ON HUMAN CORONARY PLAQUE PROGRESSION</b>	10:27am - 10:39am <b>THE INFLUENCE OF FORAMINA ON FEMORAL NECK FRACTURES AND STRAINS PREDICTED WITH FINITE ELEMENT ANALYSIS</b> A. Tziotziou, E. Hartman, S.-A. Kortelاند, A. F. van der Steen, J. Daemen, J. Wentzel, <u>A. C. Akyildiz</u>	focused ion beam – scanning electron microscopy <u>E. Törnquist</u> , G. Hafat, Y. Hériveaux, H. Albin-Lomami, E. Vennat, S. Le Cann	10:40am - 10:52am <b>COMPARATIVE STUDY OF PEDICLE SCREW STABILIZATIONS FOR METASTASIS TREATMENT ON A BIOMIMETIC LUMBAR CONSTRUCT</b> <u>S. Borrelli</u> , G. Putame, M. Terzini, A. Ferro, S. Marone, A. L. Audenino	10:40am - 11:05am C4Bio: Community Challenge towards Consensus on Characterization of Biological tissue <u>N. Famaey</u>	<b>AUTOMATED SEGMENTATION AND LANDMARKING OF SCAPULAE TO ASSESS THE OUTCOME OF TOTAL SHOULDER ARTHROPLASTY</b> <u>O. B. Satir</u> , A. Terrier, A. Meylan, F. Becce, P. Goetti, R. Diot, P. Büchler	<b>COMPUTATIONAL INVESTIGATION AND VERIFICATION OF THE IN-VITRO PERFORMANCE OF BIARESORBABLE BRAIDED STENTS</b> <u>A. Lucchetti</u> , T. Gries, T. J. Vaughan
10:27am - 10:39am <b>COMPREHENSIVE BOUNDARY CONDITIONS FOR INVESTIGATING TOTAL KNEE REPLACEMENT WEAR DURING WALKING</b> <u>M. Febrer-Nafria</u> , M. Dreyer, N. Guo, S. H. Hosseini Nasab, C. R. Smith, W. R. Taylor	10:52am - 11:04am <b>IMAGE-BASED SIMULATION OF FLOW IN A PLATELET AGGREGATE</b> <u>Y. Hao</u> , G. Závodszy, C. Tersteeg, A. Hoekstra	10:39am - 10:51am <b>HIP FRACTURE RISK PREDICTION BASED ON STATISTICAL MODELS INFORMED BY DXA IMAGES</b> A. Aldieri, F. Pagotto, P. Bhattacharya, M. Paggioli, R. Eastell, C. Bignardi, A. L. Audenino, <u>M. Terzini</u>	10:52am - 11:04am <b>Micro-FE models can predict the displacement field in human vertebrae with lytic and blastic metastases</b> <u>M. Palanca</u> , G. Cavazzoni, L. Cristofolini, E. Dall'Ara	10:52am - 11:04am <b>Use of ASME V&amp;V-40-2018 Standard as methodological framework for the Qualification of Digital Twins</b> <u>A. Aldieri</u> , C. Curreli, A. A. La Mattina, M. Viceconti	11:05am - 11:17am <b>Use of ASME V&amp;V-40-2018 Standard as methodological framework for the Qualification of Digital Twins</b> <u>A. Aldieri</u> , C. Curreli, A. A. La Mattina, M. Viceconti	10:52am - 11:04am <b>Super-Resolution of Clinical CT Data: Towards Improving the Strength of Fracture Risk Assessments</b> <u>L. Frazier</u> , J. Vaishnav, N. Louis, D. Nicoletta	10:39am - 10:51am <b>DEVELOPING A FRAMEWORK FOR GENERATING MITRAL VALVE SCALABLE MODELS</b> <u>D. M. Cruz de Oliveira</u> , D. Espino, L. Deorsola, J. Mynard, V. Rajagopal, K. Buchan, D. Dawson, D. Shepherd
10:39am - 10:51am <b>A SIMULATION BASED APPROACH FOR KINEMATICS EVALUATION AND WORST-CASE DETERMINATION IN PRE-CLINICAL TESTING</b> <u>A. Maas</u> , A. L. Puente Reyna, T. M. Grupp	11:04am - 11:16am <b>ON THE INFLUENCE OF THROMBUS PERMEABILITY ON FLUID DYNAMICS IN THORACIC AORTIC ANEURYSM: IN SILICO MODELS</b> <u>C. GUIVIER-CURIEN</u> , V. DEPLANO	10:51am - 11:03am <b>IDENTIFICATION OF STATISTICAL CRITICAL AREA TO DISCRIMINATE PROXIMAL FEMUR FRACTURE DUE TO LATERAL FALL</b> N. Morando, C. Ruiz Wills, J. Noailly, <u>S. Tassani</u>	11:04am - 11:16am <b>AN IN SILICO METHOD TO EVALUATE BONE REMODELLING AFTER TOTAL HIP ARTHROPLASTY: A SIX YEARS LONGITUDINAL STUDY</b> <u>V. Betti</u> , H. Jónsson Jr, L. Cristofolini, M. K. Gislason, P. Gargiulo	11:04am - 11:16am <b>HARDWARE DENSITY REDUCTION AVOIDS T3 PROXIMAL JUNCTION FAILURE IN ADULT SPINE SURGERY: FE SIMULATION</b> M. Rasouligandomani, A. del Arco, F. Pellisé, M. González Ballester, F. Galbusera, <u>J. Noailly</u>	11:17am - 11:29am <b>The use of mobile eye tracking to assess cognitive load in lower limb amputees: a pilot study</b> <u>S. Manz</u> , S. Dosen, J. Gonzalez-Vargas	11:04am - 11:16am <b>TEMPORALLY OPTIMIZED INVERSE KINEMATICS FOR 6DOF HUMAN POSE ESTIMATION</b> <u>K. Gildea</u> , C. Mercadal-Baudart, R. Blythman, C. Simms	10:51am - 11:03am <b>MODELLING THE BIOMECHANICAL BEHAVIOR OF THE LIVER IN REAL TIME USING ML MODELS TRAINED ON FE SIMULATIONS</b> <u>O. PELLICER-VALERO</u> , <u>M. J. RUPÉREZ</u> , J. D. MARTÍN-GUERRERO
10:51am - 11:03am <b>THE EFFECT OF INTERFERENCE FIT AND COEFFICIENT OF FRICTION ON THE INTERFACE GAPS OF A PEEK FEMORAL COMPONENT</b> <u>C. Post</u> , T. Bitter, A. Briscoe, N. Verdonschot, D. Janssen	11:16am - 11:28am <b>The effect of size and proximity of microbeads on the rupture threshold of atheroma cap laboratory models</b> <u>A. Corti</u> , D. Khalil, S. Weinbaum, L. Cardoso	11:03am - 11:15am <b>AGE MODULATES BMD AND STRENGTH BUT NOT FORCE RELAXATION IN HUMAN FEMORA</b> <u>S. Martelli</u>	11:16am - 11:28am <b>A Correlative Multimodal Imaging approach for multiscale analysis of bone regeneration and adaptation</b> <u>F. Correia Marques</u> , B. Schroeder, D. Yilmaz, E. Wehrle, R. Müller	11:16am - 11:28am <b>EVALUATION OF METHODS FOR SCREW-VERTERBA FIXATION USING FINITE ELEMENT MODELLING</b> <u>S. Vallejo Pareja</u> , C. Ruiz Wills, J. Ramirez	11:16am - 11:28am <b>Correction of Motion Artifacts in HR-pQCT using Cycle-consistent Adversarial Networks</b> <u>P. Y. Steiner</u> , <u>M. Walle</u> , M. Rigotti, D. E. Whitter, C. McLennan, P. R. Atkins, R. Müller, C. J. Collins	11:16am - 11:28am <b>Correction of Motion Artifacts in HR-pQCT using Cycle-consistent Adversarial Networks</b> <u>P. Y. Steiner</u> , <u>M. Walle</u> , M. Rigotti, D. E. Whitter, C. McLennan, P. R. Atkins, R. Müller, C. J. Collins	11:03am - 11:15am <b>ASSESSING PROSTHETIC HAND DESIGNS THROUGH A NEW GRASPING SIMULATION BENCHMARK</b> <u>I. Llop-Harillo</u> , J. L. Iserte, A. Pérez-González
11:03am - 11:15am <b>SYSTEMATIC VALIDATION OF FINITE ELEMENT SIMULATIONS OF LOCKING PLATE FIXATIONS</b> <u>D. Mischler</u> , M. Knecht, <u>P. Varga</u>	11:28am - 11:40am <b>WALL SHEAR STRESS TOPOLOGICAL SKELETON VARIABILITY PREDICTS PLAQUE GROWTH IN HUMAN CORONARY ARTERIES</b> <u>G. De Nisco</u> , E. Hartman, V. Mazzi, D. Gallo, C. Chiastra, J. Daemen, J. Wentzel, U. Morbiducci	11:15am - 11:27am <b>Principal Component Analysis for elucidating important changes in mouse tibia geometry</b> <u>S. Moraiti</u> , V. S. Cheong, E. Dall'Ara, V. Kadiramanathan, P. Bhattacharya	11:28am - 11:40am <b>OSTEOARTHITIC KNEES CAN BE QUANTIFIED WITH IN VIVO SCANNERS</b> P. Antonacci, J. Dauwe, P. Varga, D. Ciric, D. Gehweiler, B. Gueorguiev, <u>K. Mys</u>	11:28am - 11:40am <b>LOWER LIMB COMPENSATION DURING SIT-TO-STAND-TO-SIT AFTER MULTI-LEVEL FUSION SURGERY IN ADULT SPINAL DEFORMITY</b> <u>P. Severijns</u> , T. Overbergh, E. Beaucage-Gauvreau, T. Ackermans, L. Moke, L. Scheyts	11:16am - 11:28am <b>EVALUATION OF METHODS FOR SCREW-VERTERBA FIXATION USING FINITE ELEMENT MODELLING</b> <u>S. Vallejo Pareja</u> , C. Ruiz Wills, J. Ramirez	11:16am - 11:28am <b>Correction of Motion Artifacts in HR-pQCT using Cycle-consistent Adversarial Networks</b> <u>P. Y. Steiner</u> , <u>M. Walle</u> , M. Rigotti, D. E. Whitter, C. McLennan, P. R. Atkins, R. Müller, C. J. Collins	11:15am - 11:27am <b>Parametrisation and generation algorithm for abdominal aortic aneurysms</b> <u>L. Saccaro</u> , G. Ravon, F. Bernard, A. Iollo
11:15am - 11:27am <b>INFLUENCE OF CERCLAGE WIRE APPLICATION ON THE DYNAMIC BEHAVIOUR OF A FRACTURED IMPLANT-CYLINDER SYSTEM</b> <u>M. Timmermans</u> , G. Athanassoulis Makris, L. Van Bel, J. Verhoeven, L. C. Pastrav, K. Denis	11:28am - 11:40am <b>WALL SHEAR STRESS TOPOLOGICAL SKELETON VARIABILITY PREDICTS PLAQUE GROWTH IN HUMAN CORONARY ARTERIES</b> <u>G. De Nisco</u> , E. Hartman, V. Mazzi, D. Gallo, C. Chiastra, J. Daemen, J. Wentzel, U. Morbiducci	11:15am - 11:27am <b>Principal Component Analysis for elucidating important changes in mouse tibia geometry</b> <u>S. Moraiti</u> , V. S. Cheong, E. Dall'Ara, V. Kadiramanathan, P. Bhattacharya	11:28am - 11:40am <b>OSTEOARTHITIC KNEES CAN BE QUANTIFIED WITH IN VIVO SCANNERS</b> P. Antonacci, J. Dauwe, P. Varga, D. Ciric, D. Gehweiler, B. Gueorguiev, <u>K. Mys</u>	11:28am - 11:40am <b>LOWER LIMB COMPENSATION DURING SIT-TO-STAND-TO-SIT AFTER MULTI-LEVEL FUSION SURGERY IN ADULT SPINAL DEFORMITY</b> <u>P. Severijns</u> , T. Overbergh, E. Beaucage-Gauvreau, T. Ackermans, L. Moke, L. Scheyts	11:16am - 11:28am <b>EVALUATION OF METHODS FOR SCREW-VERTERBA FIXATION USING FINITE ELEMENT MODELLING</b> <u>S. Vallejo Pareja</u> , C. Ruiz Wills, J. Ramirez	11:16am - 11:28am <b>Correction of Motion Artifacts in HR-pQCT using Cycle-consistent Adversarial Networks</b> <u>P. Y. Steiner</u> , <u>M. Walle</u> , M. Rigotti, D. E. Whitter, C. McLennan, P. R. Atkins, R. Müller, C. J. Collins	11:15am - 11:27am <b>Parametrisation and generation algorithm for abdominal aortic aneurysms</b> <u>L. Saccaro</u> , G. Ravon, F. Bernard, A. Iollo
11:27am - 11:39am <b>Analytical model for the mechanical performance prediction of a bone-plate implant</b> <u>F. A. Bologna</u> , M. Terzini, A. L. Audenino	11:28am - 11:40am <b>WALL SHEAR STRESS TOPOLOGICAL SKELETON VARIABILITY PREDICTS PLAQUE GROWTH IN HUMAN CORONARY ARTERIES</b> <u>G. De Nisco</u> , E. Hartman, V. Mazzi, D. Gallo, C. Chiastra, J. Daemen, J. Wentzel, U. Morbiducci	11:15am - 11:27am <b>Principal Component Analysis for elucidating important changes in mouse tibia geometry</b> <u>S. Moraiti</u> , V. S. Cheong, E. Dall'Ara, V. Kadiramanathan, P. Bhattacharya	11:28am - 11:40am <b>OSTEOARTHITIC KNEES CAN BE QUANTIFIED WITH IN VIVO SCANNERS</b> P. Antonacci, J. Dauwe, P. Varga, D. Ciric, D. Gehweiler, B. Gueorguiev, <u>K. Mys</u>	11:28am - 11:40am <b>LOWER LIMB COMPENSATION DURING SIT-TO-STAND-TO-SIT AFTER MULTI-LEVEL FUSION SURGERY IN ADULT SPINAL DEFORMITY</b> <u>P. Severijns</u> , T. Overbergh, E. Beaucage-Gauvreau, T. Ackermans, L. Moke, L. Scheyts	11:16am - 11:28am <b>EVALUATION OF METHODS FOR SCREW-VERTERBA FIXATION USING FINITE ELEMENT MODELLING</b> <u>S. Vallejo Pareja</u> , C. Ruiz Wills, J. Ramirez	11:16am - 11:28am <b>Correction of Motion Artifacts in HR-pQCT using Cycle-consistent Adversarial Networks</b> <u>P. Y. Steiner</u> , <u>M. Walle</u> , M. Rigotti, D. E. Whitter, C. McLennan, P. R. Atkins, R. Müller, C. J. Collins	11:15am - 11:27am <b>Parametrisation and generation algorithm for abdominal aortic aneurysms</b> <u>L. Saccaro</u> , G. Ravon, F. Bernard, A. Iollo
11:45am	Keynote lecture 2: Modelling the human neuromuscular system across spatio-temporal scales for a new class of movement enhancing technologies, Massimo Sartori						
12:30pm	Lunch Break						
1:15pm	PS2: Poster session 2						
2:00pm	<b>2D FLUID-STRUCTURE INTERACTION MODELING OF THE LEFT ATRIUM – IMPACT OF MITRAL VALVE STIFFENING</b> <u>M. Meskin</u> , J. Arendt Jensen, M. Bo Stuart, M. Sand Traberg						
	<b>An Impedance Pump For Assisting Failing Fontan Circulation</b> M. Garcia-Diaz, F. Castro-Ruiz, J. Á. Moneo-Fernandez, C. Barrios-Collado, <u>J. AnatoI</u> , M. Horvath, E. T. Roche, J. Sierra-Pallares						
	<b>Hemodynamics of an Idealized Mechanical Heart Valve – Predictions by FVM and SPH</b> <u>S. LAHA</u> , G. Fourtakas, P. K. Das, A. Keshmiri						
	<b>PATIENT-SPECIFIC SIMULATION AIMED AT EVALUATION OF THE NEOINTIMA GROWTH EFFECT ON ANASTOMOSIS HEMODYNAMICS</b> <u>Y. Ivanova</u> , A. Yukhnev, E. Smirnov, L. Tikhomolova, A. Vrabiy, A. Suprunovich, A. Morozov, G. Khubulava, V. Vavilov						
	<b>THE EFFECT OF STENT GRAFT CURVATURE ON MIGRATION RISK IN ABDOMINAL AORTIC ANEURYSM ENDOVASCULAR REPAIR</b> <u>M. Brand</u> , B. Yoel, M. Halak, C. Speter, G. Marom						
	<b>CHARACTERISATION OF THE SPECIFIC GEOMETRIC ANISOTROPY OF TRABECULAR PLATES AND RODS</b> <u>N. Rogalski</u> , S. Laporte, I. Iordanoff, C. Cluzel						
	<b>A PK-PD MODEL OF ALENDRONATE FOR THE TREATMENT OF POSTMENOPAUSAL OSTEOPOROSIS</b> <u>R. Ruiz-Lozano</u> , J. L. Calvo-Gallego, P. Pivonka, J. Martinez-Reina						

Porosity and matrix mineral content determine the variation of compression strength of Cortical bone from elderly donors

X. Cai, F. Fan, H. Follet, F. Peyrin, H. Niu, [Q. Grimal](#)

HYDROXYAPATITE CRYSTAL THICKNESS AND ORIENTATION AT THE BONE IMPLANT INTERFACE: SPATIAL AND TEMPORAL EVOLUTIONS

[S. Le Cann](#), E. Törnquist, I. Silva Barreto, M. Fraulob, M. Verezhak, M. Guizar-Sicairos, H. Albini Lomani, H. Isaksson, G. Haïat

CONCURRENT IMAGING AND DIFFRACTION OF TRABECULAR BONE CONSTRUCTS WITH IN SITU SCANNING AND COMPRESSION

E. Newham, A. James, H. Deyhle, S. Ahmed, G. Tozzi, [H. S. Gupta](#)

A COARSE GRAINED MODEL OF MINERALISED COLLAGEN FIBRIL BIOMECHANICS: UNDERSTANDING THE ROLE EXTRAFIBRILLAR MINERALIZATION

[M. Tavakoli](#), T. Vaughan

Epiphyseal bone healing within continuum bone remodeling

[I. Schmidt](#), P. Steinmann, A. Papastavrou

BONE REMODELLING ALGORITHM. A VOXEL BASED APPROACH

[J. Roces García](#), V. Celemin Mohedano, P. Pankaj

PRELIMINARY INVERSE ANALYSIS FOR CRACK PROPAGATION MECHANICAL PARAMETERS ON LONG HUMAN CORTICAL BONE

[T. Kurtz](#), J.-L. Tailhan, Y. Godio-Raboutet

A BONE CELL POPULATION MODEL DESCRIBING INTERMITTENT ACTIVATION OF BMUS BASED ON CELL AVAILABILITY

[J. L. Calvo-Gallego](#), P. Manchado-Morales, P. Pivonka, J. Martínez-Reina

Development and characterization of 3D printed bone substitutes mimicking trabecular bone architecture

[F. Leborgne](#), L. Caillé, C. Tromas, D. Campion, M. Séveryns, T. Vendevre, A. Germaneau, V. Valle

APPLICATION OF MARKERLESS POSE ESTIMATION TO RUGBY COLLISION TRACKING

R. Blythman, M. Saxena, G. Tierney, C. Richter, A. Smolic, [C. Simms](#)

Evaluation of finite element head models using 3D printed surrogate - preliminary control of boundary conditions

[F. Jonca](#), S. Persohn, L. Chalanqui, S. Laporte, B. Sandoz

POSTERIOR CRUCIATE LIGAMENT TENSION AND TIBIAL COMPONENT MALROTATION IN TOTAL KNEE REPLACEMENT

K. Johnson, [J.-O. Sassi](#), L. Buerstenbinder, J. B. Darques, I. Soodmand, R. Bader, M. Keibach

BIOMECHANICAL ANALYSIS OF SURGICAL ALIGNMENT AND DESIGN IN TOTAL KNEE ARTHROPLASTY

[B. Innocenti](#), E. Bori

ASSESSING THE FIRST RESONANCE FREQUENCY OF SCREWS IN BONE BLOCKS FOR ESTIMATION OF SCREW FIXATION

[M. Timmermans](#), Q. Goossens, L. C. Pastrav, B. Depreitere, W. Desmet, K. Denis

A COMPUTATIONAL METHODOLOGY FOR THE INVESTIGATION AND COMPARISON OF THE ASSEMBLY EFFECTIVENESS DURING TOTAL HIP ARTHROPLASTY

[A. C. Messellek](#), M. Ould Ouali, A. Amrouche

On measuring implant fixation stability in ACL reconstruction

E. Benca, I. Zderic, J. Caspar, K. van Kneysel, L. Hirtler, B. Gueorguiev, R. Windhager, H. Widhalm, [P. Varga](#)

COMPUTATIONAL TOOLS FOR BIO-COMPATIBLE GYROID FOAMS

[A. Pais](#), J. Lino Alves, J. Belinha

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A. H. Hafez, A. Schiffer, [M. El-Rich](#)

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VECTOR CODING ASSESSMENT OF LOWER LIMB JOINT ANGULAR COORDINATION ON LONG, SHORT AND NO COUNTERMOVEMENT

[C. Rodrigues](#), M. Correia, J. Abrantes, M. Benedetti, J. Nadal

POROUS GEOMETRY OF TISSUE ENGINEERING SCAFFOLD INFLUENCES ITS INTERNAL MICROFLUIDIC ENVIRONMENT

[M. J. A. Bedding](#), F. Zhao

HOW REFRACTIVE POWER OF THE EYE MAY EFFECT THE CHANGE OF FOCUS

[F. K. Debowy](#), B. Pierscionek

EFFECTS OF CORNEAL PRESERVATION ON THE MECHANICAL PROPERTIES OF PORCINE CORNEAS

S. Bahramzadeh Sajadi, H. R. Katoozian, M. A. Ariza-Gracia, J. Nohava, [P. Büchler](#)

ANALYSIS OF THE CILIARY MUSCLE MOVEMENT DURING ACCOMMODATION USING ARTIFICIAL INTELLIGENCE

[I. Cabeza Gil](#), M. Ruggeri, Y.-C. Chang, B. Calvo, F. Manns

Computational Method for Evaluating Fracture-Fixation Stability of Complex Bone Fractures

[S. Comtesse](#), A. von Keudell, S. J. Ferguson, T. Zumbun

Simulating the impact of diabetic foot insoles: a finite element analysis

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[L. Antonini](#), F. Lotrecchiano, G. Poletti, L. Petrini, G. Pennati

BIOMECHANICAL MODELING OF THE ANOMALOUS AORTIC ORIGIN OF THE CORONARY ARTERY

M. Conti, G. M. Formato, [V. Ceserani](#), A. Rosato, M. Lo Rito

AN ULTRASOUND-BASED MODELING FRAMEWORK FOR THE ASSESSMENT OF PERIPHERAL ARTERIAL DISEASE

[M. Gillissen](#), F. N. van de Vosse, M. van Sambeek, R. G. P. Lopata

EXPERIMENTAL PROCEDURE AND FINITE ELEMENT ANALYSIS TO MAP MECHANICAL CONSTITUTIVE PARAMETERS OF ARTIFICIAL MENISCUS

[G. Marchiori](#), M. Berni, M. Zingales, C. Mannone, S. di Paolo, S. Zaffagnini, N. F. Lopomo, M. Baleani, M. Fini

Ex-vivo human tongue muscle mechanical characterization

[M. A. Nazari](#), P. Perrier, C. Jeanin, S. Veyre, C. Masri, Y. Payan

Finite Element Modeling of the Coupling Between the Earcanal and the Temporomandibular Joint

M. Demuyneck, A. Delnavaz, J. Voix

#### TRACHEOBRONCHIAL MATERIALS COMPUTATIONAL DEFINITION

R. B. Ruben, J. C. Dinis, J. B. Pinto, C. A. Campos, M. S. Correia, H. Almeida

#### HIS ANGLE, FOOD VISCOSITY AND LSG: HOW THEY AFFECT GASTROESOPHAGEAL REFLUX. A FLUID-STRUCTURE STUDY

I. Toniolo, A. Berardo, M. Gagner, M. Foletto, E. L. Carniel

#### NUMERICAL MODELLING OF THE BREAST RECONSTRUCTION USING SILICONE GEL-FILLED IMPLANTS

B. Areias, A. André, A. M. Teixeira, S. Brandão, P. Martins

#### TEMPORAL DESIGN FOR ADDITIVE MANUFACTURING AND ITS POTENTIAL FOR TUNING THE SURFACE ROUGHNESS

N. Mahmoodi, B. Hawthorn, F. Khan, A. Triantaphyllou, R. Dyson, L. E. J. Thomas-Seale

#### A preliminary study for the assessment of a complementary therapy in Parkinson's Disease

E. Pegolo, A. Cucca, E. Berti, D. Volpe, Z. Sawacha

#### THE EFFECT OF THE OF RUNNING-INDUCED FATIGUE ON THE SYMMETRY OF KINEMATICS AND KINETIC VARIABLES OF KNEE JOINTS IN A COUNTERMOVEMENT JUMP.

Z. Gao, Y. He, G. Fekete, Y. Gu

#### Effect of ACL reconstruction on the muscle activity of the knee during selected activities

P. Zalewska, T. Guszczyn, S. Piszczatowski

#### A new method for determining the knee axis of rotation for motion capture

E. B. O'Regan, D. Dawson, K. Bryan

#### DYNAMIC ANALYSIS OF GAIT MOTION IN OSTEOARTHRITIC WOMEN

J. Torras, A. Espinosa, L. Tio, F. Castro-Dominguez, J. Monfort, J. Monllau, M. Gonzalez-Ballester, J. Noailly, S. Tassani

#### Recording wrist circumduction with different sensors for clinical assessment

M. Vergara, R. Lázaro-Belenguer, V. Gracia-Ibáñez, N. Jarque-Bou, J. L. Sancho-Bru

#### MOTOR CONTROL IN A POPULATION OF YOUNG SUBJECTS WITH IDIOPATHIC SCOLIOSIS: THE MOTOR-CHILD STUDY

R. Stagni, G. M. G. Farella, F. Vanzini, R. Tedeschi, M. G. Benedetti, M. C. Bisi

#### Detecting a new category of flexion contracture patients in total hip arthroplasty

C. Vergari, Y. Kim, M. Takemoto, Y. Shimizu, C. Tanaka, S. Fukae, S. Fujibayashi, S. Matsuda

#### Weight-bearing symmetry in healthy and active workers: an occupational study with instrumented insoles

S. A. Alves, A. N. Agres, G. N. Duda

#### Hand posture and forearm muscle activity during reaching and transportation tasks: effect of product weight and task height

A. Roda-Sales, N. J. Jarque-Bou, V. Bayarri-Porcar, J. L. Sancho-Bru, M. Vergara

#### MIMU Kinematics for Monitoring Recovery from Ankle Fracture

O.-P. Mattila, P. Vartiainen, T. Mujunen, H. Piitulainen, N. J. Cronin, T. Rantanen, T. Rantalainen

#### Infant gastrocnemius growth in the first two years of life

R. Florez, H. Kim, M. Bell, S. Stott, A. Mirjalili, S. Williams, T. Besier, J. Fernandez

#### IMAGE-BASED CHARACTERIZATION OF LARGE VESSELS INTEGRATING IN-VITRO AND IN-SILICO METHODS

B. M. Fanni, E. Gasparotti, K. Capellini, E. Vignali, G. Santoro, S. Celi

#### CRANIAL BONE MICROARCHITECTURE IN A MOUSE MODEL FOR SYNDROMIC CRANIOSYNOSTOSIS

J. E. Hut, S. Ajami, E. Pauws, D. Savery, A. Carriero, A. J. Bodey, A. Pitsillides, N. U. O. Jeelani, S. Schievano, A. Borghi

#### IMAGE-BASED IN-VIVO ESTIMATION OF AORTIC LOCAL STIFFNESS AND HEMODYNAMICS

K. Capellini, E. Gasparotti, E. Vignali, B. M. Fanni, M. A. Scarpolini, F. Cademartiri, S. Celi

#### IMPLEMENTATION OF A WAVELET-BASED PROCESSING METHOD ADAPTED TO DIFFRACTION ULTRASOUND COMPUTED TOMOGRAPHY OF BONE TISSUES

E. DOVERI, M. BRIE, J. BALDISSER, L. SABATIER, R. GUILLERMIN, V. LONG, P. LASAYGUES

#### REPRODUCIBILITY OF MUSCLE FORCES ESTIMATION DURING POST-STROKE GAIT USING OPENSIM

G. Giarmatzis, S. Fotiadou, E. Giannakou, A. Gkrekidis, C. Kokkotis, K. VadiKolias, N. Aggelousis

#### COMPARING CALCULATED AND MEASURED MUSCLE ACTIVITY OF THIGH MUSCLES IN DYNAMIC MOTION

S. Auer, L. Reinker, F. Süß, S. Dendorfer

#### VALIDATION OF REMOTE METHODS FOR MEASURING FOOT ARCH HEIGHT AND SHAPE

J. Uhan, A. Kothari, A. Zavatsky, J. Stebbins

#### FINITE ELEMENT MANDIBLE MODEL OPTIMIZATION FOR LARGE MANDIBULAR DEFECT REGENERATION

A. R. Reis, V. Orassi, S. Checa, R. Natal, M. Parente

#### TOWARDS THE MEASUREMENT OF ELBOW JOINT FORCES IN MAN: A FINITE ELEMENT STUDY

M. Basiouny, S. Taylor, S. Lambert, K. Chin

#### A Novel Method for Artificial Intelligence Based Ground Reaction Force Measurement from Video

T. Eliason, T. Templin, N. Louis, O. Medjaouri, D. Chambers, K. Saylor, D. Nicolella

#### How do the musculoskeletal modeling parameters affect the estimation of the tibiofemoral contact forces?

W. Bernardes, S. Jahangir, A. Esrafilian, M. Mononen, P. Tanska, T. Alkjaer, M. Henriksen, R. Korhonen, L. Stenroth

#### PRIMITIVE-DRIVEN MUSCULOSKELETAL MODELLING OF HUMAN LOCOMOTION: TOWARDS MODEL-BASED CONTROL OF BIONIC LEGS

F. Damonte, G. Durandau, H. van der Kooij, J. Gonzales, M. Sartori

#### EXPERIMENTAL AND NUMERICAL CHARACTERIZATION OF THE ACTIVE BEHAVIOUR OF MOUSE ROTATOR CUFF MUSCLES

P. Martins, A. Pérez, G. Abanza, B. Calvo, J. Grasa

#### MECHANOBIOLOGICAL COMPUTER MODELING OF MANDIBULAR FRACTURE HEALING

V. Orassi, C. Rendenbach, S. Checa

#### Design and characterization of a flexible substrate for culturing adherent cells under defined uniaxial stretch

G. Putame, M. Tosini, A. T. Lugas, I. Roato, B. Masante, F. Mussano, D. Massai

**BIOMECHANICAL MODEL REPRODUCING THE ACTIVE RESPONSE OF A CARDIAC SARCOMERE**

M. Peyroteo, J. Belinha, I. Falcão-Pires, A. Leite-Moreira, R. Natal

**Analyzing mechanical circulatory support in patients with single ventricle physiology using a multiscale model**

V. Yuan, F. De Gaetano, M. L. Costantino

**Influence of transurethral catheters on urodynamics measurements in male: a computational study**

M. V. Mascolini, A. Berardo, C. G. Fontanella, E. L. Carniel

**EDGE LOADING TESTING OF HIP REPLACEMENTS: TECHNIQUES FOR EFFICIENT AND ACCURATE MODELLING**

L. W. Etchels, R. Wilcox, A. Jones

**LATERAL MENISCUS ANTERIOR ROOT AVULSION INCREASES CONTACT PRESSURES: A FINITE ELEMENT STUDY**

A. Peña-Trabalón, S. Moreno-Vegas, B. Estebanez, M. Prado-Novoa, A. Espejo-Reina, F. García-Vacas, A. Perez-Blanca

**EXPLOITING CELL MODULARITY TO CREATE REPURPOSABLE DIGITAL TWINS**

I. Manificier, K. Anselme, B. Nebe, J.-L. Milan

**BALANCE RECOVERY PREDICTION UNDER THE INFLUENCE OF DIFFERENT ACTUATION MODELS**

M. Harant, M. Roller, M. Obentheuer, J. Linn

**ASSESSING INTUITIVE DESIGN OF ASSISTIVE DEVICES TO IMPROVE HUMAN BIOMECHANICAL DEFICIENCIES: AN EYE-TRACKER STUDY**

V. Bayarri-Porcar, J.-L. Sancho-Bru, M. Vergara

**DESIGN OF AN IN VIVO BIOMECHANICAL CHARACTERISATION DEVICE FOR UNRUPTURED INTRACRANIAL ANEURYSMS: CALIBRATION STUDY ON PHANTOM ARTERIES**

G. Plet, J. Raviol, H. Magoaric, C. Pailler-Mattei

**Human brain and muscle activities coupling during isokinetic contractions with incremental motor output**

D. Glories, M. Souhhol, D. Amarantini, J. Ducloy

**DYSREGULATED ENERGY PRODUCTION IMPACT THE OUTCOME OF SCAFFOLD-GUIDED BONE REGENERATION IN TYPE 2 DIABETES**

D. S. Bastos Dias

**PREDICTIVE SIMULATION OF SINGLE-LEG LANDING SCENARIOS FOR ACL INJURY RISK FACTORS EVALUATION**

E. Moustridi, K. Risvas, K. Moustakas

2:00pm  
-  
3:30pm

**TR01.7: Biomechanics of movement and posture: Upper limb and trunk function and posture**  
Location: Archive Hall  
Chair: Lenart Scheys  
Chair: William R. Taylor

2:00pm - 2:25pm  
**QUANTITATIVE FUNCTIONAL ASSESSMENT IN THE SETTING OF ADULT SPINAL DEFORMITY USING 3D MOVEMENT ANALYSIS**  
A. Assi, V. Lafage, W. Skalli

2:25pm - 2:37pm  
**A novel method to quantify pseudo-kinematics of the rib cage over the vital capacity range**  
C. Vergari, W. Skalli, L. Clavel, M. Demuyneck, R. Valentin, B. SANDOZ, T. Similowski, V. ATTALI

2:37pm - 2:49pm  
**A slouched or erect spinal posture modifies upper limb kinematics**  
A. Tomezzoli, A. Naaïm, B. Fréchède, S. Duprey

2:49pm - 3:01pm  
**Impact of the time scale of muscle activation dynamics on reaching performance**  
T. Murtola, C. Richards

3:01pm - 3:13pm  
**Upper limb functional evaluation of a complementary therapy in Parkinson's Disease: a preliminary study**  
E. Pegolo, M. Romanato, C. Riccò, A. Cucca, F. Spolaor, D. Volpe, Z. Sawacha

**TR02.7: Cardiovascular biomechanics VI: Treatment design and clinical outcome**  
Location: Infante Hall  
Chair: Selda Shertfova  
Chair: Stéphane Avril

2:00pm - 2:12pm  
**VASCULAR ADAPTATION FOLLOWING ENDOVASCULAR AORTIC ANEURYSM REPAIR**  
S. Zhang, J. Laubrie, J. Mousavi, S. Avril

2:12pm - 2:24pm  
**FINITE ELEMENT STUDY ON THE PROXIMAL FIXATION OF A STENT-GRAFT: IMPACT OF THE AORTIC ARCH ANGIULATION**  
A. Ramella, L. Iannetti, J. F. Rodriguez Mata, F. Migliavacca, G. Luraghi

2:24pm - 2:36pm  
**INTEGRATING IN-SILICO AND EX-VIVO ANALYSIS FOR BIOMECHANICAL ASSESSMENT OF AORTIC ENDOGRAFTING**  
M. Conti, D. Bianchi, M. Domanin, D. Bissacco, S. Trimarchi, F. Auricchio

2:36pm - 2:48pm  
**IN VITRO INVESTIGATION OF THE IMPACT OF ANEURYSMAL SAC ASPECT RATIO AND NECK SIZE ON HEMODYNAMICS OF CEREBRAL ANEURYSMS TREATED WITH FLOW DIVERTING STENTS**  
F. Chassagne, M. C. Barbour, M. R. Levitt, A. Aliseda

2:48pm - 3:00pm  
**PREDICTING 1-YEAR IN-STENT RESTENOSIS IN FEMORAL ARTERIES THROUGH**

**TR03.7: Hard tissue biomechanics III: Bone organ level**  
Location: D. Maria Hall  
Chair: Dieter Pahr  
Chair: Marta Peña Fernández

2:00pm - 2:12pm  
**VALIDATION OF LINEAR AND MATERIALLY NONLINEAR  $\mu$ FE PREDICTED DISPLACEMENT FIELDS OF BONE BIOPSIES USING DVC**  
P. Stefanek, A. Synek, E. Dall'Ara, D. H. Pahr

2:12pm - 2:24pm  
**Full-field strain evaluation of bone tissue subjected to microindentation using spherical and Berkovich indenters**  
M. Peña Fernández, J. Schwiedrzik, A. Bürki, F. Peyrin, J. Michler, P. Zysset, U. Wolfram

2:24pm - 2:36pm  
**DAMAGE IN SINGLE TRABECULAE UNDER TENSION IDENTIFIED BY INVERSE RHEOLOGICAL MODELLING**  
A. Reisinger, M. Frank, P. Thurner, D. Pahr

2:36pm - 2:48pm  
**A MICROMECHANICAL PHASE FIELD DAMAGE MODEL TO INVESTIGATE THE FRACTURE PROPERTIES OF LAMELLAR BONE**  
H. Aliljani, T. Vaughan

2:48pm - 3:00pm  
**Measurement uncertainties of a global dvc approach are weakly affected by the vertebral bone microstructure**  
G. Cavazzoni, E. Dall'Ara, L. Cristofolini, M. Palanca

3:00pm - 3:12pm

**TR04.7: Biomedical imaging II**  
Location: D. Luis Hall  
Chair: Dieter Pahr  
Chair: Inas H Faris

2:00pm - 2:25pm  
**VISCOSITY AND NONLINEAR ELASTOGRAPHY WILL BECOME THE NEXT GENERATION BIOMARKERS IN CLINICAL DIAGNOSIS**  
G. Rus, L. H. Faris

2:25pm - 2:37pm  
**AUTOMATION OF MRI-BASED SPINAL MUSCLE SEGMENTATION**  
B. Peeters, T. Overbergh, D. Farotto, E. Beaucage-gauvreau, L. Scheys

2:37pm - 2:49pm  
**Automatic muscle segmentation with deformable image registration from MR images of human lower limb**  
W. H. Henson, C. Mazzà, E. Dall'Ara

2:49pm - 3:01pm  
**A non rigid registration algorithm to build Statistical shape model of thoracic Aorta, together with aortic arch and supra aortic vessels**  
M. A. Scarpolini, M. Mazzoli, F. Bardì, K. Capellini, V. Positano, S. Celi

3:01pm - 3:13pm  
**Generating 3D Personalised Respiratory Domains For Deposition Models From CT and Chest X-rays**  
J. Williams, H. Ahlqvist, A. Cunningham, A. Kirby, S. Cunningham, A. Ozel, U. Wolfram

3:13pm - 3:25pm  
**In-vivo 3D Muscle Morphological Measurement Based on 3D Freehand Ultrasound and**

**TR05.7: Spine biomechanics III**  
Location: Porto Hall  
Chair: André P. G. Castro

2:00pm - 2:25pm  
**INVESTIGATING THE BIOMECHANICS OF THE SPINE WITH DIGITAL IMAGE CORRELATION (DIC)**  
L. Cristofolini

2:25pm - 2:37pm  
**Vertebra and disc slenderness are not an early sign of adolescent idiopathic scoliosis progression**  
C. Vergari, W. Skalli, K. Abelin-Genevois, J. C. Bernard, Z. Hu, J. C. Y. Cheng, W. C. W. Chu, A. Assi, M. Karam, I. Ghanem, T. Bassani, F. Galbusera, L. M. Sconfienza, M. Brayda-Bruno, I. Courtois, E. Ebermeyer, R. Vialle, T. Langlais, J. Dubouset

2:37pm - 2:49pm  
**DETERMINATION OF A LUMPED-PARAMETER MODEL OF THE INTERVERTEBRAL JOINT FROM AN EXPERIMENTAL DATASET**  
S. L. Gould, G. Davico, M. Palanca, L. Cristofolini, M. Viceconti

2:49pm - 3:01pm  
**The effect of intervertebral disc degeneration on the flexibility of the thoracic spine: An in vitro study**  
C. Liebsch, H.-J. Wilke

3:01pm - 3:13pm  
**Multiscale Mechanics of Collagen-Hyaluronan Interfaces in Annulus Fibrosus**  
S. Bhattacharya, D. K. Dubey

3:13pm - 3:25pm  
**RECOVERY OF TRUNK MOTION DURING GAIT AT 1-**

**TR06.7: Biomechanics of ageing and neuromuscular control**  
Location: Arrabida Hall  
Chair: Stephen Ferguson  
Chair: Annegret Mündermann

2:00pm - 2:12pm  
**AGE-RELATED DEGENERATION AFFECTS THE STRUCTURE-FUNCTION RELATIONSHIP OF HUMAN MENISCI**  
G. Q. Teixeira, J. Schwer, A. Ignatius, L. Dürselen, A. M. Seitz

2:12pm - 2:24pm  
**Influence of Ageing on Micromechanical Properties of the Femoral Neck Using the Inverse Method**  
B. Voumard, P. Stefanek, M. Pretterklieber, D. Pahr, P. Zysset

2:24pm - 2:36pm  
**In-vivo Determination of Region-Specific Material Parameters of Healthy and Osteoarthritic Menisci**  
J. Schwer, F. Galbusera, M. Sgroi, M. Faschingbauer, A. Ignatius, L. Dürselen, A. M. Seitz

2:36pm - 2:48pm  
**A NOVEL NEUROMECHANICAL MODEL FOR PREDICTING MUSCLE FORCE FROM MOTONEURON SPIKE TRAINS**  
L. Modenese, A. H. Caillet, A. T. Phillips, D. Farina

2:48pm - 3:00pm  
**ALTERATIONS IN UPPER EXTREMITY MUSCLE COORDINATION RESULTING FROM MUSCLE DYSTROPHY AND GRAVITY COMPENSATION**

**TR07.7: Virtual and augmented reality in biomechanics**  
Location: Miragala Hall  
Chair: Konstantinos Moustakas  
Chair: Bill Baltzopoulos

2:00pm - 2:25pm  
**Knee joint forces and cartilage stress in Osteoarthritis**  
V. Baltzopoulos, D. Britzman, D. Tsaopoulos

2:25pm - 2:37pm  
**BALANCE REACTION & MOTOR CONTROL DURING SIMULATED FEAR OF HEIGHT IN CHILDREN WITH CEREBRAL PALSY – A PILOT STUDY**  
R. Winter, R. Lohss, N. B. Singh, W. R. Taylor, R. M. Visscher, E. Viehweger

2:37pm - 2:49pm  
**OACTIVE: VR-BASED GAIT RETRAINING TO ADDRESS KNEE OSTEOARTHRITIS**  
G. Giarmatzis, S. Zouras, M. Pavlou, K. Moustakas

2:49pm - 3:01pm  
**A VIRTUAL REALITY ENVIRONMENT TO STUDY GAIT DERANGEMENTS IN PARKINSON'S DISEASE**  
C. Palmisano, I. Hanafi, I. U. Isaias

3:01pm - 3:13pm  
**MOTION ANALYSIS FOR VIRTUAL REALITY AIDED TRAINING AND REHABILITATION**  
M. Žuk, M. Popek, K. Bulińska, M. Wojtków, M. Łopusiewicz

2:48pm - 3:00pm  
**A TWO-PHASE GENETIC ALGORITHM TO MODEL THE MENISCAL HORN REPAIRED WITH SUTURE**  
M. B. ESTEBANEZ CAMPOS, A. PEÑA TRABALON, S. MORENO VEGAS, A.

**TR08.7: Advance computing for biomechanics II**  
Location: S. Joao Hall

2:00pm - 2:12pm  
**SPINADOID AND DUAL-LATTICE BASED ALGORITHMS FOR GENERATING BIOMIMETIC TRABECULAR BONE STRUCTURES**  
M. vafaefar, K. M. Moerman, T. J. Vaughan

2:12pm - 2:24pm  
**The Influence of Cross-linking on the Mechanical Properties of Collagen: A Bottom-up Approach**  
J. T. Kammi, C.-Y. Ke, D. Kammer

2:24pm - 2:36pm  
**BIORESORBABLE LATTICE STRUCTURES FOR TIME-DEPENDENT STIFFNESS IN FRACTURE FIXATION DEVICES**  
B. Hawthorn, A. Triantaphyllou, F. Khan, R. Dyson, L. E. J. Thomas-Seale

2:36pm - 2:48pm  
**Numerical modelling of a polymeric aneurysm in support for dimensioning a mechanical characterisation device**  
J. Raviol, G. Plet, H. Magoaric, C. Pailler-Mattei

		<p><b>MULTISCALE COMPUTATIONAL MODELING</b>  <u>A. Corti</u>, M. Colombo, J. M Rozowsky, S. Casarin, Y. He, F. Migliavacca, J. F Rodriguez Matas, S. A Bercei, C. Chiastra</p> <p>3:00pm - 3:12pm  <b>A SMART PARTICLE IMAGE VELOCIMETRY SYSTEM FOR THE IN VITRO ASSESSMENT OF CORONARY ARTERY HEMODYNAMICS</b>  <u>E. Torti</u>, G. C. A. Caridi, C. Chiastra, D. Gallo, U. Morbiducci</p> <p>3:12pm - 3:24pm  <b>A high-power LED illuminated piv setup to characterize the flow behaviour in abdominal aortic aneurysm models</b>  <u>F. Bardi</u>, E. Gasparotti, E. Vignali, M. Aguirre, S. Avril, S. Celi</p>	<p><b>CRACK PROPAGATION IN CORTICAL BONE ANALYZED WITH DIGITAL IMAGE CORRELATION</b>  <u>G. Galteri</u>, L. Grassi, J. Engqvist, S. A Hall, L. Cristofolini, H. Isaksson, A. Gustafsson</p> <p>3:12pm - 3:24pm  <b>NOVEL METHOD TO OBTAIN MECHANICAL PROPERTIES OF ISOLATED TRABECULAE UNDER COMPRESSION IN WET CONDITION</b>  <u>K. Haslinger</u>, M. Frank, D. H. Pahr, P. J. Thurner</p>	<p><b>Diffusion Tensor Imaging</b>  <u>Z. Wang</u>, F. Cenni, A. Destro, S. Petersson, R. Wang</p>	<p><b>WEEK AND 3-MONTHS AFTER SPINAL FUSION SURGERY IN AIS PATIENTS</b>  <u>T. Ackermans</u>, S. Schelfaut, P. Severijns, P. Moens, L. Moke, L. Scheyls</p>	<p><u>J. M. N. Essers</u>, K. Meijer, A. Peters, A. Murgia</p> <p>3:00pm - 3:12pm  <b>Functional simplification of motor control of antagonist muscles after stroke.</b>  <u>C. Delcamp</u>, C. Cormier, A. Chalard, D. Gasq, D. Amarantini</p> <p>3:12pm - 3:24pm  <b>SHARED SYNERGIES BETWEEN COMPLEX MOVEMENTS</b>  <u>P. Kaufmann</u>, L. Zweier, A. Baca, H. Kainz</p>	<p>ESPEJO REINA, F. NADAL MARTINEZ, F. M. GARCIA VACAS, A. M. PEREZ DE LA BLANCA COBOS, M. PRADO NOVOA</p> <p>3:00pm - 3:12pm  <b>HOW OXYGEN AND GLUCOSE INFLUENCE CELL GROWTH: A COMPUTATIONAL SIMULATION STUDY</b>  <u>M. I. Araújo Barbosa</u>, J. A. O. Pinto Belinha, R. Natal Jorge, A. Xavier de Carvalho</p>	
3:30pm - 4:00pm	Coffee Break							
4:00pm - 5:00pm	<p><b>ESB S.M. Perren Research Award: Standardized Tibio-Femoral Implant Loads and Kinematics, Michael J. Dreyer, ETH Zurich</b>  ESB S.M. Perren Research Award The winner of the 2022 ESB S.M. Perren Research Award is Michael Dreyer from the ETH Zurich (Switzerland) for the manuscript entitled: "Standardized Tibio-Femoral Implant Loads and Kinematics" by MJ Dreyer, A. Trepczynski, SH Hosseini Nasab, I Kutzner, P Schütz, B Weisse, J Dymke, B Postolka, P Moewis, G Bergmann, GN Duda, WR Taylor, P Damm, and CR Smith. Michael Dreyer is originally from Munich, Germany. He did his Bachelor's and Master's degree in mechanical engineering at ETH Zurich, Switzerland. There, he focused on robotics and composite materials. Currently, Michael is pursuing a Ph.D. under the supervision of Prof. William R. Taylor at the Laboratory for Movement Biomechanics at ETH Zurich and in close collaboration with Empa, the Swiss Federal Laboratories for Materials Science and Technology. In his project, Michael investigates the wear of joint implants. The project aims to develop validated simulation tools for the preclinical prediction...</p>							
5:00pm - 6:00pm	<p><b>TR01.8: Biomechanics of movement and posture: Motor control in ageing and pathology</b>  Location: Archive Hall  Chair: William R. Taylor  Chair: Lennart Scheyls</p> <p>5:00pm - 5:12pm  <b>WALKING IN CHILDREN WITH HEMIPLEGIA USING DIFFERENT TYPES OF ANKLE FOOT ORTHOSIS</b>  <u>F. Camuncoli</u>, A. Barbonetti, L. Piccinini, E. Di Stanislao, C. Corbetta, L. Donno, M. Galli</p> <p>5:12pm - 5:24pm  <b>A VECTOR FIELDS ANALYSIS TO INVESTIGATE FOOT-GROUND INTERACTIONS IN INFANCY DURING WALKING</b>  <u>E. Montagnani</u>, S. C Morrison, C. Price</p> <p>5:24pm - 5:36pm  <b>EXPLORING MINIMUM TOE CLEARANCE AS A PREDICTOR FOR RISK OF STUMBLES AND FALLS IN OLDER ADULTS</b>  <u>M. A Avalos</u>, N. J Rosenblatt</p> <p>5:36pm - 5:48pm  <b>DEVELOPMENT OF GROSS MOTOR CONTROL IN SCHOOL-CHILDREN: INFLUENCE OF AGE, SEX, AND ANTHROPOMETRY</b>  <u>R. Stagni</u>, A. Masini, S. Toselli, S. Marini, L. Bragonzoni, A. Ceciliani, M. Lanari, A. Sansavini, A. Tessari, D. Gori, L. Dallolio, M. C. Bisi</p> <p>5:48pm - 6:00pm  <b>Long Term effects of an ACL reconstruction on knee joint kinematics and loading.</b>  <u>J. Eichwalder</u>, W. Koller, A. Baca, P. Weninger, H. Kainz</p>	<p><b>TR02.8: Cardiovascular biomechanics VII: Image-based biomechanics</b>  Location: Infante Hall  Chair: Nele Famaey  Chair: Mathias Peirlinck</p> <p>5:00pm - 5:12pm  <b>Monitoring mechanical and geometrical progression of abdominal aortic aneurysms using 3D+t ultrasound</b>  E. Maas, A. Nievergeld, J. Fonken, M. Thirugnanasambandam, M. van Sambeek, <u>R. Lopata</u></p> <p>5:12pm - 5:24pm  <b>AAA mechanics during ultrasound procedures: a patient-specific computational study</b>  <u>M. I. Bracco</u>, M. E. Biancolini, L. Rouet, S. Avril</p> <p>5:24pm - 5:36pm  <b>USING 4D ULTRASOUND IMAGING TO QUANTIFY ARTERIAL WALL PROPERTIES IN VIVO</b>  <u>C. Blase</u>, A. Wittek, A. Hegner, W. Derwich, A. Huß</p> <p>5:36pm - 5:48pm  <b>MECHANICAL CHARACTERIZATION OF ABDOMINAL AORTIC ANEURYSMS USING 4D ULTRASOUND AND VIRTUAL FIELDS METHOD</b>  <u>M. Thirugnanasambandam</u>, E. J. Maas, A. H. Nievergeld, M. van Sambeek, S. Avril, R. Lopata</p> <p>5:48pm - 6:00pm  <b>US-BASED VOLUME-TIME CURVES OF THE AAA FOR ESTIMATING IN-VIVO THROMBUS COMPRESSIBILITY</b></p>	<p><b>TR03.8: Patient-specific modelling III</b>  Location: D. Maria Hall  Chair: Sebastian Laporte</p> <p>5:00pm - 5:12pm  <b>GENERATING PATIENT GAIT SPECIFIC FINITE ELEMENT MODELS OF THE HAEMOPHILIC ANKLE</b>  <u>H. G. Talbott</u>, R. A Wilkins, A. C Redmond, C. L Brockett, M. Mengoni</p> <p>5:12pm - 5:24pm  <b>INVESTIGATION OF THE EFFECT OF FOOT SOFT TISSUE STIFFENING ON THE PLANTAR CONTACT PRESSURE</b>  <u>Z. Kamal</u>, E. E. Hekman, G. J. Verkerke</p> <p>5:24pm - 5:36pm  <b>VALIDATION OF AN MRI-BASED PERSONALIZED MODEL OF THE SUBTALAR JOINT</b>  <u>M. Conconi</u>, A. Pompili, N. Sancisi, A. Leardini, C. Belvedere</p> <p>5:36pm - 5:48pm  <b>A comparison of foot mechanics between automatically generated personalised and scaled generic skeletal models</b>  <u>E. A. Mellak</u>, L. Modenese, C. Stewart</p> <p>5:48pm - 6:00pm  <b>Using Carbon Fiber Custom Dynamic Orthoses To Prevent Post-Traumatic Ankle Osteoarthritis</b>  K. Anderson, M. Corlett, J. Wilken, <u>D. D Anderson</u></p>	<p><b>TR04.8: Tissue engineering II</b>  Location: D. Luis Hall  Chair: Gwendolen Reilly  Chair: Alberto Sensini</p> <p>5:00pm - 5:12pm  <b>TISSUE-ENGINEERED COLLAGENOUS FIBROUS CAP MODELS TO EXPLORE ATHEROSCLEROTIC PLAQUE RUPTURE</b>  T. Wissing, K. van der Heiden, S. Serra, A. Smits, C. Bouten, <u>F. Gijzen</u></p> <p>5:12pm - 5:24pm  <b>FABRICATION OF MAGNESIUM AND STRONTIUM SUBSTITUTED HYDROXYAPATITE-POLYCAPROLACTONE COMPOSITES VIA 3D PRINTING FOR THE USAGE AS BONE FILLER</b>  <u>D. Syla</u>, L. Grillini, L. Forte, F. Claeysens, G. Reilley</p> <p>5:24pm - 5:36pm  <b>In-Vitro/In-Silico Modelling of Core-Shell Structures as Advanced Barrier Models</b>  <u>N. Guazzelli</u>, L. Cacopardo, A. Ieva, A. Corti, A. Ahluwalia</p> <p>5:36pm - 5:48pm  <b>TISSUE REMODELING AT THE INTERFACE BETWEEN PYROCARBON INTERPOSITION IMPLANTS AND HUMAN HUMERAL BONE</b>  <u>R. Gauthier</u>, G. Ouenzerfi, I. de Gaudemaris, N. Attik, M. Hassler, A.-M. Trunfio-Sfarghio</p> <p>5:48pm - 6:00pm  <b>ELECTROSPUN POLYMER GRAFT AS AN OPTION FOR TISSUE REPLACEMENT IN SEVERE SPRING LIGAMENT INJURIES</b>  <u>S. Nieto</u>, C. J. Cifuentes, J. C. Cruz, J. Hinojosa</p>	<p><b>TR05.8: Corporate Members Session</b>  Location: Porto Hall</p> <p>5:00pm - 5:12pm  <b>TISSUE-ENGINEERED COLLAGENOUS FIBROUS CAP MODELS TO EXPLORE ATHEROSCLEROTIC PLAQUE RUPTURE</b>  T. Wissing, K. van der Heiden, S. Serra, A. Smits, C. Bouten, <u>F. Gijzen</u></p> <p>5:12pm - 5:24pm  <b>FABRICATION OF MAGNESIUM AND STRONTIUM SUBSTITUTED HYDROXYAPATITE-POLYCAPROLACTONE COMPOSITES VIA 3D PRINTING FOR THE USAGE AS BONE FILLER</b>  <u>D. Syla</u>, L. Grillini, L. Forte, F. Claeysens, G. Reilley</p> <p>5:24pm - 5:36pm  <b>In-Vitro/In-Silico Modelling of Core-Shell Structures as Advanced Barrier Models</b>  <u>N. Guazzelli</u>, L. Cacopardo, A. Ieva, A. Corti, A. Ahluwalia</p> <p>5:36pm - 5:48pm  <b>TISSUE REMODELING AT THE INTERFACE BETWEEN PYROCARBON INTERPOSITION IMPLANTS AND HUMAN HUMERAL BONE</b>  <u>R. Gauthier</u>, G. Ouenzerfi, I. de Gaudemaris, N. Attik, M. Hassler, A.-M. Trunfio-Sfarghio</p> <p>5:48pm - 6:00pm  <b>ELECTROSPUN POLYMER GRAFT AS AN OPTION FOR TISSUE REPLACEMENT IN SEVERE SPRING LIGAMENT INJURIES</b>  <u>S. Nieto</u>, C. J. Cifuentes, J. C. Cruz, J. Hinojosa</p>	<p><b>TR06.8: Clinical and translational biomechanics / in silico trials III</b>  Location: Arrabida Hall  Chair: Richie Gill  Chair: Marco Viceconti</p> <p>5:00pm - 5:25pm  <b>IN SILICO TRIALS TO ASSESS THE SAFETY AND EFFICACY OF NEW TREATMENTS FOR MUSCULOSKELETAL DISEASES</b>  <u>M. Viceconti</u></p> <p>5:25pm - 5:37pm  <b>Markov chains with patient-specific FE models for in silico trials of antiresorptive drugs</b>  <u>A. A. La Mattina</u>, M. Viceconti</p> <p>5:37pm - 5:49pm  <b>Changes in gait patterns after hip arthroplasty - comparing IMU- and marker-based data</b>  <u>C. Nüesch</u>, P. Ismailidis, D. Koch, K. Stoffel, A. Mündermann</p>	<p><b>TR07.8: Biomaterials II</b>  Location: Miragaia Hall</p> <p>5:00pm - 5:25pm  <b>TAILOR-MADE POLYMERS: AN ADDITIONAL DEGREE OF FREEDOM IN THE TUNING OF MECHANICAL PROPERTIES IN TISSUE MODELING</b>  <u>G. Ciardelli</u></p> <p>5:25pm - 5:37pm  <b>ALIGNED ELECTROSPUN FIBRES GUIDE COLLAGEN DEPOSITION TO SUPPORT A LAMELLA-LIKE TWISTED ORIENTATION BY MSCS</b>  <u>A. J Hann</u>, G. C Reilly, N. Green, F. Claeysens</p> <p>5:37pm - 5:49pm  <b>Surface modifications to promote the osteoconductivity of UHMWPE fabrics for a novel biomimetic artificial disc prosthesis: an in vitro study</b>  C. A. M. Jacobs, <u>E. E. Cramer</u>, A. A. Dias, H. Smelt, S. Hofmann, K. Ito</p> <p>5:49pm - 6:01pm  <b>A FRAMEWORK TOWARDS THE DESIGN OF TUNABLE AND GRADED OPEN-CELL BONE SCAFFOLDS WITH ANISOTROPIC PROPERTIES</b>  <u>K. Chelkho</u>, C. Laurent, J.-F. Ganghoffer</p>	<p><b>TR08.8: Advance computing for biomechanics III</b>  Location: S. Joao Hall</p> <p>5:00pm - 5:12pm  <b>CFD SIMULATION OF THA FOR DIFFERENT FEMUR POSITIONS INCLUDING MICROMOTION BETWEEN BONE AND IMPLANT</b>  <u>A. Hrouda</u>, M. Vanierschot, L. Capek, M. Muller, K. Denis</p> <p>5:12pm - 5:24pm  <b>TESTING SIMULATED CARTILAGE BIOMECHANICS TO PREDICT KNEE OSTEOARTHRITIS: DATA FROM THE OSTEOARTHRITIS INITIATIVE</b>  <u>A. Paz</u>, R. K. Korhonen, J. J. Garcia, M. E. Mononen</p> <p>5:24pm - 5:36pm  <b>Fluid-Structure Interaction Analysis of Descending Aorta After VSRR Surgery: The Effects of Graft Stiffness</b>  <u>G. Nannini</u>, M. C. Palumbo, S. Saitta, A. Caimi, J. D. Humphrey, Y. Wang, L. N. Girardi, M. Gaudio, J. W. Weinsaft, E. Votta, A. Redaelli</p> <p>5:36pm - 5:48pm  <b>IMPLEMENTATION OF SMOOTHED SURFACE, SLIDING CONTACT IN THE VOXEL BASED FINITE ELEMENT SOLVER PAROSOL</b>  <u>F. M. Trommer</u>, P. Bhattacharya</p>

**AND WALL  
STIFFNESS**

**A. Nievergeld, E. Maas,  
J. Fonken, M. van  
Sambeek, F. van de  
Vosse, R. Lopata**

6:00pm

-

7:00pm

**ESB General Assembly**

8:00pm

-

11:00pm

**ESB 2022 Congress Dinner**

Venue: Real Companhia Velha Cellars - Baron's hall (Azevedo Magalhaes 314, Via Nova de Gaia. Metro: General Torres

<p>8:30am - 9:45am</p>	<p><b>TR01.9: Patient-specific modelling IV</b> Location: Archive Hall Chair: Claudio Vergari</p> <p>8:30am - 8:42am <b>CT-Based FEA and Computational Fluid Dynamics Applied to Scaffold-Based Reconstruction of a Sheep Mandible</b> B. M. Ferguson, W. Lewin, H. Zreiqat, J. Clark, Q. Li</p> <p>8:42am - 8:54am <b>Ultrasound-based FSI modeling of aortic aneurysms: impact of the aortic bifurcation and inlet velocity profile</b> J. Fonken, E. van Engelen, E. Maas, A. Nievergeld, M. van Sambek, F. van de Vosse, R. Lopata</p> <p>8:54am - 9:06am <b>VALIDATION OF AN IMAGE-BASED APPROACH FOR PATIENT-SPECIFIC ARTERIAL MODELLING IN CORONARY STENTING SIMULATIONS</b> G. Poletti, L. Antonini, P. Tsompos, G. S. Karanasiou, D. I. Fotiadis, L. Petrini, G. Pennati</p> <p>9:06am - 9:18am <b>EVALUATING THE EFFECT OF COMPUTATIONAL DOMAIN REDUCTION IN ASCENDING AORTA SIMULATIONS</b> A. Martinez, L. Geronzi, M. Daniel, P. Escrig, J. Tomasi, M. Rochette, M. E. Biancolini</p> <p>9:18am - 9:30am <b>PATIENT-SPECIFIC PRE- AND POST-SURGICAL STOMACH MODELS</b> I. Toniolo, A. Berardo, S. Perretta, G. Quero, C. Fiorillo, E. L. Carniel</p> <p>9:30am - 9:42am <b>ON THE USE OF DIGITAL TWIN TECHNOLOGY ARIELLE FOR THE DEVELOPMENT OF PERINATAL LIFE SUPPORT SYSTEMS</b> B. G. van Willigen, M. B. van der Hout-van der Jagt, W. Huberts, F. N. van de Vosse</p>	<p><b>TR02.9: Musculoskeletal biomechanics III: Hip, trunk, foot</b> Location: Infante Hall</p> <p>8:30am - 8:42am <b>Hip contact forces in patients with increased femoral antetorsion do not differ with different gait patterns</b> N. Alexander, E. Viehweger, J. Cip, R. G. Brunner, E. De Pieri</p> <p>8:42am - 8:54am <b>Differences in impingement patterns in cam-type hips with superior and anterior asphericity of the femur</b> A. C. Jones, T. D. Stewart, N. Maher, C. Holton</p> <p>8:54am - 9:06am <b>COMPARATIVE EFFECTS OF SURGICAL AND NON-SURGICAL THERAPY ON HIP CONTACT FORCE FOR FEMOROACETABULAR IMPINGEMENT SYNDROME</b> A. Nasseri, L. Diamond, T. Savage, T. Grant, M. Hall, K. Bennell, J. Eyles, L. Spiers, D. Hunter, D. Lloyd, D. Saxby</p> <p>9:06am - 9:18am <b>SINERGY-BASED MULTIBODY KINEMATICS OPTIMIZATION TO TRACK ALL THE FOOT BONES WITH A STANDARD GAIT PROTOCOL</b> A. Pompili, M. Conconi, N. Sancisi, A. Leardini, S. Durante, C. Belvedere</p> <p>9:18am - 9:30am <b>REFINING THE OXFORD FOOT MODEL TO DESCRIBE THE KINEMATICS OF THE MEDIAL LONGITUDINAL ARCH</b> J. Uhan, A. Kothari, A. Zavatsky, J. Stebbins</p> <p>9:30am - 9:42am <b>Validation of an electromyography-driven musculoskeletal model for trunk mechanical analysis</b> A. Moya-Esteban, H. van der Kooij, M. Sartori</p>	<p><b>TR03.9: Implants / orthotics / prosthetics / devices VII: Bone response</b> Location: D. Maria Hall</p> <p>8:30am - 8:42am <b>TRIPY PERIODIC MINIMAL SURFACE FOR BIOINSPIRED DISSIMILAR MATERIAL INTERFACING</b> M. Cruz Saldivar, E. Tay, E. L. Doubrovski, M. J. Mirzaali, A. A. Zadpoor</p> <p>8:42am - 8:54am <b>THE ROLE OF THE SOCKET IN BMD LOSS IN TRANSFEMORAL AMPUTEES</b> J. L. Zavaleta Ruiz, S. Dimartino, L. Hutton, P. Pankaj</p> <p>8:54am - 9:06am <b>INCIDENCE OF PELVIC BONE OVER THE STRESS STATE AT THE RESIDUAL LIMB/SOCKET INTERFACE OF TRANSFEMORAL AMPUTEES</b> J. Atehortua C., V. Mejia Gallón, J. Ramirez</p> <p>9:06am - 9:18am <b>Validated Finite Element simulation of porous titanium samples under fatigue loading for design optimization</b> A. Vautrin, J. Aw, E. Attenborough, P. Varga</p> <p>9:18am - 9:30am <b>LONGITUDINAL FUNCTIONAL ASSESSMENT OF A TRANSFERMORAL AMPUTEE PATIENT TREATED WITH OSSEOINTEGRATION SURGERY</b> S. Di Paolo, D. Alesi, A. I. Mirulla, E. Gruppioni, S. Zaffagnini, L. Bragonzoni</p>	<p><b>TR04.9: Mechanobiology III: In silico</b> Location: D. Luis Hall Chair: Hans Van Oosterwyck</p> <p>8:30am - 8:42am <b>A coupled finite element and systems biology model to study the role of mechanics and inflammation in knee OA</b> S. Mukherjee, R. Lesage, L. Geris</p> <p>8:42am - 8:54am <b>IDENTIFICATION OF THE MOST IMPORTANT CELLULAR PROCESSES BEHIND IMPAIRED BONE REGENERATION IN TYPE-2 DIABETES</b> M. Jaber, G. Duda, S. Checa</p> <p>8:54am - 9:06am <b>EMERGENCE OF BONE REMODELLING BEHAVIOUR FROM A MICRO-MULTIPHYSICS AGENT-BASED MODEL</b> J. J. Kendall, D. Boaretti, C. Ledoux, F. C. Marques, E. Wehrle, R. Müller</p> <p>9:06am - 9:18am <b>BIOMECHANICAL MODEL OF BONE REMODELING COUPLED WITH ADVANCED DISCRETIZATION METHODS</b> M. Peyroteo, J. Belinha, R. Natal</p> <p>9:18am - 9:30am <b>The influence of Wnt pathway in bone remodelling and calcium concentration in microgravity conditions</b> A. Pica, A. Marinuzzi, F. Marinuzzi, F. Bini</p> <p>9:30am - 9:42am <b>DISRUPTED OSTEOCYTE CONNECTIVITY AND MECHANOSENSATION IN BONE WITH AGING AND DEFECTIVE TGF-<math>\beta</math> SIGNALLING</b> S. Verbruggen, C. Schurman, T. Alliston</p>	<p><b>TR05.9: Sport biomechanics I</b> Location: Porto Hall Chair: Hans Kainz Chair: António Prieto Veloso</p> <p>8:30am - 8:42am <b>HIP CONTACT FORCES DURING SPRINTING IN FEMOROACETABULAR IMPINGEMENT SYNDROME</b> B. Gonçalves, E. Meinders, D. Saxby, R. Barrett, L. Diamond</p> <p>8:42am - 8:54am <b>Muscle Contributions To Knee Bone-on-Bone Forces during an Horizontal Deceleration Task in Elite Athletes</b> R. B. Mateus, V. Ferrer-Roca, F. João, A. P. Veloso</p> <p>8:54am - 9:06am <b>V-SPINE ANGLE AND GROUND REACTION FORCES IN FAST BOWLING IN CRICKET</b> R. E. Ferdinands, U. Singh</p> <p>9:06am - 9:18am <b>HIGHER JOINT LOADING DUE TO INCREASED JOINT ANGLES IN PROFESSIONAL COMPARED TO NOVICE LATIN DANCERS</b> C. Egner, H.-B. Schmiedmayer, H. Kainz</p> <p>9:18am - 9:30am <b>A postural strategy at string release in elite archers</b> A. KUCH, R. TISSERAND, F. DURAND, T. MONNET</p> <p>9:30am - 9:42am <b>The reliability of a novel 3D motion capture protocol for the analysis of instep soccer kick kinematics</b> D. Al Othi, L. Scheyes</p>	<p><b>TR06.9: Impact / injury biomechanics I</b> Location: Arrabida Hall Chair: David Mitton Chair: Claran Simms</p> <p>8:30am - 8:55am <b>DIGITAL TWINS AND COUPLED APPROACHES FOR MANAGEMENT OF TIBIAL PLATEAU FRACTURE</b> A. Germaine</p> <p>8:55am - 9:07am <b>A multimodal framework for evaluating the efficacy of orthopaedic implants in a sideways fall impact</b> E. Bliven, A. Fung, I. Fleps, A. Baker, B. Helgason, P. Guy, P. Cripton</p> <p>9:07am - 9:19am <b>Development of a simplified human thoracic FE model for blunt impact and related trauma.</b> M. CHAUFER, R. DELILLE, B. BOUREL, C. MARECHAL, F. LAURO, O. MAUZAC, S. ROTH</p> <p>9:19am - 9:31am <b>MECHANICAL CHARACTERIZATION OF A KNEE COMPRESSION FRACTURE BY H-DVC ON A CLINICAL CT-SCAN</b> M. Severyns, I. Vendeuvre, K. Aubert, V. Valle, A. Germaneau</p> <p>9:31am - 9:43am <b>EXPERIMENTAL STUDY OF CERVICAL SPINE INJURY AND KINEMATICS IN LATERAL HEAD IMPACT</b> M.-H. Beausejour, N. Bailly, W. Wei, L. Troude, P. Panichelli, P.-J. Arnoux</p> <p>9:43am - 9:55am <b>CHANGE OF DIRECTION BIOMECHANICS AND COORDINATION IN ANTERIOR CRUCIATE LIGAMENT-INJURED FEMALE FOOTBALLERS</b> S. Di Paolo, L. Bragonzoni, A. Grassi, S. Zaffagnini</p>	<p><b>TR07.9: Skin biomechanics</b> Location: Miragaia Hall Chair: Jérôme Molimard Chair: Michael Crichton</p> <p>8:30am - 8:55am <b>SKIN – AN ACCESSIBLE WINDOW TO HEALTH</b> M. Crichton</p> <p>8:55am - 9:07am <b>Characterising the mechanical properties of skin wounds</b> S. Medina-Lombartero, J. Cash, B. Reuben, M. Crichton</p> <p>9:07am - 9:19am <b>combined measurement of friction and through-thickness deformation on ex vivo skin samples</b> B. Eydan, B. Pierrat, N. Curt, H. Zahouani, J. Zouhairi</p> <p>9:19am - 9:31am <b>TENSILE TESTING OF CELL SHEETS: AN EXPERIMENTAL APPROACH</b> M. G. Fernandes, M. D. Malta, A. André, P. Martins, A. P. Marques</p>	<p><b>TR08.9: Inspirational key note lecture - "How to Communicate Science"</b> Location: S. Joao Hall Lecturer: prof. Joana Lobo Antunes</p>
<p>9:45am</p>	<p>Coffee Break</p>							
<p>10:15am</p>	<p>10:15am - 11:40am</p>	<p><b>TR01.10: Cardiovascular biomechanics VIII: Multiscale computational modeling</b> Location: Archive Hall Chair: Fanette Chassagne Chair: Diego Gallo</p> <p>10:15am - 10:40am <b>Opportunities in multiscale and multiphysics human heart modeling</b> M. Peirlinck</p> <p>10:40am - 10:52am <b>THE INFLUENCE OF THE ORTHOTROPIC TISSUE IN A ELECTROMECHANICAL HEART MODEL</b> D. Holz, D. Martonova, E. Schaller, M. T. Duong, M. Alkassar, S. Leyendecker</p> <p>10:52am - 11:04am <b>USING THE DIGITAL TWIN OF HUMAN</b></p>	<p><b>TR02.10: Musculoskeletal biomechanics IV: Methods</b> Location: Infante Hall</p> <p>10:15am - 10:40am <b>Biomechanics of craniofacial growth</b> M. Moazen</p> <p>10:40am - 10:52am <b>Tendon compliance affects time-series energy expenditure</b> A. I. Luis Pena, M. Afschrift, F. De Groot, E. M. Gutierrez-Farewik</p> <p>10:52am - 11:04am <b>CALIBRATION OF A NEUROMUSCULOSKELETAL MODEL AT THE JOINT TORQUE AND JOINT STIFFNESS LEVELS SIMULTANEOUSLY</b> C. P. Cop, A. C. Schouten, B. Koopman, M. Sartori</p>	<p><b>TR03.10: Hard tissue biomechanics IV: Bone remodelling, and diseases</b> Location: D. Maria Hall Chair: Enrico Dall'Ara Chair: Alexandra Tits</p> <p>10:15am - 10:27am <b>Effectiveness of Alternating PTH and Mechanical Loading Treatment in an Ovariectomised Mouse Model</b> V. S. Cheong, B. Roberts, V. Kadirkamanathan, E. Dall'Ara</p> <p>10:27am - 10:39am <b>Homogenized-FE-based inverse bone remodeling: Modified optimization criterion and evaluation on the distal radius</b></p>	<p><b>TR04.10: Mechanobiology IV: In silico</b> Location: D. Luis Hall Chair: Hans Van Oosterwyck Chair: Daphne Welts</p> <p>10:15am - 10:27am <b>A 3D COMPUTATIONAL MODEL OF AORTIC VALVE INTERSTITIAL CELL CONTRACTILE BEHAVIOR WITHIN A PEG HYDROGEL MEDIUM</b> A. Khang, M. S. Sacks</p> <p>10:27am - 10:39am <b>AGENT – BASED MODEL OF VASCULOGENESIS INCLUDING CELL – ECM INTERACTIONS</b> A. Carrasco-Mantis, T. Alarcón, J. A. Sanz-Herrera</p> <p>10:39am - 10:51am</p>	<p><b>TR05.10: Sport biomechanics II</b> Location: Porto Hall Chair: António Prieto Veloso Chair: Joao Paulo Vilas-Boas</p> <p>10:15am - 10:27am <b>CONTRIBUTIONS TO THE SHAPE OF THE FORCE-VELOCITY RELATIONSHIP IN SIMULATIONS OF LOADED SQUAT JUMPS</b> S. J. Allen</p> <p>10:27am - 10:39am <b>A KINEMATIC ANALYSIS OF THE 10-BALL BREAK IN PROFESSIONAL POOL BILLARDS</b> P. Kornfeind, T. Boindl, A. Baca</p> <p>10:39am - 10:51am</p>	<p><b>TR06.10: Impact / injury biomechanics II</b> Location: Arrabida Hall Chair: David Mitton Chair: Claran Simms</p> <p>10:15am - 10:40am <b>Modelling blast injury; from clinical data to pathophysiology and protection</b> S. Masouros</p> <p>10:40am - 10:52am <b>TOWARDS COMPUTATIONAL MODELLING OF ACTIVE RESPONSE IN CYCLIST FALLS FROM IN-THE-WILD FOOTAGE</b> K. Gildea, C. Simms</p> <p>10:52am - 11:04am <b>SIMULATION OF BICYCLE ACCIDENTS</b></p>	<p><b>TR07.10: Ergonomics / occupational biomechanics / rehabilitation I</b> Location: Miragaia Hall Chair: Margit Gröher Chair: Xuguang Wang</p> <p>10:15am - 10:40am <b>Computer Modelling and Investigations of Capsule Dynamics in Flows: Membrane Viscosity Effect</b> J. Zhang</p> <p>10:40am - 10:52am <b>UMBILICAL CORDS ABNORMALITIES CLASSIFICATION BASED ON FLOW SIGNALS FROM DOPPLER ULTRASOUND SIMULATOR</b> S. Naftali, Y. Nareznoy Ashkenazi, A. Ratnovsky</p>



<p><b>FETAL HEART TO PREDICT OUTCOMES OF A FETAL HEART INTERVENTION</b> L. E. Green, W. X. Chan, A. Tulzer, G. Tulzer, C. H. Yap</p> <p>11:04am - 11:16am <b>COMPUTATIONAL STUDY ON TWO IDEALIZED MODELS OF THE LEFT VENTRICLE WITH DIFFERENT MYOFIBER ARCHITECTURES</b> K. Osouli, F. De Gaetano, P. Zunino, M. L. Costantino</p> <p>11:16am - 11:28am <b>IMPACT OF HYPERTENSION AND ARCH MORPHOLOGY ON AORTIC HEMODYNAMICS: A PRELIMINARY NUMERICAL ANALYSIS</b> M. A. D'Attimo, A. Caimi, M. Marrocco-Trischitta, E. Sturla, A. Redaelli</p>	<p>11:04am - 11:16am Estimating a single maximum muscle-tendon length from discretised muscles C. F. Hayford, E. Montefiori, E. Pratt, C. Mazzà</p> <p>11:16am - 11:28am <b>QUANTITATIVE VALIDATION OF A DEEP LEARNING BASED MARKERLESS MOTION CAPTURE SYSTEM</b> T. Templin, T. Eliason, D. Chambers, N. Louis, O. Medjaouri, K. Saylor, D. Nicoletta</p> <p>11:28am - 11:40am <b>SMART FLEXIBLE GARMENT AND RAPID NEUROMUSCULOSKELETAL MODELLING FOR FAST AND ACCURATE CLINICAL DECISION-MAKING</b> D. Simonetti, B. Koopman, S. Massimo</p>	<p>S. Bachmann, D. H. Pahr, A. Synek</p> <p>10:39am - 10:51am <b>MICRO-FE DERIVED MECHANICAL PROPERTIES FOR TRABECULAR BONE REMODELING AND ADAPTATION UNDER LOADING</b> D. BOARETTI, F. C. MARQUES, J. J. KENDALL, G. A. KUHN, E. WEHRLE, Y. D. BANSOD, R. MÜLLER</p> <p>10:51am - 11:03am <b>DAMAGE MECHANICS OF TYPE-2 DIABETIC TRABECULAR BONE SUBJECT TO MONOTONIC AND CYCLIC LOADING</b> M. Britton, J. Schiavi, T. J Vaughan</p> <p>11:03am - 11:15am In end-stage knee osteoarthritis the subchondral bone microarchitecture of the tibial plateau is correlated to that of the distal femur F. Azari, W. Colyn, J. Bellemans, L. Scheys, G. H. van Lenthe</p> <p>11:15am - 11:27am <b>NEW INSIGHTS INTO HIGH-RESOLUTION STRAIN FIELDS OF TRABECULAR BONE USING DIGITAL IMAGE CORRELATION</b> N. Amraish, D. Pahr</p> <p>11:27am - 11:39am <b>SITE-MATCHED MICROPILLAR COMPRESSION AND RAMAN SPECTROSCOPY TO ASSESS JAW BONE QUALITY</b> T. Kochetkova, A. Groetsch, C. Peruzzi, M. Indermaur, S. Remund, B. Neuenschwander, J. Hofstetter, B. Bellon, J. Michler, P. Zysset, J. Schwiedrzik</p>	<p><b>THE ROLE OF OUTER-VASCULAR MECHANICS ON SPROUTING ANGIOGENESIS: AN IN SILICO STUDY</b> C. Dazzi, J. Mehl, G. N. Duda, S. Checa</p> <p>10:51am - 11:03am <b>NUMERICAL AND EXPERIMENTAL APPROACH TO STUDY THE RESPONSE OF YAP AND NPC TO DIFFERENT MECHANICAL SIGNALS</b> S. Saporito, C. F. Natale, C. Menna, P. A. Netti, M. Ventre</p> <p>11:03am - 11:15am <b>MAGNETO-ACOUSTIC INTERACTION IN MAGNETIC NANOSYSTEMS</b> R. Marqués, A. Ashofteh Yazdi, J. Melchor, R. Ibarra, G. Rus</p> <p>11:15am - 11:27am <b>Agent-Based Model of Long-term Disease Progression in Duchenne Muscular Dystrophy</b> K. Crump, S. Peirce-Cottler, S. Blemker</p> <p>11:27am - 11:39am In silico avatars of cells to predict and drive cell migration on travelling waves J.-L. Milan, M. Vassaux, L. Pieuchot, K. Anselme, I. Manificier</p>	<p><b>DO FATIGUE-INDUCED CHANGES IN COGNITIVE PERFORMANCE RELATE TO CHANGES IN KNEE MECHANICS?</b> F. Bertozzi, P. D. Fischer, F. Aflatounian, K. A. Hutchison, M. Galli, M. Tarabini, C. Sforza, S. M. Monfort</p> <p>10:51am - 11:03am <b>FINGERBOARD HANGING LOCK-OFFS: REFINING PRACTICE GUIDELINES FOR CLIMBERS</b> J. Exel, O. Froschauer, D. Deimel, A. Baca, H. Kainz</p> <p>11:03am - 11:15am <b>FINITE ELEMENT MODELLING OF SPORTS FOOTWEAR GRIP PERFORMANCE ON WET HARD SURFACES</b> L. Sissler, J. Gringet-Charre, K. Beschorner, I. Tarrade</p> <p>11:15am - 11:27am <b>Accuracy of a new local positioning system in obtaining speed and acceleration during game sports movements</b> P. X. Fuchs, Y.-C. Chou, W.-H. Chen, N. J. Fiolo, T.-Y. Shiang</p>	<p><b>USING HUMAN BODY MODELS</b> K. Brodin, V. Alvarez, A.-K. Sätther, D. Olsson, H. Wendelrup</p> <p>11:04am - 11:16am <b>PERIPROSTHETIC FRACTURE MODELLING USING A COMBINED FINITE ELEMENT – SMOOTH PARTICLE HYDRODYNAMIC METHOD</b> Ö. Cebeci, S. Checa</p> <p>11:16am - 11:28am Simulating head-first impact in sport: a hybrid multibody and finite element head and neck model T. Holzinger, J. Martinek, D. Cazzola, B. Sagl</p> <p>11:28am - 11:40am <b>BIOMECHANICAL BEHAVIOUR OF THE TRANSVERSE LIGAMENT OF THE ATLAS: AN IN VITRO EXPERIMENTAL ANALYSIS</b> S. Laporte, S. Persohn, B. Sandoz</p>	<p><b>Safety in New Mobility Solutions</b> J. Linn, J. Fehr</p> <p>11:05am - 11:17am <b>Motion Analysis of Therapeutic Climbing: a Rehabilitation Tool for Children with Cerebral Palsy</b> C. Monoli, G. Simoni, J. A. Tutan, E. Palermo, M. Galli, A. Colombo</p> <p>11:17am - 11:29am <b>MUSCLE ACTIVITY ASSOCIATED WITH PERFORMING ROBOT-ASSISTED AND CONVENTIONAL LAPAROSCOPY</b> A. Shugaba, J. Lambert, H. Nuttall, D. Subar, C. Gaffney, T. Bampouras</p>	<p>10:52am - 11:04am Near wall dynamics of a tilted lighthouse return cannula F. Fusco, L. M. Broman, L. Prah Wittberg</p> <p>11:04am - 11:16am An In-Silico Pipeline for Patient-Specific Haemodynamic Analysis of the Aorta S. Black, C. Maclean, P. Hall Barrientos, K. Ritos, A. Kazakidi</p>
<p>11:45am - 12:30pm</p>	<p>Keynote lecture 3: Meta-biomaterials, Amir Zadpoor</p>						
<p>12:30pm - 1:15pm</p>	<p>Lunch Break</p>						
<p>1:15pm</p>	<p>PS3: Poster session 3</p>						
<p>2:00pm</p>	<p><b>3D-printer enabling customized anatomic models</b> L. Jaksá, A. Lorenz</p> <p><b>Calibration wand design for motion analysis</b> K. Rácz, R. M. Kiss</p> <p><b>PARROTS ACHIEVE GREATER MECHANICAL EFFICIENCY ON ARBOREAL SUBSTRATES</b> M. W. Young, E. Dickinson, N. D. Flaim, A. C. Bastian, M. C. Granatosky</p> <p><b>MUSCULOSKELETAL SOFTWARE FOR TEACHING BIOMECHANICS AT UNDERGRADUATE AND MASTERS LEVEL</b> B. May, J. Shippen</p> <p><b>Color-Doppler based hemodynamics of aortic phantoms</b> M. N. Antonuccio, F. Bardi, E. Vignali, E. Gasparotti, A. This, L. Rouet, S. Avril, S. Celi</p> <p><b>RELIABILITY ANALYSIS OF MAGNETIC RESONANCE MEASUREMENTS OF FATTY INFILTRATION IN ADULTS WITH SPINAL DEFORMITIES</b> E. Beaucage-Gauvreau, P. Severijns, T. Overbergh, A. Meynen, T. Ackermans, N. Schepens, L. Moke, L. Scheys</p> <p><b>A VIRTUAL LABORATORY FOR THE DETERMINATION OF MINIMAL FUSION AREAS IN TIBIA PSEUDARTHROSIS</b> M. Roland, S. Diebels, K. Wickert, A. Andres, B. Bouillon, T. Tjardes</p> <p><b>Development of Sol-Gel TiO<sub>2</sub>/Hydroxyapatite Composite Osteoinductive Coatings</b> J. Rodrigues, L. Grillini, R. Bondoni, L. Forte, G. Reilly, F. Claeysens</p> <p><b>LOW-COST METHODOLOGY FOR PVA PHANTOM MANUFACTURING AS SOFT TISSUE SIMULANT</b> B. Miguélez Garrido, L. Elvira, J. Pascau, M. Marco</p> <p><b>CORROSION RESISTANCE OF THE GRADE 2 TITANIUM AFTER THERMOPLASTIC DEFORMATION</b> J. Bańcerowski, M. Pawlikowski, T. Płociński, M. Grobelny</p>						

**DEVELOPMENT AND MODELLING OF FUNCTIONALLY GRADED BIOINSPIRED HIP IMPLANT IN REDUCING STRESS SHIELDING**

S. A. Naghavi, J. Hua, M. Moazen, S. Taylor, [C. Liu](#)

**DESIGN, DEVELOPMENT, AND TESTING OF A NOVEL WEARABLE DEVICE FOR REHABILITATION AFTER ANKLE SPRAIN**

[N. Breitman](#), A. Fischer

**EFFECTS OF BREATHING ON SPINE POSTURE AND STABILITY**

P. Chaves, J. Ramirez, J. Noailly, [S. Tassani](#)

**MECHANICAL BEHAVIORS OF THE SACROILIAC JOINT**

A. Jeon, E. Hong, T. S. Bae, [D.-S. Kwak](#)

**FLUID-STRUCTURE INTERACTION ANALYSES OF BLOOD FLOWS IN LARGE ARTERIES**

[D. Jodko](#)

**ACOUSTIC LENS DESIGN FOR IN-VITRO CELL STIMULATION: A NUMERICAL STUDY**

[E. Doveri](#), M. Majnooni, C. Guivier-Curien, P. Lasaygues, C. Baron

**Computational modelling of cell response to various mechanical stimuli**

V. V. S. V. Jakka, [L. Orlova](#), J. Bursa

**CLOSED-LOOP BIAXIAL CELL STRETCHING SYSTEM FOR CONTROLLING CELL MECHANO-TRANSDUCTION PROCESSES**

[L. Crimaldi](#), V. Panzetta, C. Natale, P. A. Netti

**Comparison of different tensegrity models of the living cell undergoing compression**

[A. Arduino](#), S. Petteuzzo, A. Berardo, V. Salomoni, E. L. Carniel, C. Majorana

**TRILEAFLET VS BILEAFLET MECHANICAL AORTIC VALVE – ASSESSMENT OF THEIR BLOOD ANTICOAGULATION PERFORMANCE**

[A. Nieroda](#), M. Pawlikowski

**ADHESION PROPERTIES OF A MONOLAYER OF ENDOTHELIAL CELLS ON MICROFLUIDICS DEVICES**

I. Rios, M. A. Martinez, [E. Peña](#)

**A NOVEL FSI FRAMEWORK FOR HIGH-FIDELITY SIMULATION OF HEMODYNAMICS IN INTRACRANIAL ANEURYSMS**

[A. Goetz](#), P. Jeken-Rico, R. Nemer, P. Meliga, A. Larcher, A. Sanches, Y. Özpeynirci, T. Liebig, E. Hachem

**Analysis of the influence of the arterial wall mechanics in a mechanobiological model of atherosclerosis**

[P. Hernández-López](#), N. Laita, M. Cilla, M. Á. Martínez, E. Peña

**A NEW TECHNIQUE OF RECONSTRUCTING 3D GEOMETRIES FROM CT IMAGES – A CFD STUDY**

[M. Meskin](#), R. Hvid, M. Sand Traberg

**A Fluid-Structure Interaction approach for patient-specific thoracic aortic wall stress analysis using SimVascular**

[R. B. Valente](#), A. F. G. Mourato, M. G. Brito, J. M. C. Xavier, S. Avril, J. M. d. A. Cesar de Sá, A. C. Tomás, J. Fragata

**In silico Ultrasound stimulation Of osteocyte in Bone lacuno-canalicular network**

M. Majnooni, E. Doveri, P. Lasaygues, C. Guivier-Curien, [C. Baron](#)

**SILICO AND IN VITRO TESTS TO ASSESS MECHANICAL HEMOLYSIS IN HEMODIALYSIS CATHETERS**

[I. Guidetti](#), F. De Gaetano, D. Gallo, U. Morbiducci, M. L. Costantino

**WHICH POSTERIOR SLOPE SHOULD BE USED WITHIN A MEDIAL STABILISED TKA DESIGNS: AN IN VITRO WEIGHT-BEARING KNEE RIG STUDY**

L. Bauer, C. Thorwächter, A. Steinbrück, V. Jansson, H. Traxler, B. Holzapfel, [M. Woiczinski](#)

**APPROACH TO HUMAN JOINT ANALYSIS IMPLEMENTING ACCELEROMETERS FOR OUTDOOR MOTION STUDIES**

[J. A. Hinojosa Virviescas](#), D. S. Pulgarín Castañeda, C. Cifuentes-De la Portilla

**A VISCOELASTOPLASTIC MODEL TO INTERPRET DENTAL CEMENTS RESPONSE TO A NANOINDENTATION TEST**

[G. Serino](#), A. Audenino

**Finite Element Analysis of Mechanical Behavior of a Jaw Plate during the Implant Biodegradation Process**

[P. Ansoms](#), M. Barzegari, L. Geris

**VENTRICULAR SEPTAL DEFECT FROM IN SILICO STUDY TO CLINICAL PRACTICE**

[M. BELGHITI ALAOUI](#), F. EL-LOUALI, M. EVIN

**FRACTURE RESISTANCE OF ZIRCONIA REINFORCED LITHIUM SILICATE DENTAL RESTORATIONS AFTER THERMOCYCLING**

[R. D. Vasiliu](#), L. Rusu, A. Boloş, S. D. Porojan, L. Porojan

**STRESS RELAXATION PHENOMENA IN POLYMERIC ORTHODONTIC LIGATURES**

[G. Milewski](#)

**Diabetic shoe upper pressures: Results of a proof concept**

S. Lopes, [P. Martins](#), C. Silva, A. Marques, L. Figueiredo

**A THUMS BASED MULTIBODY MODEL FOR DRIVING SIMULATIONS WITH SEAT INTERACTION**

[M. Roller](#), D. N. Fahse, M. Harant, M. Obentheuer, J. Fehr, J. Linn

**Evaluation of Optimal Procedures for Medical Staff Handling with Patients in Nursing Care**

[Z. Horak](#), M. Docekalova, P. Vrsecka, M. Hanacek

**ON THE PERFORMANCE OF CABLE-DRIVEN MOBILE LOWER LIMB REHABILITATION EXOSKELETON: THREE VERSUS FOUR CABLES**

R. Prasad, K. Khalaf, M. I. Awad, I. Hussain, H. F. Jelinek, U. Huzaifa, [M. E. Rich](#)

**SOFT DESIGN FOR AN REHABILITATION EXOSUIT: A PRELIMINARY APPROACH**

[A. D. André](#), A. M. Teixeira, P. Martins

**PREDICTING FRACTURE LOCALIZATION IN TRABECULAR BONE**

[M. Pani](#), C. Ruiz Wills, M. Ballart, S. Tassani

**NUMERICAL APPROACH TO IMPROVE SOCKET-LINER SYSTEM USING TAILORABLE 3D PRINTED METAMATERIALS**

[V. Plessec](#), G. Harih

**ANALYSIS OF THE EFFECT OF SKINFOLD THICKNESS ON MYOTONOMETRIC SIGNAL CHARACTERISTICS**

[S. S. Banerjee](#), A. Arunachalaksi, R. Swaminathan

**Study of Torsional wave behavior due to Depth change in Hydrogel Phantoms**

[H. Shamimi Noori](#), J. Torres, G. Rus Carlborg

**DETERMINING TIP RADIUS IN AFM NANOINDENTATION**

[A. Stylianou](#), S.-V. Kontomaris, A. Malamou

**AGE AT DEATH ESTIMATION BASED ON BONE TISSUE PROPERTIES BEFORE AND AFTER SKELETAL MATURITY**

A. Bonicelli, E. F Kranioti, B. Xhemali, [P. Zioupos](#)

**Analysis of eye load during ball impact**

[T. Bacova](#), Z. Horak, V. Baca

**Measuring spinal rod forces for Scoliosis and/ or fracture fixation in vivo**

[M. Mangaleshwaran](#), J. Leong, S. Taylor

**Design and translation of a modular hip implant device for soft tissue tension and motion tracking evaluated in a sheep model during hip arthroplasty**

[J. C. Wej](#), N. A White, J. Pérez de Frutos, E. M Pérez Merino, N. Pastor Sirvent, M. Santella, B. J Blauw, F. M Sánchez-Margallo, D. Durán-Rey, I. López-Agudelo, M. R González-Portillo, J. A Sánchez Margallo, J. Dankelman, T. Horemán

**MECHANICAL PROPERTIES OF GYROID UNIT CELLS FOR BIOMEDICAL APPLICATIONS**

[A. Pais](#), J. Lino Alves, J. Belinha

**A PROTOCOL FOR EVALUATING HAND PROsthESIS CONTROL**

J. V. Garcia-Ortiz, M. C. Mora, J. J. Arroyave-Salazar, A. Pérez-González, [J. Llop Harillo](#)

**Numerical study for primary stability assessment in osseointegrated transfemoral prostheses**

[A. I. Mirulla](#), A. Valenti, L. Bragonzoni, T. Ingrassia

**THE RELATIVE BITE FORCE AND GAPE POTENTIAL OF PSITTACIFORMES**

[E. Dickinson](#), M. W Young, M. C Granatosky

**MONITORING LOWER LIMB ASYMMETRY DURING REHABILITATION OF ACL RECONSTRUCTED PATIENTS USING DINABANG DEVICE**

[D. Santos](#), B. Artcardi, J. Garcia, M. Bonilla, J. Comesaña, M. Arriola, F. Motta, F. Simini

**A PROCEDURE TO PERSONALIZE A MUSCLE FATIGUE MODEL FOR SOLVING THE MUSCLE RECRUITMENT PROBLEM**

[F. Michaud](#), F. Romero-Sanchez, U. Lúgris, J. Cuadrado

**COMPARING THE EFFICIENCY AND ACCURACY OF SEVERAL CONTACT METHODS FOR HUMAN-ENVIRONMENT INTERACTION**

[F. Mouzo](#), F. Michaud, U. Lúgris, J. Cuadrado

**AN INNOVATIVE APPROACH TO INVESTIGATE THE TIBIOFEMORAL ELASTICITY DURING GAIT WITH IN-VIVO 3D COMPLIANCE MATRIXES**

F. Bucci, M. Taylor, R. Al-Dirini, [S. Martelli](#)

**DIFFERENT MUSCLE EXCITATION PATTERNS AND MODEL-BASED MUSCLE FORCES IN PARKINSON'S DISEASE**

[M. Romanato](#), D. Volpe, Z. Sawacha

**BIOMECHANICAL ANALYSIS OF STRESS CHANGES IN MEDIAL ANKLE LIGAMENTS CAUSED BY ADULT ACQUIRED FLAFOOT DEFORMITY**

N. Yanguma Muñoz, B. D. Solorzano, C. Cifuentes-De la Portilla, [J. A. Hinojosa Virviescas](#)

**Development of a musculoskeletal model for the determination of muscle activity in the healthy shoulder**

[L. Bauer](#), E. Raicholt, M. Woiczinski, P. Müller, I. Santos

**THE EFFECT OF SUBSTRATE SIZE ON GRIP AND PULL FORCES IN PARROTS**

[E. Dickinson](#), M. W Young, C. J Kim, M. Hadjiargyrou, M. C Granatosky

**MUSCLE TORQUE GENERATORS FOR DIGITAL HUMAN MODEL CONTROL - MEASUREMENT PROTOCOL FOR DATA AQUISION**

[M. Obentheuer](#), M. Harant, E. Bartaguiz, C. Dindorf, J. Linn, M. Fröhlich

**NORMATIVE DATA SET OF THE KNEE EXTENSORS' RATE OF FORCE DEVELOPMENT USING A FIXED HAND-HELD DYNAMOMETER**

[T. Yona](#), A. Fischer

**Enhancing Dynamic Consistency of Multimodal Motion Data in Musculoskeletal Simulation**

[I. Wechsler](#), A. Wolf, S. Wartzack, J. Miehling

**Estimation of the free energy barrier of the step of pi release in myosin VI cycle**

[R. Manevy](#), M. Caruel, F. Detrez, I. Navizet

**KNEE EXTENSORS' RATE OF FORCE DEVELOPMENT MEASUREMENT USING A HAND-HELD DYNAMOMETER AND A 3D PRINTED ADAPTER**

[T. Yona](#), A. Fischer

**CORNEAL STIFFNESS – IMPORTANT PARAMETER IN INTRAOCULAR PRESSURE MEASUREMENT**

[B. Hučko](#)

**IN VITRO STUDY OF THE INFLUENCE OF VERTEBRAE GEOMETRY ON THE BEHAVIOUR OF LUMBAR ARTHROPLASTY PROSTHESES**

[F. Zot](#), A. Germaneau, M. A. Laribi, J. Sandoval, L. Caillé, Y. Ledoux, M. Mesnard, E. Ben Brahim, M. Severyns, V. Valle, T. Vendeuvre

**INTRA-OPERATIVE MEASUREMENT OF THE SPINE: TOWARDS IN VIVO BIOMECHANICAL DATA OF PATIENTS WITH IDIOPATHIC ADOLESCENT SCOLIOSIS**

[F. Erb](#), N. Gerig, D. Studer, P. Büchler, C. Hasler, G. Rauter

**A METHODOLOGY TO DETERMINE THE EFFECTS OF THE PITCHER-GROUND INTERACTION ON FASTBALL PITCH VELOCITY**

[N. Tuttle](#), M. A Avalos, M. Meek, Y.-H. Kwon

**The effect of cryotherapy on balance recovery at different moments after lower extremity muscle fatigue**

[Y. He](#), Z. Gao, G. Fekete, D. Mitic, Y. Gu

**Effect of subject-specific mass distribution on joint biomechanics during gait**

A. A. V. Hulleck, [M. El Rich](#), T. Liu, K. Khalaf

**Influence of modified musculoskeletal model on the hip loading in cerebral palsy patient**

J. Skubich, [S. Piszczatowski](#)

Patient-Specific Design of High Tibial Osteotomy Plates using Densitometric Calibration  
S. Chowdhury, S. Kanagalingam, L. Grassi, T. Boutefnouchet, L. Thomas-Seale

IN SILICO STUDY ON ALLOGRAFT-BASED ACETABULAR RECONSTRUCTION  
A. Goyal, Z. Haider, A. Chawla, K. Mukherjee

MECHANICAL FRACTURE ENVIRONMENT IN LOWER EXTREMITY NON-UNIONS – AN INDIVIDUALIZED SIMULATION-BASED STUDY  
A. Andres, M. Roland, K. Wickert, S. Diebels, T. Histing, B. Braun

MORPHOLOGICAL AND HAEMODYNAMIC CHARACTERISATION OF TURNER SYNDROME AORTAE  
L. Johnston, R. Allen, A. Mason, P. Hall-Barrientos, A. Kazakidi

The feasibility of bespoke rehabilitation robot handgrips to meet the specific needs of stroke patients  
L. Li, Q. Fu, S. Tyson, A. Weightman

Generative design of orthosis for patients with degenerative scoliosis  
D. F. Landinez Leon, L. D. Parra Gomez

2:00pm - 3:00pm	Best Doctoral Thesis Award							
3:00pm	Coffee Break							
3:30pm								
3:30pm - 4:45pm	<p>TR01.12: Cardiovascular IX: Image-based biomechanics Location: Archive Hall Chair: Fanette Chassagne Chair: Diego Gallo</p> <p>3:30pm - 3:42pm <b>DECIPHERING VORTICITY IN THE ABDOMINAL AORTIC ANEURYSM</b> <u>V. Mazzi</u>, K. Calò, D. Gallo, A. Iollo, U. Morbiducci</p> <p>3:42pm - 3:54pm <b>PREDICTION OF ANALOG THROMBI MECHANICAL PROPERTIES, COMPOSITION, AND CONTRACTION USING CT IMAGING</b> J. M. H. Cruts, J.-A. Giezen, K. van Gaalen, R. Beurskens, Y. Ridwan, M. L. Dijkshoorn, H. M. M. van Beusekom, N. Boodt, A. van der Lugt, F. Gijzen, <u>R. Cahalane</u></p> <p>3:54pm - 4:06pm <b>UNIVERSAL LEFT ATRIAL APPENDAGE COORDINATES TO COMPARE AND CLASSIFY PHENOTYPIC FLOW PATTERNS</b> <u>J. Dueñas-Pamplona</u>, A. Gonzalo, S. F. Bifulco, P. M. Boyle, E. McVeigh, A. M. Kahn, P. Martinez-Legazpi, J. Garcia Garcia, J. Sierra-Pallares, M. Garcia-Villalba, Ó. Flores, J. Bermejo, J. C. del Álamo</p> <p>4:06pm - 4:18pm <b>PATIENT-SPECIFIC FLOW SIMULATIONS OF A DISSECTED AORTA INFORMED BY 4D FLOW MRI: THE IMPACT OF SEGMENTAL ARTERIES</b> <u>C. Stokes</u>, F. Haupt, D. Becker, V. Muthurangu, H. von Tengg-Kobligk, S. Balabani, V. Diaz-Zuccarini</p> <p>4:18pm - 4:30pm <b>4D FLOW MRI &amp; NETWORK-BASED ANALYSIS OF THE HEMODYNAMIC CORRELATION PERSISTENCE LENGTH IN THE HEALTHY AORTA</b> K. Calò, A. Guala, D. Gallo, J. Rodriguez Palomares, S. Scarsoglio, L. Ridolfi, U. Morbiducci</p> <p>4:30pm - 4:42pm <b>CALIBRATION OF THE MECHANICAL BOUNDARY CONDITIONS OF A THORACIC AORTA MODEL INCLUDING</b></p>	<p>TR02.12: Musculoskeletal biomechanics V: Knee and others Location: Infante Hall</p> <p>3:30pm - 3:42pm <b>A NEW GENERALIZED CONTINUUM APPROACH TO MODEL SPINAL GROWTH</b> <u>N. M. Castoldi</u>, M. Antico, M. Martin, P. Pivonka, V. Sansalone</p> <p>3:42pm - 3:54pm <b>EXPERIMENTAL INVESTIGATION OF THE FRACTURE MECHANICS OF FEMURS OF ZUCKER DIABETIC FATTY (ZDF) RATS</b> <u>G. E. Monahan</u>, J. Schiavi-tritz, T. J. Vaughan</p> <p>3:54pm - 4:06pm <b>INFLUENCE OF LIMB ALIGNMENT AND KNEE JOINT LOADING ON CONDYLAR KINEMATICS USING DYNAMIC VIDEOFLUOROSCOPY</b> <u>B. Postolka</u>, O. Ulrich, W. R. Taylor, R. List, P. Schütz</p> <p>4:06pm - 4:18pm Characterising the relationship between knee bone geometry and passive kinematics <u>D. O'Rourke</u>, F. Bucci, W. Burton, R. Al-Dirini, M. Taylor, S. Martelli</p> <p>4:18pm - 4:30pm <b>Variation in knee contact mechanics due to anatomy</b> J. Yao, G. Day, N. Wijayathunga, A. Jones, R. Wilcox, <u>M. Mengoni</u></p> <p>4:30pm - 4:42pm <b>High Tibial Osteotomy Normalizes Knee Ambulatory Loads</b> <u>E. De Pleri</u>, C. Nüesch, G. Pagenstert, E. Viehweger, C. Egloff, A. Mündermann</p>	<p>TR03.12: Implants / orthotics / prosthetics / devices VIII: Multiple topics Location: D. Maria Hall</p> <p>3:30pm - 3:42pm <b>A LUBRICIN-BINDING COATING FOR CARTILAGE RESURFACING IMPLANTS TO REDUCE FRICTION</b> <u>A. H. A. Damen</u>, C. C. van Donkelaar, P. K. Sharma, T. A. Schmidt, K. Ito</p> <p>3:42pm - 3:54pm <b>LOAD TRANSFER IN CUSTOM MADE IMPLANT FOR OSTEOCHONDRAL LESION, A FINITE ELEMENT STUDY</b> <u>A. Ramos</u>, M. Vieira</p> <p>3:54pm - 4:06pm <b>Biomechanical evaluation of a novel biomimetic artificial disc prosthesis in canine cervical cadaveric spines</b> <u>C. A. M. Jacobs</u>, R. J. Doodkorte, S. A. Kamali, A. M. Abdelgawad, S. Ghazanfari, M. A. Tryfonidou, J. Arts, B. P. Meij, K. Ito</p> <p>4:06pm - 4:18pm <b>Novel Biodegradable Carotid Graft: Experimental Assessment Through An Animal Trial</b> <u>A. Hendrickx</u>, M. Ghasemi, T. Vervenne, T. Langenaeken, H. Bauer, H. Fehervary, M. Cox, P. Claus, F. Rega, N. Famaey, B. Meuris</p> <p>4:18pm - 4:30pm <b>INTEGRATION OF MUSCULOSKELETAL AND MODEL ORDER REDUCED FE SIMULATION FOR PASSIVE ANKLE FOOT ORTHOSIS DESIGN</b> <u>D. Scherb</u>, P. Steck, S. Wartzack, J. Miehling</p> <p>4:30pm - 4:42pm <b>High-Fidelity Finite Element Stent-Graft Modeling</b> <u>A. Ramella</u>, F. Migliavacca, J. F. Rodriguez Matas, F. Dedola, M. Conti, F. Heim, S. Allievi, D. Bissacco, M. Domanin, S. Trimarchi, G. Luraghi</p>	<p>TR04.12: Animal and plant biomechanics Location: D. Luis Hall Chair: Christian Peham Chair: Balázs Gerics</p> <p>3:30pm - 3:42pm <b>A COMPUTATIONAL MODEL OF THE ZEBRAFISH HEART ELECTROPHYSIOLOGY</b> <u>L. Cestariolo</u>, G. Luraghi, P. L'Eplattenier, J. F. Rodriguez Matas</p> <p>3:42pm - 3:54pm <b>LAMENESS INFLUENCES BREAKOVER DURATION IN HORSES</b> <u>E. V. Briggs</u>, C. Mazzà</p> <p>3:54pm - 4:06pm <b>HISTOMORPHOMETRIC ANALYSIS OF CANINE TRABECULAR BONE IN THE OSTEOPOROTIC CONTEXT</b> <u>E. Kostenko</u>, A. Pockevičius, A. Maknickas</p>	<p>TR05.12: Sport biomechanics III Location: Porto Hall Chair: Joao Paulo Vilas-Boas Chair: Hans Kainz</p> <p>3:30pm - 3:42pm <b>BALL-FINGER POSITIONING FOR ACCURATE BASEBALL PITCHING</b> <u>A. Kusafuka</u>, K. Nishikawa, N. Tsukamoto, K. Kudo</p> <p>3:42pm - 3:54pm <b>GROUND REACTION FORCE PREDICTION DURING RUNNING USING A FULL-BODY MULTIBODY MODEL</b> <u>G. Marta</u>, J. Folgado, C. Quental, F. G. Pinto</p> <p>3:54pm - 4:06pm <b>Effect of Different Players' Motion Models on Linear and Non-linear Measures of Space Control in Futsal</b> <u>J. Bischofberger</u>, J. Exel, B. Travassos, J. Sampaio, A. Baca</p> <p>4:06pm - 4:18pm <b>APPLYING PRINCIPAL COMPONENT ANALYSIS TO CHARACTERIZE THE BALANCING ABILITY OF ELITE SYNCHRONIZED ICE SKATERS</b> <u>Z. Palya</u>, B. Petro, R. M Kiss</p> <p>4:18pm - 4:30pm <b>THE INFLUENCE OF SEX, AGE AND PEAK KNEE ISOKINETIC TORQUE ON SINGLE LEG HOP DISTANCE</b> <u>S. Hergar</u>, L. Bühl, C. Nüesch, S. Müller, C. Egloff, A. Mündermann</p>	<p>TR06.12: Impact / injury biomechanics III Location: Arrabida Hall Chair: David Mitton</p> <p>3:30pm - 3:42pm <b>Biomechanical study of electric scooter falls</b> M. Fournier, N. Bailly, A. Schäuble, <u>Y. Petit</u></p> <p>3:42pm - 3:54pm <b>E-SCOOTER CRASH SCENARIO AND KINEMATICS: ANALYSIS OF 112 CRASH VIDEOS</b> <u>N. Bailly</u>, S. Honore, Y. Petit, A. Naaim, A. Muller, W. Wei</p> <p>3:54pm - 4:06pm <b>PELVIC SUBCUTANEOUS ADIPOSE TISSUE THICKNESS AND OUTER SHAPE CHANGE WITH POSITION FOR NUMERICAL MODELING</b> D. Hanesch, <u>J. Muehlbauer</u>, E. C. Sattler, N. Moellhoff, R. E. Giunta, S. Peldschus, S. Schick</p> <p>4:06pm - 4:18pm <b>BIOMECHANICAL EVALUATION OF THE SPATIAL CONFIGURATIONS OF STABILIZER USED IN DISTAL HUMERUS FRACTURE TREATMENT</b> A. Kruszewski, P. Piekarczyk, <u>S. Piszczatowski</u></p> <p>4:18pm - 4:30pm <b>CHANGES IN LOADING DURING FRACTURE HEALING DO NOT IMPACT BONE MICROARCHITECTURE OF THE CONTRALATERAL RADIUS</b> <u>D. Whittier</u>, M. Walle, P. Christen, P. Atkins, C. Collins, M. Blauth, K. Lippuner, R. Müller</p>	<p>TR07.12: Ergonomics / occupational biomechanics / rehabilitation II Location: Miragaia Hall Chair: Margit Gröhler Chair: Xuguang Wang</p> <p>3:30pm - 3:55pm <b>Individualized vs. Population-based Musculoskeletal Simulation for Medical and Product Engineering</b> <u>J. Miehling</u></p> <p>3:55pm - 4:07pm <b>Towards the Learning of Human-Seat Interactions for Runtime-Efficient Human Models Based on Pressure Distribution</b> <u>D. N. Fahse</u>, M. Roller, F. Kempter, J. Fehr</p> <p>4:07pm - 4:19pm <b>FE modeling and simulation of the cupula deformation of a semicircular canal in a clinical routine</b> <u>M. Blaise</u>, D. Baumgartner, A. Charpiot</p>	<p>TR08.12: Biofluid and transport II Location: S. Joao Hall Chair: Frans van de Vosse Chair: Junfeng Zhang</p> <p>3:30pm - 3:42pm <b>THROMBUS FORMATION IN A STENOTIC CHANNEL; A VISCOELASTIC MATERIAL MODEL</b> <u>M. Rezaei-moghaddam</u>, O. Dhaenens, A. Germain, F. N van de Vosse</p> <p>3:42pm - 3:54pm <b>STUDY OF THE FLUID BEHAVIOUR IN 3D PRINTED MACROSCAFFOLDS USING CFD ANALYSIS AND PIV</b> <u>T. Baumgartner</u>, T. Yorov, M. Bösenhofer, O. Guillaume, A. Ovsianikov, M. Harasek, M. Gföhler</p> <p>3:54pm - 4:06pm <b>HIGH DENSITY MICROFLUIDIC TRAP ARRAY GEOMETRIC OPTIMIZATION VIA COMPUTATIONAL FLUID DYNAMICS STUDY</b> <u>N. Ruysse</u>, J. Fattaccioli, M.-C. Jullien, R. Allena</p>

**THE HEART MOTION  
EFFECT**

L. Geronzi, A. Martinez, M.  
E. Biancolini, M. Rochette,  
O. Bouchot, A. Lalande, P.  
P. Valentini

4:45pm  
-  
5:15pm

ESB 2022 Closing Ceremony