ESB2022

27th Congress of the European Society of Biomechanics

26 - 29 June 2022, Porto, Portugal

European Society of Biomechanics

European Society of Biomechanics

The European Society of Biomechanics was founded in 1976 at a meeting in Brussels of 20 scientists from 11 countries. Its goal is to encourage, foster, promote and develop research, progress and information concerning the science of biomechanics. It is now the largest biomechanics society in Europe with over 1500 members.

ESB Council Members

President: **Harry van Lenthe**
KU Leuven, Belgium

Vice President and Awards Committee: **Markus Heller**
University of Southampton, UK

Secretary-General: **David Mitton**
Université Gustave Eiffel, Lyon, France

Treasurer: **Jérôme Noailly**
Pompeu Fabra University, Barcelona, Spain

Diversity-Inclusion and Membership Committee: **Mark Thompson**
University of Oxford, UK

Meetings and External Affairs Committee: **Enrico Dall'Ara**
University of Sheffield, UK

Meetings WebPortal Committee: **Dieter Pahr**
Vienna University of Technology, Austria

Publication Committee: **Michele Conti**
University of Pavia, Italy

Scientific Communications Committee: **Ilse Jonkers**
KU Leuven, Belgium

Education and Student Committee: **Aurélie Carlier**
Maastricht University, the Netherlands

CONTENT

WELCOME

Dear colleagues,

On behalf of the organising committee, it is a great pleasure for us to welcome you all here in Porto in order to gather again with colleagues and friends after two long years of virtual exchanges. It has a great importance for us to welcome the annual congress of the European Society of Biomechanics in Porto, a city where history and modernity are in great symbiosis. While you certainly won't miss the historical architecture - the old colourful azulejo tiles and impressive barroque churches, it is crucial to highlight that Porto is also known for its focus on research and innovations and won, among other titles, the Best Start up friendly City of Europe in 2018. Biomechanics to Porto has a long tradition of more than 60 years and in 2013 the specialized Porto Biomechanics Laboratory LABIOMEP opened at the University.

We have received more than 800 abstracts for the ESB 2022 congress and put together an extensive scientific programme divided in 8 parallel streams running throughout the full three conference days. The programme includes 31 perspective talks, 3 plenary lectures and over 450 podium and 240 poster presentations. Given the huge number of submissions, a large poster area has been set up in the exhibition where, besides the three organized poster viewing sessions, we will hold accompanying events and gather during breaks. The main theme of the congress Biomechanics: Innovation, technology and societal impact, is reflected in the programme satellite events and activities.

Last but not least, we would like to introduce the International Symposium on Research and Entrepreneurship that has a special importance to us. The events of the symposium will be completing the scientific programme and offering various activities under the theme - Making the Leap: from Biomechanics research to Business, mainly a pre-course on Design Thinking, a contest for start-ups ideas and inspiring talks.

We would like to take the opportunity and thank all members of the International Scientific Committee and the ESB Council who have offered us a great support during the abstract review process and finalization of the conference programme and big thanks go also to our exhibitors, sponsors and also to the city of Porto for their support.

We wish you all a great congress!

Joao Manuel R.S. Tavares
Faculdade de Engenharia da Universidade do Porto

Renato Natal Jorge
Faculdade de Engenharia da Universidade do Porto

Paulo R. Fernandes
Instituto Superior Técnico, Universidade de Lisboa

ESB 2022 LOCAL ORGANISING COMMITTEE

Marco Parente
FEUP/INEGI/LABIOMEP

Pedro Martins
FEUP/INEGI/LABIOMEP

Marta Campos Ferreira
FEUP

Dulce Oliveira
INEGI/LABIOMEP

Nilza Ramiao
INEGI/LABIOMEP

Elisabete Silva
INEGI/LABIOMEP

Filipa Sousa
FADEUP/LABIOMEP

Joao Paulo Vilas-Boas
FADEUP/LABIOMEP

Joao Folgado
IST/IDMEC

José Machado
FEUP/INEGI

Goncalo Joao Almeida
FEUP

Enrico Dall'Ara
University of Sheffield, ESB Council Member

ESB 2022 INTERNATIONAL SCIENTIFIC COMMITTEE

Ali Cagdas Akyildiz
Erasmus Medical Center, the Netherlands

Henrique Amorim Almeida
Polytechnic Institute of Leiria, Portugal

Jean-Marc Allain
École Polytechnique, Palaiseau, France

Miguel Ángel Ariza Gracia
University of Bern, Switzerland

Stéphane Avril
ENS des Mines de Saint-Étienne, France

Fabio Augusto Barbieri
Sao Paulo State University, Brazil

Sam Bayat
University Hospital Grenoble, France

Paulo Jorge Da Silva Bartolo
University of Manchester, UK

Erica Beaucage-Gauvreau
KU Leuven, Belgium

Christoph Bourauel
University of Bonn, Germany

Philippe Buechler
University of Bern, Switzerland

Miguel Castilho
Eindhoven University of Technology, the Netherlands

Aurélie Carlier
Maastricht University, the Netherlands

Dario Cazzola
University of Bath, UK

Fanette Chassagne
Mines-Saint Étienne, France

Michele Conti
University of Pavia, Italy

Luca Cristofolini
University of Bologna, Italy

Sasa Cukovic
ETHZ, Switzerland

Enrico Dall'Ara
University of Sheffield, UK

Tien Tuan Dao
École Centrale de Lille, France

Stephen Ferguson
ETH Zurich, Switzerland

Maria Pia Ferraz
University Fernando Pessoa, Portugal

Alejandro Frangi
University of Leeds, UK

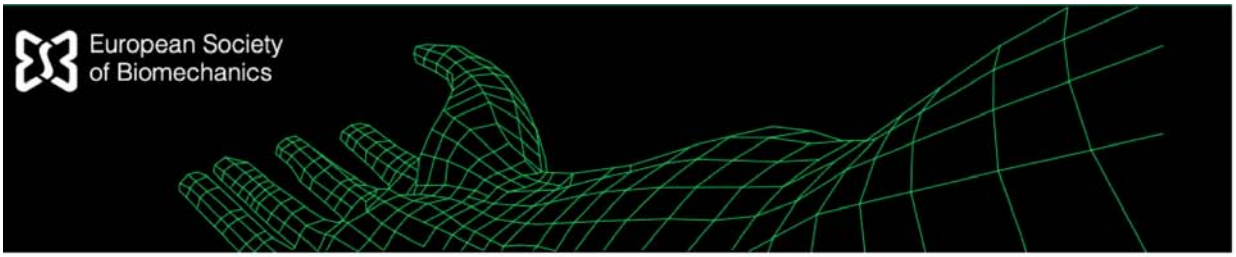
Diego Gallo
Politecnico di Torino, Italy

José Manuel García Aznar
University of Zaragoza, Spain

Balázs Gerics
University of Veterinary Medicine, Vienna, Austria

Richie Gill
University of Bath, UK

Margit Gföhler
Vienna University of Technology, Austria
Maria José Gómez-Benito
University of Zaragoza, Spain
Ridha Hambli
University of Orléans, France
Marie-Christine Ho Ba Tho
University of Technology of Compiègne, France
Hanna Isaksson
Lund University, Sweden
Dennis Janssen
Orthopaedic Research Laboratory, the Netherlands
Ilse Jonkers
KU Leuven, Belgium
Leo Joskowicz
Hebrew University of Jerusalem, Israel
Hans Kainz
University of Vienna, Austria
Sebastian Laporte
ENS d'Arts et Métiers, Paris, France
Michele Marino
University of Rome Tor Vergata, Italy
Jorge Martins
University of Lisbon, Portugal
Edoardo Mazza
ETH Zurich, Switzerland
David Mitton
Université Gustave Eiffel, Lyon, France
Jérôme Molimard
ENS des Mines de Saint-Étienne, France
Fernando Jorge Monteiro
University of Porto, Portugal
Konstantinos Moustakas
University of Patras, Greece
Luca Modenese
Imperial College London, UK
Annegret Mündermann
University of Basel, Switzerland
Kristin Myers
Columbia University NY, USA
Jérôme Noailly
Pompeu Fabra University, Barcelona, Spain
Dieter Pahr
Vienna University of Technology, Austria
Christian Peham
University of Veterinary Medicine, Vienna, Austria
Estefania Pena
University of Zaragoza, Spain
Françoise Peyrin
University of Lyon, France
Mathias Pierlinck
Delft University of Technology, the Netherlands
Agustina Giuliodori Picco
Polytechnic University of Catalonia, Spain
María Ángeles Pérez Ansón
University of Zaragoza, Spain
William R. Taylor
ETH Zurich, Switzerland
Barbara Pierscionek
Anglia Ruskin University, UK
Gwendolen Reilly
University of Sheffield, UK
Rodolfo Repetto
University of Genoa, Italy
José Felix Rodriguez
Politecnico di Milano, Italy
Davide Ruffoni
University of Liège, Belgium
Benedikt Sagl
Medical University of Vienna, Austria
Massimo Sartori
University of Twente, the Netherlands
Alberto Sensini
University of Bologna, Italy
Lennart Scheys
KU Leuven, Belgium
Selda Sherifova
Graz University of Technology, Austria
Ciaran Simms
Trinity College Dublin, Ireland
Eduardo Soudah
Polytechnic University of Catalonia, Spain
Frans van de Vosse
Eindhoven University of Technology, the Netherlands
Harry Van Lenthe
KU Leuven, Belgium
Hans Van Oosterwyck
KU Leuven, Belgium
Ted Vaughan
National University of Ireland
Mark Thompson
University of Oxford, UK
Antonio Veloso
University of Lisbon, Portugal
Claudio Vergari
ENS d'Arts et Métiers, Paris, France
Marco Viceconti
University of Bologna, Italy
Xiao Yun Xu
Imperial College London, UK
Xuguang Wang
Université Gustave Eiffel, France
Uwe Wolfram
Heriot Watt University, Edinburgh, UK
Feihu Zhao
Swansea University, UK



ESB Membership

General Member Benefits

- Reduced rate at ESB Annual Congresses & endorsed meetings
- Free subscription to ESB Newsletter
- Electronic access to a large network of biomechanics specialists through ESB website
- Reduced rate to various biomechanics-related journals
- Lab listed on the ESB website
- Access to ESB Facebook and LinkedIn sites
- Job posting through the ESB media (website, Facebook, LinkedIn, Twitter)
- Eligibility to large pool of ESB Awards
- Eligibility to candidate your Institution for organizing the annual ESB congress

+Additional Student Benefits

- Detailed information of biomechanics laboratories with ESB members
- Information about possible exchange to another laboratory
- Information about available courses (in biomechanics and other related fields)
- Job opportunities in biomechanics (offer, demand and information) in industry & academia
- Student events at the ESB Congress
- Access to ESB social media discussion forums on LinkedIn and Facebook
- List of funding sources
- Eligibility to ESB Student Award and Best Doctoral Thesis, ESB Mobility Award for Young Researchers, and ESB Student Committee

+Additional Corporate Benefits *(industrial parties)*

- Exclusive access to wide community of top EU scientists and researchers (1300+ ESB members)
- Exclusive right for job advertisement through ESB website, official social networks & ESB events
- Participate in all activities organised by the ESB (ESB Congress, Meetings of the ESB National Chapters,, ...)
- Corporate logo and company link website on the ESB homepage (http://www.esbiomech.org/)
- Submit contents (product news, special offers for ESB, workshops, ...) for Newsletter, YouTube Channel
- Priority to be a lead sponsor for ESB activities
- 20% discount for ESB Congress exhibition booth
- Opportunity to make a 10-15 min presentation in a dedicated parallel Corporate session at the ESB Congress
- Opportunity to organise a parallel user or award session at the ESB congress
- Contact person gets Regular Member benefits and can punctually transfer these benefits to any other employee of the company
- Contact person gets a personal subscription to Journal of Biomechanics

Members from institutions in Low Income Countries can get a 80% fee reduction

Becoming a member with the online tool is easy!
https://esbiomech.org/esb-membership-benefits/online-application-form/

CORPORATE MEMBERS OF THE ESB:

AMTI FORCE AND MOTION · ANSYS · BERTEC · BETA · BoB Biomechanics
frontiers · materialise innovators you can count on · MTS · Nobel Biocare · SYNOPSYS
Taylor & Francis Taylor & Francis Group

GENERAL INFORMATION

Conference venue

Alfândega Congress Centre

Address: Rua Nova da Alfândega, 4050-430 Porto, Portugal
www.ccalfandegaporto.com

Historic building recovered by the Pritzker Prize laureate architect Eduardo Souto de Moura, the unique Alfandega Congress center is located in the heart of Porto, on the quay of the Douro river.

All podium sessions and keynote presentations will take place on the second floor of the Alfandega Congress Centre, while the exhibition, poster sessions, lunch and coffee breaks will be organized on the ground floor level, in the West Ground Floor area.

How to get to the venue

A wide range of public transport options exist close to Alfandega and a large number of hotels and sights are located within walking distance.

From Porto city centre:

Alfandega congress centre is located in central Porto on the banks of the Douro River.

From the Airport

Direct bus 601: from the Airport to the Hospital St. Antonio (550m from the venue), operating between 5h30 and 00h30, (every 30 min), 50 min duration.

Metro Line E: Airport to Trinidade metro station (city center), change to Sao Bento (historical city center) where most hotels are located. Bus 500 is connecting the Sao Bento station and the Alfandega Congress Center in 5 minutes.

20 minutes, 25€ (from the airport)

Coffee breaks & lunches

Coffee and lunch will be served in the exhibition and poster area – West Ground Floor – according to the time mentioned in the programme.

Conference app

The Conference4me smartphone app provides you with the most comfortable tool for planning your participation at ESB 2022. Browse the complete programme directly from your phone or tablet and create your very own agenda on the fly. The app is available for Android, iOS, and Windows Phone. You can also use the app in order to reach out to other participants and colleagues, view the exhibition list, abstracts and more!

To download the
mobile app, please visit:
https://conference4me.psnc.pl/download/

Certificates of attendance

All participants will receive a certificate of participation by e-mail after the congress.

Abstract book

The complete Abstract book is available for download in pdf on the conferece website (www.esbiomech2022.org).

Printing companies

Peninsular - Stationery & Printing

(a 11-min walk from the congress venue)
Address: R. de Mouzinho da Silveira 67,
4050-416 Porto, Portugal.
Mon - Fri 9AM–12:30PM, 14–19PM
+351 22 200 5225

Busilis

Address: R. de Ferreira Borges 92,
4050-252 Porto
https://busilis.com.pt/
+351 222 080 150 | +351 968 090 481
Mon - Fri 9.30AM - 13PM & 14PM - 19PM

EBS 2022 Congress secretariat: Codan Consulting

The Codan Consulting team will be available onsite to assist with any queries that you might have related to the registration, scientific programme, exhibition and social events.

Student assistants will be available in the meeting rooms and in the poster area.

Exhibition

The exhibition area is located in the West Ground Floor. The exhibition opening hours are:

- Monday, 27th June 09:00 – 18:00
- Tuesday, 28th June 09:00 – 18:00
- Wednesday, 29th June 09:00 – 15:30

Internet access

There is free internet access in all areas of the venue.
Network: ESB2022guest
Password: ESB2022Porto

Registration information

For registration and collection of congress materials, please visit the registration area located on the ground floor level, near the West Ground floor (exhibition and poster area).

Opening hours

- Sunday, 26th June 13:00 – 19:30
- Monday, 27th June 07:15 – 17:00
- Tuesday, 28th June 07:30 – 16:30
- Wednesday, 29th June 07:30 – 16:30

Please note that all registration documents have been prepared for registered participants. When approaching the appropriate registration counter make sure to clearly state your last name (family name) under which you have registered.

Please have your confirmation letter and ID close at hand.

On-Site Registration / Open Payments: These counters are for participants registering and paying their registration fees on-site or with an outstanding payment.

Name badge

The participants are kindly required to wear and display their name badge at all times in order to enter the congress venue.

Payments

All payments made onsite need to be made in cash EUR or by debit/credit card (VISA/Mastercard accepted only).

Taxi companies

Taxis Porto

www.taxisporto.pt
+351 918 888 600
+351 220 997 336

Taxis Invicta

www.taxisinvicta.com
+351 225 076 400

Uber works very well in Porto.

ESB 2022 SOCIAL AND NETWORKING EVENTS

Student night

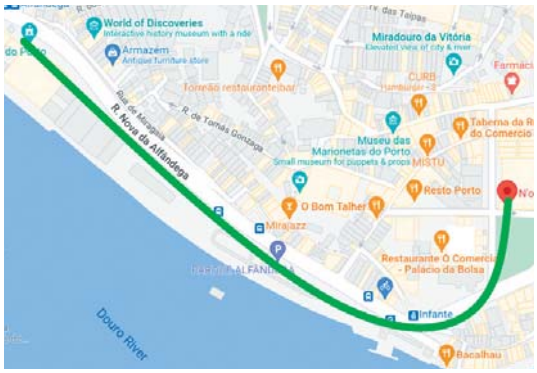
26th June 2022 | 19:30

Event open to students exclusively!

Venue: No Mercado restaurant, Market Ferreira Borges, R. da Bolsa 22, Porto

Relaxed networking event, music, Portuguese food… and speed dating student icebreaker game!

How to get to the Student night venue



Welcome reception

27th June 2022 | 19:00

Venue: Alfandega Congress Center, Noble Hall and riverside

Warm welcome to all participants and occasion to catch up with colleagues: gold Portuguese evening sun, drinks and fabulous music by the music group Tuna de Engenharia from the Engineering Faculty of the University of Porto!

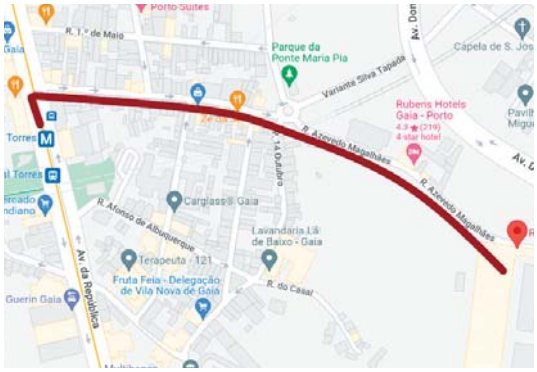
Congress dinner

28th June 2022 | 20:00

Venue: Real Companhia Velha cellars – Rua Azevedo Magalhães 314, Vila Nova de Gaia, metro: General Torres

Enjoy a networking evening with colleagues and friends in settings that represent the essence of one's visit to Porto – at the premises of the oldest wine company in Portugal, the Real Companhia Velha.

How to get to the Conference dinner venue



If you have booked Registration including networking or a separate ticket for the Congress dinner, you will receive your dinner ticket at the registration desk. Please make sure to bring the ticket to the Congress dinner.

NETWORKING AND MENTORING EVENTS

Meet the PI

Tuesday | 28th June 2022 | 7:30 – 8:15
West Ground Floor

Would you like to know more about their current research, or what are their next scientific challenges? Don't miss the Meet the PIs mentoring session. On Tuesday 28th of June, have your breakfast with a senior researcher and discuss informally in small groups about research and/or career. The Meet the PI groups will meet in the exhibition and poster area, West Ground Floor. More practical information will be available in the registration area.

Women in Biomechanics with Apero

Monday | 27th June 2022 | 18:00
Infante Hall

The "Women in Biomechanics apero", takes place on Monday 27th June at 6 pm. During this event, you will have the opportunity to hear the testimonies and advice of inspiring women from our field, followed by informal discussions and exchange on initiatives and suggestions that could be launched within the ESB to improve diversity and inclusivity.
Greet Kerckhofs, from UCLouvain and KULeuven, Belgium
Marlène Mengoni, from University of Leeds, United Kingdom
Barbara Pierscionek, from Anglia Ruskin University, United Kingdom
Areti Papastavrou, from Nuremberg Institute of Technology, Germany

ESB 2022 PRE-COURSES

The basics of mechanical characterization of soft biological tissue

Sunday | 26th June 2022 | 13:30 – 15:30
D. Maria Hall

***Nele Famaey**, Department of Mechanical Engineering, KU Leuven, Belgium*
***Seyed Ali Elahi**, Movement Sciences Department and Department of Mechanical Engineering, KU Leuven, Belgium*

Participants will learn the basic principles of three common mechanical tests for soft biological tissue: uniaxial tensile testing, biaxial tensile testing and unconfined compression testing; get insights into the pitfalls and challenges of biological tissue testing; refresh three basic constitutive models for biological soft tissue: neohookean model, transversely isotropic 'Gasser-Ogden-Holzapfel' model, poro-elastic model.

Explainable artificial intelligence methods in biomedical engineering for supporting medical diagnosis

Sunday | 26th June 2022 | 16:00 – 18:00
D. Maria Hall

***Angela Lombardi**, Physics Department, University of Bari, Italy*

In this workshop, we will see the general taxonomy of the most popular XAI algorithms and we will focus on some applied clinical examples. The principal aim is to show how to realize fully interpretable AI models for supporting medical diagnoses.

Ideation Course

Sunday | 26th June 2022 | 10:00 – 12:00
D. Maria Hall
part of the Symposium on Research and Entrepreneurship

This session will be held by Everythink (https://everythink.com/), a design studio from Porto. This course aims to increase the impact of biomechanics on society, stimulating entrepreneurship and raising awareness of the processes of creativity, generation of ideas and value propositions. This pre-course is dedicated to creativity and design thinking, the main objective is for participants to deepen their knowledge in the area and learn about the main tools and best practices to be successful entrepreneurs.

ESB 2022 AWARDS SESSIONS

ESB S.M. Perren Research Award

Tuesday | 28th June 2022 | 16:00-17.00
Archive Hall

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 of polyethylene wear in implants. This multidisciplinary project involves mechanical testing of materials and implants, finite-element simulation, and retrieval analysis. Outside of research, Michael volunteers as a rhetoric coach and enjoys hiking and skiing in the Swiss Alps.

ESB Clinical Biomechanics Award

Monday | 27th June 2022 | 14:00-15:30
Archive Hall

- Biomechanics index for diabetic foot risk classification, ***J. Menze****, T. Rojas, M. A. Zumstein, S. J. Ferguson, K. Gerber*
- Biomechanical evaluation of diagnostic tests for rotator cuff lesions, *R. Rynkevic, C. Soares, L. Hympanova,* ***E. Silva****, T. Mascarenhas, P. Martins*
- Effect of alendronate on bone fracture toughness in osteogenesis imperfecta, ***A. Muñoz****, A. Carriero*
- Application of cog threads for vaginal wall prolapse repair: ex-vivo study, *A. Guiotto, G. Bortolami, A. Ciniglio, F. Spolaor, G. Guarneri, A. Avogaro, F. Cibin, F. Silvestri,* ***Z. Sawacha***

The four selected finalists will present their work in a dedicated session on Monday, 27th June from 14:00 in Miragaia Hall.

ESB Student Award

The student award session will take place on **Monday, 27th June from 16:00 – 17:00**, in the **Archive Hall**. One prize and three runner up awards will be given to the four finalists:

- Assessing the performance of thrombectomy devices with in silico models (Clinical and translational biomechanics / in silico trials)
  ***Sara Bridio**, Politecnico di Milano, Italy*
- Predicting surgical outcomes across nine corrective techniques for sagittal craniosynostosis (Advance computing for biomechanics)
  ***Connor Cross**, University College London, United Kingdom*
- Angiography-derived wall shear stress topological skeleton variability predicts myocardial infarction (Cardiovascular biomechanics)
  ***Maurizio Lodi Rizzini**, Politecnico di Torino, Italy*
- Biomechanics and mechanobiology of mineralized fibrocartilage at the tendon-bone attachment (Hard tissue biomechanics)
  ***Alexandra Tits**, University of Liege, Belgium*

ESB Poster Award

The ESB Poster Award is given at each ESB Congress with the purpose of raising the quality of poster presentations at the meeting. The selection is made by an ad hoc Poster Award Committee appointed by the ESB Council and chaired by the ESB Awards Committee Chairman.

ESB Travel Awards

The European Society of Biomechanics and the organisers proposed Travel Awards to financially help young researchers to participate at the ESB 2022 Congress. The awards will be presented during the congress dinner.

2022 ESB Best Doctoral Thesis Award

Wednesday | 29th June 2022 | 14:00 – 15:00
Archive Hall

The winner of the 2022 ESB Best Doctoral Thesis Award is Monika Colombo for her thesis entitled "Impact of fluid dynamics and drug transport on restenosis in femoral arteries after endovascular treatment" conducted at the Politecnico di Milano (Milano, Italy) under supervision of Prof. F. Migliavacca (co-advisor: Prof. C. Chiastra). Monika obtained her Master degree in Biomedical Engineering from Politecnico di Milano (2017), specializing in Biomechanics. Following an experience as graduate researcher in cardiovascular biomechanics at the Center for Computational Surgery at the Houston Methodist Research Institute (Texas, USA), she pursued a PhD in Bioengineering (completed in 2021) at Politecnico di Milano, exploring image and computational tools for in-silico analysis and prediction of adverse vascular events. Winning the Rocca Fellowship in 2019, she performed part of her research at the Edelman Lab at the Massachusetts Institute of Technology (Massachusetts, USA), focusing on pharmacokinetics and cell engineering. In 2020, she (virtually) stayed at the James Watt School of Engineering at the University of Glasgow (UK) to exploit drug transport models for cardiovascular applications. Monika is currently a Post-Doc in the deMello group in the Institute for Chemical and Bioengineering (ICB) at ETH Zurich (Switzerland). She creates computational models for real-time detection in immuno-assays for infectious diseases and fabricates microfluidic platform technologies for the investigation of cardiovascular pathologies.

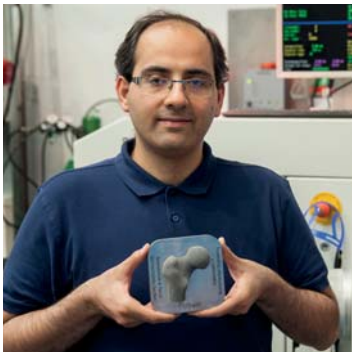
INVITED KEYNOTE SPEAKERS

Ellen Kuhl

Walter B. Reinhold Professor in the School of Engineering and Robert Bosch Chair of Mechanical Engineering at Stanford University

Lecture: Personalized modeling of Alzheimer's disease
Monday | 27th June 2022 | 11:45 – 12:30
Archive Hall

Ellen Kuhl is the Walter B. Reinhold Professor in the School of Engineering and Robert Bosch Chair of Mechanical Engineering at Stanford University. She received her PhD from the University of Stuttgart in 2000 and her Habilitation from the University of Kaiserslautern in 2004. Her area of expertise is Living Matter Physics, the design of theoretical and computational models to simulate and predict the behavior of living systems. Ellen has published more than 200 peer-reviewed journal articles and written a textbook on COVID-19; she is an active reviewer for more than 50 journals at the interface of engineering and medicine and an editorial board member of seven international journals in her field. She is a founding member of the Living Heart Project, a translational research initiative to revolutionize cardiovascular science through realistic simulation with 400 participants from research, industry, and medicine from 24 countries. Prof. Kuhl is the current Chair of the US National Committee on Biomechanics and a Member-Elect of the World Council of Biomechanics. She is a Fellow of the American Society of Mechanical Engineers and of the American Institute for Mechanical and Biological Engineering. She received the National Science Foundation Career Award in 2010, was selected as Midwest Mechanics Seminar Speaker in 2014, and received the Humboldt Research Award in 2016 and the ASME Ted Belytschko Applied Mechanics Award in 2021. Ellen is an All American triathlete, a multiple Boston, Chicago, and New York marathon runner, and a Kona Ironman World Championship finisher.



Amir Zadpoor

Professor, Chaired Professor of Biomaterials & Tissue Biomechanics
Professor of Orthopedics (Leiden Univ Med Center),
Director of the Additive Manufacturing Lab, Delft University of Technology (TUDelft)

Lecture: Meta-biomaterials
Tuesday | 28th June 2022 | 11:45 – 12:30
Archive Hall

Amir Zadpoor is Antoni van Leeuwenhoek Professor, the Chaired Professor of Biomaterials & Tissue Biomechanics, and the founding director of the Additive Manufacturing Laboratory at Delft University of Technology (TU Delft). At Leiden University Medical Center, he holds another professorial chair in Department of Orthopedics. He specializes in the development of advanced additive manufacturing techniques for the fabrication of metamaterials with unprecedented or rare mechanical, physical, or biological properties. Moreover, he is a world recognized expert in origami and kirigami-based (bio)materials that are made by combining shape-shifting (e.g. self-folding) with additive manufacturing. Developing biomaterials-based approaches for the prevention and treatment of implant-associated infections is an integral of his research where he uses physical forces and nano-scale features to both kill antibiotic-resistant bacteria and modulate the immune response. Prof. Zadpoor has received many awards including an ERC grant, a Vidi personal grant, a Veni personal grant, the Jean Leray scientific achievement award of the European Society of Biomaterials, and the Early Career Award of the Journal of the Mechanical Behavior of Biomedical Materials. He has served on the editorial boards of international journals (e.g., Acta Biomaterialia), on the review panels of funding agencies, and as a member of award committees.

Massimo Sartori

Director, Neuromechanical Modeling & Engineering Lab
University of Twente
TechMed Centre, Department of Biomechanical Engineering

Lecture: Modeling the human neuromuscular system across aptio-temporal scales for a new class of movement enhancing technologies
Wednesday | 29th June 2022 | 11:45 – 12:30
Archive Hall

Massimo Sartori is Professor and Chair of Neuromechanical Engineering at the University of Twente (Faculty of Engineering Technology, Department of Biomechanical Engineering) where he directs the Neuromechanical Modelling & Engineering Lab. His research focuses on understanding how human movement emerges from the interplay between the nervous system and the musculoskeletal system, both in healthy and impaired individuals. His overarching goal is to translate such knowledge towards the development of novel human-robot interfaces for restoring movement. On these topics Prof. Sartori is directing prestigious personal grants (e.g., European Research Council) as well as consortium-based research projects (e.g., H2020-MSCA-ITN, H2020-RIA-ICT).

Prof. Sartori currently serves as an Associate Editor at the IEEE Transactions on Neural Systems and Rehabilitation Engineering as well as at Frontiers in Neurorobotics and Frontiers in Bionics and Biomimetics. He is a member of scientific societies including: the European Society of Biomechanics, the International Society of Biomechanics, the IEEE Robotics and Automation Society, the IEEE Engineering in Medicine and Biology Society, and the IEEE International Consortium on Rehabilitation Robotics.

PERSPECTIVE TALKS OVERVIEW

BIOMECHANICS OF CRANIOFACIAL GROWTH

***Mehran Moazen**; University College London, United Kingdom*
TR02.10: Musculoskeletal biomechanics IV: Methods, Infante Hall, 29 June, 10.15-10.40

C4BIO: COMMUNITY CHALLENGE TOWARDS CONSENSUS ON CHARACTERIZATION OF BIOLOGICAL TISSUE

***Nele Famaey**; KU Leuven, Belgium*
TR06.6: Clinical and translational biomechanics / in silico trials II, Arrabida Hall, 28 June, 10.40-11.05

CELLULAR FORCE EXERTION DURING VASCULAR INVASION: MEASUREMENT AND APPLICATION TO DISEASE

***Hans Van Oosterwyck**; KU Leuven, Belgium*
TR04.1: Mechanobiology I: Tools, D. Luis Hall, 27 June, 8.30-8.55

CHALLENGES OF VALIDATING COMPUTATIONAL THROMBOSIS MODELS

***Keefe B. Manning**; The Pennsylvania State University, United States of America*
TR02.6: Cardiovascular biomechanics V: Thrombi and plaques, Infante Hall, June 28, 10.15-10.40

COMPUTATIONAL SIMULATIONS TO UNRAVEL CELL MECHANOTRASDUCTION IN PATHOLOGICAL AND PHYSIOLOCIGAL PROCESSES

***Maria José Gómez-Benito**; University of Zaragoza, Spain*
TR06.2: Computational biology I, Arrabida Hall, 27 June, 10.15-10.40

COMPUTER MODELLING AND INVESTIGATIONS OF CAPSULE DYNAMICS IN FLOWS: MEMBRANE VISCOSITY EFFECT

***Junfeng Zhang**; Laurentian University, Canada*
TR08.10: Biofluid and transport I, S. Joao Hall, 29 June, 10.15-10.40

DIGITAL TWINS AND COUPLED APPROACHES FOR MANAGEMENT OF TIBIAL PLATEAU FRACTURE

***Arnaud Germaneau**; Institut Pprime CNRS - Université de Poitiers, France*
TR06.9: Impact / injury biomechanics I, Arrabida Hall, 29 June, 8.30-8.55

EMMA4DRIVE - DIGITAL HUMAN TWINS FOR EVALUATING ERGONOMICS AND SAFETY IN NEW MOBILITY SOLUTIONS

***Jörg Fehr**; University of Stuttgart, Germany*
TR07.10: Ergonomics / occupational biomechanics / rehabilitation I, Miragaia Hall, 29 June, 10.40-11.05

EXPERIMENTAL AND BIOMECHANICAL MODELING INVESTIGATIONS FOR UNDERSTANDING SEATING DISCOMFORT

***Xuguang Wang**; Université Gustave Eiffel, France*
TR07.10: Ergonomics / occupational biomechanics / rehabilitation I, Miragaia Hall, 29 June, 10.15-10.40

HARNESSING 3D PRINTING TO OPTIMISE MEDICAL DEVICE INTERACTION WITH SOFT TISSUE

***Eoin O'Cearbhaill**; University College Dublin, Ireland*
TR02.2: Implants / orthotics / prosthetics / devices II: 3D Technology, Infante Hall, 27 June, 10.15-10.40

HEMODYNAMICAL STUDY OF A NOVEL PERCUTANEOUS LEFT VENTRICLE ASSIST DEVICE

***Idit Avrahami**; Ariel University, Israel*
TR07.6: Artificial intelligence in biomechanics II, Miragaia Hall, 28 June, 10.15-10.40

IN SILICO TRIALS TO ASSESS THE SAFETY AND EFFICACY OF NEW TREATMENTS FOR MUSCULOSKELETAL DISEASES

***Marco Viceconti**; Alma Mater Studiorum - University of Bologna, Italy*
TR06.8: Clinical and translational biomechanics / in silico trials III, Arrabida Hall, 28 June, 17.00-17.25

INDIVIDUALIZED VS. POPULATION-BASED MUSCULOSKELETAL SIMULATION FOR MEDICAL AND PRODUCT ENGINEERING

***Jörg Miehling**; Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany*
TR07.12: Ergonomics / occupational biomechanics / rehabilitation II, Miragaia Hall, 29 June, 15.30-15.55

INVESTIGATING THE BIOMECHANICS OF THE SPINE WITH DIGITAL IMAGE CORRELATION (DIC)

***Luca Cristofolini**; Alma Mater Studiorum - University of Bologna, Italy*
TR05.7: Spine biomechanics III, Porto Hall, 28 June, 14.00-14.25

KNEE JOINT FORCES AND CARTILAGE STRESS IN OSTEOARTHRITIS

***Vasilios Baltzopoulos**; Liverpool John Moores University, United Kingdom*
TR07.7: Virtual and augmented reality in biomechanics, Miragaia Hall, 28 June, 14.00-14.25

MECHANOSENSING IN BONE USING FLUID FLOW THROUGH NETWORKS

***Richard Weinkamer**; Max Planck Institute of Colloids and Interfaces, Germany*
TR04.3: Musculoskeletal biomechanics I: Multiple topics, D. Luis Hall, 27 June, 14.00-14.25

MINERALIZED FIBROCARTILAGE AS A HIGHLY TUNABLE TISSUE ALLOWING THE INTEGRATION OF TENDON INTO BONE

***Davide Ruffoni**; University of Liege, Belgium*
TR03.3: Hard tissue I: Tissue interactions, D. Maria Hall, 27 June, 14.00-14.25

MODELLING BLAST INJURY; FROM CLINICAL DATA TO PATHOPHYSIOLOGY AND PROTECTION

***Spyros Masouros**; Imperial College London, United Kingdom*
TR06.10: Impact / injury biomechanics II, Arrabida Hall, 29 June, 10.15-10.40

MODELLING MECHANICAL DEMANDS ARISING FROM CLINICAL REQUIREMENTS FOR FRACTURE FIXATION

***Pankaj Pankaj**; The University of Edinburgh, United Kingdom*
TR02.3: Implants / orthotics / prosthetics / devices III: Fracture repair, Infante Hall, 27 June, 14.00-14.25

MULTISCALE BIOMECHANICAL AND STRUCTURAL PROPERTIES OF LUMBAR INTERVERTEBRAL DISCS: MECHANISMS OF INJURY

***John J. Costi**; Flinders University, Australia*
TR05.6: Spine biomechanics II, Porto Hall, 28 June, 10.15-10.40

OPPORTUNITIES IN MULTISCALE AND MULTIPHYSICS HUMAN HEART MODELING

***Mathias Peirlinck**; Delft University of Technology, the Netherlands*
TR01.10: Cardiovascular biomechanics VIII: Multiscale computational modeling, Archive Hall, 29 June, 10.15-10.40

PHYLOGENIC AND ONTOGENIC DETERMINANTS OF MECHANOTRANSDUCTION IN THE HUMAN AORTA

***Jean-Baptiste Michel**; Lorraine University, France*
TR01.1: Cardiovascular biomechanics I: Developmental biomechanics and mechanobiology, Archive Hall, 27 June, 8.30-8.55

PRESENT AND FUTURE OF COMPUTER-AIDED DIAGNOSIS, PLANNING AND SURGERY

***Maria Angeles Perez Anson**; University of Zaragoza, Spain*
TR07.1: Computer aided diagnosis, planning and surgery I, Miragaia Hall, 27 June, 8.30-8.55

QUANTITATIVE FUNCTIONAL ASSESSMENT IN THE SETTING OF ADULT SPINAL DEFORMITY USING 3D MOVEMENT ANALYSIS

***Ayman Assi**; University of Saint-Joseph, Lebanon*
TR01.7: Biomechanics of movement and posture: Upper limb and trunk function and posture, Archive Hall, 28 June, 14.00-14.25

REAL WORLD MONITORING OF GAIT: CHALLENGES AND SOLUTIONS FOR A COMPREHENSIVE TECHNICAL VALIDATION

***Claudia Mazzà**; The University of Sheffield, United Kingdom*
TR03.1: Biomechanics of movement and posture I: Sensor-based evaluation of movement, D. Maria Hall. 27 June, 8.30-8.55

SKIN – AN ACCESSIBLE WINDOW TO HEALTH

***Michael Crichton**; Heriot Watt University, United Kingdom*
TR07.9: Skin biomechanics, Miragaia Hall, 29 June, 8.30-8.55

TAILOR-MADE POLYMERS: AN ADDITIONAL DEGREE OF FREEDOM IN THE TUNING OF MECHANICAL PROPERTIES IN TISSUE MODELING

***Gianluca Ciardelli**; Politecnico di Torino, Italy*
TR07.8: Biomaterials II, Miragaia Hall, 28 June, 17.00-17.25

THE BIOMECHANICS OF THE EYE LENS AND ACCOMMODATIVE SYSTEM: CLINICAL OPPORTUNITIES AND BIOMECHANICAL CHALLENGES

***Barbara Pierscionek**; Anglia Ruskin University, United Kingdom*
TR07.3: Ocular biomechanics I, Miragaia Hall, 27 June, 14.00-14.25

TRANSLATIONAL COMPUTATIONAL STUDIES TOWARD PREVENTING POST-TRAUMATIC OSTEOARTHRITIS AFTER JOINT INJURY

***Donald D. Anderson**; University of Iowa, United States of America*
TR06.6: Clinical and translational biomechanics / in silico trials II, Arrabida Hall, 28 June, 10.15-10.40

VISCOSITY AND NONLINEAR ELASTOGRAPHY WILL BECOME THE NEXT GENERATION BIOMARKERS IN CLINICAL DIAGNOSIS

***Inas H. Faris**; University of Granada, Spain*
TR04.7: Biomedical imaging II, D. Luis Hall, 28 June, 14.00-14.25

X-RAY BASED 3D HISTOLOGY OF BIOLOGICAL TISSUES

***Greet Kerckhofs**; UC Louvain, Belgium*
TR04.6: Biomedical imaging I, D. Luis Hall, 28 June, 10.15-10.40

GUIDELINE FOR PRESENTERS AND CHAIRS

Guidelines for podium presenters

Please check the time and room of your presentation in the daily programme and in the conference app as there might have been some last-minute changes.

All presentations must be prepared and delivered **in English**. All presenters are asked to respect the duration of presentations as follows:

- **12 min**. (incl. discussion) for ***podium presentations***,
- **25 min**. (incl. discussion) for ***perspective talks***,
- **45 min**. (incl. discussion) for ***keynote lectures***.

The chairs are requested to stop the presentation after the allotted time has passed.

Technical requirements:

Slide format:

- MS PowerPoint, landscape format (all congress center PC's have **Office 2019**)
- **16:9 HD** presentations (**1080p**)
- films embedded videos in power point for optimal compatibility (do not forget to embed your fonts and to bring your video files separately, as back-up solution)
- the use of personal laptops for presentation is not allowed

Presentations upload:

Central speakers' upload center will be located in the Congress center and technicians will check the presentation with you and upload it to the correct meeting room. Please bring your presentation on USB and **come to upload it at least 2 hours before your session or on the day before**.

If you are presenting in one of the first morning sessions on June 27, you should come to upload your presentation on the day before (June 26) in the afternoon OR directly on June 27 at 7:30 am. No presentations should be uploaded directly in the meeting rooms.

Make sure to **be present in the meeting room at least 10 minutes prior to the start of your session** and let the chairperson know you are there. Please make sure to stay in your session from the beginning on to ensure smooth changes between the individual presentations.

There will be assisting staff in each lecture room if any problems occur.

Guidelines for poster presenters

Due to a high number of submissions, an exceptionally large poster area is planned this year with special time slots dedicated exclusively to poster presentations viewing. Networking and accompanying events will take place in the poster area to allow maximum space for discussions there.

The **poster sessions** are scheduled as follows:

- Poster session 1 - 6 Monday, 27th June, 13:15 – 14:00
- Poster session 7 - 12 Tuesday, 28th June, 13:15 – 14:00
- Poster session 13 - 18 Wednesday, 29th June, 13:15 – 14:00

Presenters are kindly asked to be present by their posters during the indicated session time to present their posters (3 minutes per poster presentation) and answer any questions from the conference delegates.

Set up of posters:

You have to bring your printed paper poster to the venue. The measurements should be approximately A0 Portrait (841 x 1189 mm). The poster should be easily readable from a distance of 2 meters.

Each poster will get a specific number, therefore please make sure to mount your poster on the poster board with the corresponding number. An overview of each poster session will be available in the poster area.

The poster area is located in the exhibition on the ground floor.

Velcro tape will be provided by the organizers, and onsite assistance will be available to help you to display your poster.

Posters should be mounted on Sunday, June 26, between 15:00 and 20:00 or on Monday, June 27, 07:30 – 11:00.

Posters should be removed on Wednesday, June 29, after the afternoon coffee break or right after the closing of the congress (by 17:30). Please note that all posters not dismantled at 17:30 on June 29, will be removed and disposed by the congress staff.

ESB 2022 Chairs Guidelines

The chair of a podium session holds a key position in making the programme run as smoothly as possible.

These guidelines are to help you before, during and after the session you are chairing.

- Please arrive in the room of your session at least 10 minutes before it starts.
- 1 student assistant will be present in the room, preparing name signs, water etc. and making sure that all presentations of the sessions are uploaded.
- All presentations are uploaded via the central uploading centre.
- A technician will make sure in advance that all devices and audio equipment operate as planned. The technician can assist you in any technical question you may have.
- Please remind the speakers of the time limit of their presentation (according to the final ESB 2022 programme).
- Each podium presenter has been informed to prepare a presentation for maximum **12 minutes including Q&A**. The perspective talks have been informed that their presentation should be planned for 25 minutes including Q&A.
- Please prepare some possible questions for the presenters in case no one from the audience will ask a question.
- Discussion: Take charge of the discussion period. Recognize questions from the audience and allow each person who would like to do so to participate in the discussion. Ask the participant to introduce herself/himself and to speak slowly into the microphone.
- Please do not exceed the time assigned for the session. The programme is very tight, and it is important to avoid delays.
- You are kindly asked to switch between presentations by simply announcing the name of the next presenter and the title of the presentation. Due to the tight schedule, there will not be sufficient time for introducing individual lecturers in a more detailed manner.
- If a presentation cannot be given or if a presenter does not appear (no-show), please stick to the original programme and fill out the remaining time with questions or start a discussion.
- Once more, thank you for your contribution to the ESB 2022 Congress.

If you have any questions before, during or after the conference, please contact the ESB 2022 conference secretariat (at the registration desks)

ESB 2022 PROGRAMME OVERVIEW

Sunday, 26th June 2022

10:00 – 12:00	Pre-course: Ideation
13:30 – 15:30	Pre-course: The basics of mechanical characterization of soft biological tissue
16:00 – 18:00	Pre-course: Explainable AI methods in biomedical engineering for supporting medical diagnosis
19:30 – 22:00	ESB 2022 Student evening

Monday, 27th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
All day	Registration openend			
8:30 – 9:45	TR01.1 **CARDIOVASCULAR BIOMECHANICS I: DEVELOPMENTAL BIOMECHANICS AND MECHANOBIOLOGY** *Chairs: Selda Sherifova, Stéphane Avril*	TR02.1 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES I: CRANIOMAXILLOFACIAL** *Chairs: Harry van Lenthe, Dennis Janssen*	TR03.1 **BIOMECHANICS OF MOVEMENT AND POSTURE I: SENSOR-BASED EVALUATION OF MOVEMENT** *Chairs: William R. Taylor, Erica Beaucage-Gauvreau*	TR04.1 **MECHANOBIOLOGY I: TOOLS** *Chairs: Hans Van Oosterwyck, Daphne Weihs*
09:45 – 10:15	Coffee break			
10:15 –11:40	TR01.2: **CARDIOVASCULAR BIOMECHANICS II: MATERIAL CHARACTERIZATION** *Chairs: Selda Sherifova, Stéphane Avril*	TR02.2 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES II: 3D TECHNOLOGY** *Chairs: Harry van Lenthe, Vasja Plesec*	TR03.2 **BIOMECHANICS OF MOVEMENT AND POSTURE II: MODELLING AND SIMULATION OF MOVEMENT** *Chairs: Seyyed Hamed Hosseini Nasab, Lennart Scheys*	TR04.2 **MECHANOBIOLOGY II: IN VITRO / IN SILICO** *Chair: Hans Van Oosterwyck*
11:45 – 12:30	Keynote lecture 1 **PERSONALIZED MODELING OF ALZHEIMER'S DISEASE**, *Ellen Kuhl* *Chairs: Harry van Lenthe, Joao Manuel R.S. Tavares*			
12:30 – 13:15	Lunch break			
13:15 – 14:00	Poster session 1 - 6			
14:00 – 15:30	TR01.3 **CLINICAL BIOMECHANICS AWARD SSESSION** *Chairs: Markus Heller, Michele Conti*	TR02.3 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES III: FRACTURE REPAIR** *Chairs: Marlène Mengoni, Maikel Timmermans*	TR03.3 **HARD TISSUE I: TISSUE INTERACTIONS** *Chairs: Uwe Wolfram, Pia Stefanek*	TR04.3 **MUSCULOSKELETAL BIOMECHANICS I: MULTIPLE TOPICS** *Chairs: Vee San Cheong, Enrico dall'Ara*
15:30 – 16:00	Coffee break			
16:00 – 17:00	*ESB Student Award Session* *Chairs: Markus Heller, Aurelie Carlier*			
17:00 – 18:00	TR01.4 **CARDIOVASCULAR BIOMECHANICS III: TREATMENT DESIGN & CLINICAL OUTCOME** *Chairs: Nele Famaey, Mathias Peirlinck*	TR02.4 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES IV: TOTAL HIP ARTHROPLASTY** *Chair: Dennis Janssen, Corina Nüesch*	TR03.4 **PATIENT-SPECIFIC MODELLING I** *Chair: Sebastian Laporte*	TR04.4 **MUSCULOSKELETAL BIOMECHANICS II: UPPER LIMB** *Chairs: Massimo Sartori, Mohamed Irfan Mohamed Refai*
18:00 – 19:00	Women in Biomechanics, Infante Hall			
19:00 – 21:30	Welcome Reception, Noble Hall & Quay			

				All day
				12:30 – 13:15

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
				All day
TR05.1 **SOFT TISSUE BIOMECHANICS I** *Chairs: Maria José Gómez-Benito, José Felix Rodriguez Matas*	TR06.1 **BIOMATERIALS I**	TR07.1 **COMPUTER AIDED DIAGNOSIS, PLANNING AND SURGERY I** *Chairs: Jérôme Noailly, Miguel Ángel Ariza Gracia*	TR08.1 **DENTAL BIOMECHANICS** *Chairs: Christoph Bourauel, Benedikt Sagl*	8:30 – 9:45
TR05.2 **SOFT TISSUE BIOMECHANICS II** *Chairs: Dulce Oliveira, José Felix Rodriguez Matas*	TR06.2 **COMPUTATIONAL BIOLOGY I** *Chairs: Maria Angeles Perez Anson, Aurélie Carlier*	TR07.2 **COMPUTER AIDED DIAGNOSIS, PLANNING AND SURGERY II** *Chairs: Jérôme Noailly, Miguel Ángel Ariza Gracia*	TR08.2 **EXPERIMENTAL BIOMECHANICS I** *Chairs: Luca Cristofolini, Ingmar Fleps*	10:15 –11:40
				11:45 – 12:30
				12:30 – 13:15
TR05.3 **SOFT TISSUE BIOMECHANICS III** *Chair: José Felix Rodriguez Matas, Maria José Gómez-Benito*	TR06.3 **COMPUTATIONAL BIOLOGY II** *Chairs: Maria Angeles Perez Anson, Aurélie Carlier*	TR07.3 **OCULAR BIOMECHANICS I** *Chairs: Miguel Ángel Ariza Gracia, Philippe Buechler*	TR08.3 **3D PRINTING IN BIOMEDICINE** *Chairs: Henrique Amorim Almeida*	14:00 – 15:30
				15:30 – 16:00
				16:00 – 17:00
TR05.4 **SOFT TISSUE BIOMECHANICS IV** *Chairs: Dulce Oliveira, Maria José Gómez-Benito*	TR06.4 **ROUND TABLE ON TECHNOLOGY TRANSFER IN BIOMECHANICS** *Chair: Jos Vander Sloten* *Tine Van Lommel, Leuven Research and Development* *Mrs. Maria Oliveira, Start-up from Portoarea* *Ir. Patricia Lopes, Materialise NV,* *Markus Windolf, AO Foundation* *Wafa Skalli, ParisTech*	TR07.4 **OCULAR BIOMECHANICS II** *Chairs: Miguel Ángel Ariza Gracia, Philippe Buechler*	TR08.4 **EXPERIMENTAL BIOMECHANICS II** *Chairs: Luca Cristofolini, Ingmar Fleps*	17:00 – 18:00
				18:00 – 19:00
				19:00 – 21:30

Tuesday, 28th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
7:30 – 8:15	Meet the PI - Student breakfast networking event			
8:30 – 9:45	TR01.5 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES V: TOTAL KNEE ARTHROPLASTY** *Chairs: William R. Taylor, Corine Post*	TR02.5 **CARDIOVASCULAR BIOMECHANICS IV: COMPUTATIONAL METHODS** *Chairs: Selda Sherifova, Stéphane Avril*	TR03.5 **PATIENT-SPECIFIC MODELLING II** *Chairs: Claudio Vergari, Laura Lafuente Gracia*	TR04.5 **TISSUE ENGINEERING I** *Chairs: Gwendolen Reilly, Alberto Sensini*
09:45 – 10:15	Cofee break			
10:15 –11:40	TR01.6 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES VI: MULTIPLE TOPICS (TOTAL KNEE ARTHROPLASTY, FRACTURE REPAIR)** *Chair: Bernardo Innocenti*	TR02.6 **CARDIOVASCULAR BIOMECHANICS V: THROMBI AND PLAQUES** *Chairs: Selda Sherifova, Stéphane Avril*	TR03.6 **HARD TISSUE BIOMECHANICS II: BONE TISSUE LEVEL** *Chairs: Vee San Cheong, Gianluca Tozzi*	TR04.6 **BIOMEDICAL IMAGING I** *Chairs: Dieter Pahr, Uwe Wolfram*
11:45 – 12:30	Keynote lecture 2 **META-BIOMATERIALS**, *Amir Zadpoor* *Chairs: David Mitton, Renato Natal Jorge*			
12:30 – 13:15	Lunch break			
13:15 – 14:00	Poster session 7 - 12			
14:00 – 15:30	TR01.7 **BIOMECHANICS OF MOVEMENT ANDPOSTURE: UPPER LIMB AND TRUNK FUNCTION AND POSTURE** *Chairs: Lennart Scheys, William R. Taylor*	TR02.7 **CARDIOVASCULAR BIOMECHANICS VI: TREATMENT DESIGN AND CLINICAL OUTCOME** *Chairs: Selda Sherifova, Stéphane Avril*	TR03.7 **HARD TISSUE BIOMECHANICS III: BONE ORGAN LEVEL** *Chairs: Helene Follet, Marta Peña Fernández*	TR04.7 **BIOMEDICAL IMAGING II** *Chairs: Dieter Pahr, Inas H Faris*
15:30 – 16:00	Coffee break			
16:00 – 17:00	ESB S.M. Perren Research Award **STANDARDIZED TIBIO-FEMORAL IMPLANT LOADS AND KINEMATICS,** *Michael J. Dreyer, ETH Zurich* *Chairs: Markus Heller, Harry van Lenthe*			
17:00 – 18:00	TR01.8 **BIOMECHANICS OF MOVEMENT ANDPOSTURE: MOTOR CONTROL IN AGEING AND PATHOLOGY** *Chairs: William R. Taylor, Lennart Scheys*	TR02.8 **CARDIOVASCULAR BIOMECHANICS VII: IMAGE-BASED BIOMECHANICS** *Chairs: Nele Famaey, Mathias Peirlinck*	TR03.8 **PATIENT-SPECIFIC MODELLING III** *Chair: Sebastien Laporte, Lucia Donno*	TR04.8 **TISSUE ENGINEERING II** *Chairs: Gwendolen Reilly, Alberto Sensini*
18:00 – 19:00	ESB General Assembly			
20:00 – 23:00	ESB 2022 Congress Dinner Venue: Real Companhia Velha Cellars - address: Azevedo Magalhaes 314, Via Nova de Gaia. Metro: General Torres			

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
				All day
TR05.5 **SPINE BIOMECHANICS I** *Chairs: Marco Palanca, John Costi*	TR06.5 **CLINICAL AND TRANSLATIONAL BIOMECHANICS / IN SILICO TRIALS I** *Chairs: Richie Gill, Marco Viceconti*	TR07.5 **ARTIFICIAL INTELLIGENCE IN BIOMECHANICS + ROBOTS IN BIOMECHANICS** *Chair: Massimo Sartori*	TR08.5 **RESPIRATORY BIOMECHANICS** *Chair: Sam Bayat*	8:30 – 9:45
TR05.6 **SPINE BIOMECHANICS II** *Chairs: André P.G. Castro, John Costi*	TR06.6: **CLINICAL AND TRANSLATIONAL BIOMECHANICS / IN SILICO TRIALS II** *Chairs: Richie Gill, Marco Viceconti*	TR07.6 **ARTIFICIAL INTELLIGENCE IN BIOMECHANICS II** *Chairs: Konstantinos Moustakas, Idit Avrahami*	TR08.6 **ADVANCE COMPUTING FOR BIOMECHANICS I** *Chair: Joao Tavares*	10:15 –11:40
				11:45 – 12:30
				12:30 – 13:15
TR05.7 **SPINE BIOMECHANICS III** *Chairs: André P.G. Castro, Marco Palanca*	TR06.7 **BIOMECHANICS OF AGEING AND NEUROMUSCULAR CONTROL** *Chairs: Stephen Ferguson, Annegret Mündermann*	TR07.7 **VIRTUAL AND AUGMENTED REALITY IN BIOMECHANICS** *Chairs: Konstantinos Moustakas, Bill Baltzopoulos*	TR08.7 **ADVANCE COMPUTING FOR BIOMECHANICS II** *Chair: Paulo Rui Fernandes*	14:00 – 15:30
				15:30 – 16:00
				16:00 – 17:00
TR05.8 **ESB CORPORATE MEMBERS SESSION**	TR06.8 **CLINICAL AND TRANSLATION AL BIOMECHANICS / IN SILICO TRIALS III** *Chairs: Richie Gill, Marco Viceconti*	TR07.8 **BIOMATERIALS II** *Chair: Hanna Isaksson*	TR08.8 **ADVANCE COMPUTING FOR BIOMECHANICS III** *Chair: Renato Natal*	17:00 – 18:00
				18:00 – 19:00
				20:00 – 23:00

Wednesday, 29th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
8:30 – 9:45	TR01.9 **PATIENT-SPECIFIC MODELLING IV** *Chair: Claudio Vergari*	TR02.9 **MUSCULOSKELETAL BIOMECHANICS III: HIP, TRUNK, FOOT** *Chairs: Ilse Jonkers, Erica Beaucage-Gauvreau*	TR03.9 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES VII: BONE RESPONSE** *Chair: Peter Zioupos, Federico Andrea Bologna*	TR04.9 **MECHANOBIOLOGY III: IN SILICO** *Chair: Hans Van Oosterwyck*
09:45 – 10:15	Cofee break			
10:15 –11:40	TR01.10 **CARDIOVASCULAR BIOMECHANICS VIII: MULTISCALE COMPUTATIONAL MODELING** *Chairs: Fanette Chassagne, Diego Gallo*	TR02.10 **MUSCULOSKELETAL BIOMECHANICS IV: METHODS** *Chairs: Claudia Mazzà, Simon Herger*	TR03.10 **HARD TISSUE BIOMECHANICS IV: BONE REMODELLING, AND DISEASES** *Chairs: Enrico Dall'Ara, Alexandra Tits*	TR04.10 **MECHANOBIOLOGY IV: IN SILICO** *Chairs: Hans Van Oosterwyck, Daphne Weihs*
11:45 – 12:30	Keynote lecture 3 **MODELLING THE HUMAN NEUROMUSCULAR SYSTEM ACROSS SPATIO-TEMPORAL SCALES FOR A NEW CLASS OF MOVEMENT ENHANCING TECHNOLOGIES**, *Massimo Sartori* *Chairs: Jérôme Noailly, Paulo Rui Fernandes*			
12:30 – 13:15	Lunch break			
13:15 – 14:00	Poster session 13 - 18			
14:00 – 15:00	Best Doctoral Thesis Award *Chairs: Markus Heller, Ilse Jonkers*			
15:00 – 15:30	Coffee break			
15:30 – 16:45	TR01.12 **CARDIOVASCULAR IX: IMAGE-BASED BIOMECHANICS** *Chairs: Fanette Chassagne, Diego Gallo*	TR02.12 **MUSCULOSKELETAL BIOMECHANICS V: KNEE AND OTHERS** *Chairs: Annegret Mundermann, Claude Fifi Hayford*	TR03.12 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES VIII: MULTIPLE TOPICS** *Chairs: Peter Varga, Mauricio Cruz Saldivar*	TR04.12 **ANIMAL AND PLANT BIOMECHANICS** *Chairs: Christian Peham, Balázs Gerics*
16:45 – 17:15	ESB 2022 Closing Ceremony			

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
TR05.9 **SPORT BIOMECHANICS I** *Chairs: Hans Kainz, António Prieto Veloso*	TR06.9 **IMPACT / INJURY BIOMECHANICS I** *Chairs: David Mitton, Ciaran Simms*	TR07.9 **SKIN BIOMECHANICS** *Chairs: Jérôme Molimard, Michael Crichton*	TR08.9 **INSPIRATIONAL KEY NOTE LECTURE -"HOW TO COMMUNICATE SCIENCE"** *Chair: Marta Campos Ferreira Joana Lobo Antunes*	8:30 – 9:45
TR05.10 **SPORT BIOMECHANICS II** *Chairs: António Prieto Veloso, Joao Paulo Vilas-Boas*	TR06.10 **IMPACT / INJURY BIOMECHANICS II** *Chairs: David Mitton, Ciaran Simms*	TR07.10 **ERGONOMICS / OCCUPATIONAL BIOMECHANICS / REHABILITATION I** *Chairs: Margit Gföhler, Xuguang Wang*	TR08.10 **BIOFLUID AND TRANSPORT I** *Chairs: Frans van de Vosse, Junfeng Zhang*	10:15 –11:40
				11:45 – 12:30
				12:30 – 13:15
				13:15 – 14:00
				14:00 – 15:00
				15:00 – 15:30
TR05.12 **SPORT BIOMECHANICS III** *Chairs: Joao Paulo Vilas-Boas, Hans Kainz*	TR06.12 **IMPACT / INJURY BIOMECHANICS III** *Chair: David Mitton*	TR07.12 **ERGONOMICS / OCCUPATIONAL BIOMECHANICS / REHABILITATION II** *Chairs: Margit Gföhler, Xuguang Wang*	TR08.12 **BIOFLUID AND TRANSPORT II** *Chairs: Frans van de Vosse, Junfeng Zhang*	15:30 – 16:45
				16:45 – 17:15

ESB 2022 DETAILED PROGRAMME

Monday, 27th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
All day	Registration opened			
8:30 – 9:45	TR01.1 **CARDIOVASCULAR BIOMECHANICS I: DEVELOPMENTAL BIOMECHANICS AND MECHANOBIOLOGY** *Chairs: Selda Sherifova, Stéphane Avril* 8:30am - 8:55am PHYLOGENIC AND ONTOGENIC DETERMINANTS OF MECHANOTRANSDUCTION IN THE HUMAN AORTA ***J.-B. Michel*** 8:55am - 9:07am FLUID MECHANICS OF THE ZEBRAFISH EMBRYONIC HEART TRABECULATION ***A. G. Cairelli**, R. W. Chow, J. Vermot, C. H.Yap* 9:07am - 9:19am FLUID MECHANICS OF FETAL AORTIC VALVULOPLASTY IN FETAL AORTIC STENOSIS AND EVOLVING HLHS ***H. S. Wong**, H. Wiputra, A. Tulzer, G. Tulzer, C. H. Yap* 9:19am - 9:31am BIOMECHANICAL MODELLING OF THE AORTA IN ADULT ZEBRAFISH ***M. Van Impe**, M. Stampanoni, P. Sips, J. DeBacker, P. Segers* 9:31am - 9:43am HEMODYNAMICS-DRIVEN AORTIC GROWTH FOR GENETICALLY MODIFIED MICE MODELS ***M. S. Bazzi**, J. E. Wagenseil, V. H. Barocas*	TR02.1 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES I: CRANIOMAXILLOFACIAL** *Chairs: Harry van Lenthe, Dennis Janssen* 8:30am - 8:42am AN INSTRUMENTED ORTHOSIS PROTOTYPE FOR CRANIAL CORRECTION ***B. Garate**, A. Zabala, A. Elawadly, S. Taylor,O. Jeelani, D. Dunaway, G. James, S.Schievano, A. Borghi* 8:42am - 8:54am TOWARDS THE DESIGN OF A NOVEL NITINOL DISTRACTOR FOR CRANIOFACIAL SURGERY ***L. Zabalza**, N. Rodriguez-Florez, D. Silva, O.Jeelani, G. James, D. Dunaway, J. Ong, S.Schievano, A. Borghi* 8:54am - 9:06am A NOVEL METHOD TO MEASURE DISTRACTION FORCES DURING MID-FACE ADVANCEMENT *A. Zabala Monasterio, B. Garate Andikoetxea, S. Taylor, J. Ong, D.Dunaway, O. Jeelani, S. Schievano,* ***A.Borghi*** 9:06am - 9:18am FINITE ELEMENT MODELLING OF A CRANIAL IMPLANT DURING IMPACT ***R. Alves de Sousa**, P. Santos, F. Fernandes* 9:18am - 9:30am FINITE ELEMENT MODELLING OF ACOUSTIC EMISSIONS FOR DENTAL IMPLANT MONITORING ***G. Boron**, R. Reuben, U. Wolfram* 9:30am - 9:42am ON THE BIOMECHANICS OF RECONSTRUCTED MANDIBLES WITH CAD/CAM FIXATION DEVICES ***G. Biesso**, V. Orassi, C. Janka, C.Rendenbach, S. Checa*	TR03.1 **BIOMECHANICS OF MOVEMENT AND POSTURE I: SENSOR-BASED EVALUATION OF MOVEMENT** *Chairs: William R. Taylor, Erica Beaucage-Gauvreau* 8:30am - 8:55am REAL WORLD MONITORING OF GAIT: CHALLENGES AND SOLUTIONS FOR A COMPREHENSIVE TECHNICAL VALIDATION ***C. Mazzà*** 8:55am - 9:07am VALIDATION OF AN INERTIAL-BASEDGAIT ANALYSIS SYSTEM USING A SIX DEGREES-OF-FREEDOM JOINT SIMULATOR ***A. Ortigas Vásquez**, A. Maas, W. R. Taylor, T. M. Grupp* 9:07am - 9:19am BIOMECHANICS IN THE WILD: VALIDATION OF A WEARABLE KINETIC MEASUREMENT SYSTEM ***H. Wang**, A. Basu, G. Durandau, M. Sartori* 9:19am - 9:31am SINGLE IMU BASED OPEN-SOURCE AND LOW-COST GAIT EVENT DETECTION WEARABLE DEVICE ***N. Breitman**, A. Fischer* 9:31am - 9:43am KINEMATIC CHANGES DURING WALKING WITH WHOLE-BODY VIBRATION AND PSYCHOMOTOR TESTING ***A. P. Moorhead**, A. Mazzoleni, A. Goggi, S.Marelli, G. Lorenzini, M. Tarabini*	TR04.1 **MECHANOBIOLOGY I: TOOLS** *Chairs: Hans Van Oosterwyck, Daphne Weihs* 8:30am - 8:55am CELLULAR FORCE EXERTION DURING VASCULAR INVASION: MEASUREMENT AND APPLICATION TO DISEASE ***H. Van Oosterwyck*** 8:55am - 9:07am QUANTITATIVE PHASE MICROSCOPY-BASED CELL VISCOELASTICITY MEASUREMENT BY SHEAR STRESS ***J. Gumulec**, T. Vicar, J. Chmelik, J.Navratil, J. Balvan, R. Kolar, L.Chmelikova, V. Cmiel, M. Masarik* 9:07am - 9:19am PHOTO-SWITCHABLE BIO-INTERFACES FOR DYNAMIC CELL CULTURES ***F. Mauro**, C. Natale, V. Panzetta, P. A.Netti* 9:19am - 9:31am MECHANOREGULATION OF CRISPR/CAS9 MEDIATED BONE CELL REPORTER MICE UNDER CYCLIC MECHANICAL LOADING ***D. Yilmaz**, F. Correia Marques, E.Wehrle, G. A. Kuhn, R. Müller*
09:45 – 10:15	Coffee break			

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
				All day
TR05.1 **SOFT TISSUE BIOMECHANICS I** *Chairs: Maria José Gómez-Benito, José Felix Rodriguez Matas* 8:30am - 8:42am FRACTURE TOUGHNESS DETERMINATION OF MUSCLE TISSUE BASED ON AQLV MODEL DERIVED VISCOUS DISSIPATED ENERGY ***O. J. Aryeetey**, M. Frank, A. Lorenz, D. H.Pahr* 8:42am - 8:54am MECHANO-STRUCTURAL MATURATION OF THE BONE CALLUS TISSUE UNDER DISTRACTION *P. **Blázquez-Carmona**, J. A. Sanz-Herrera, J.Mora-Macías, J. J. Toscano, J. Morgaz, J.Domínguez, E. Reina-Romo* 8:54am - 9:06am ADVANTAGES OF ESTIMATING BIOMECHANICAL PROPERTIES OF THE CORNEA USING TORSIONAL WAVE ELASTOGRAPHY ***I. H Faris**, J. Torres, A. Callejas, G. Rus* 9:06am - 9:18am MECHANICAL MEASUREMENTS FOR CLINICAL ASSESSMENT OF COMPARTMENT SYNDROME ***C. Tacchella**, E. Clutton, Y. Chen, M.Crichton* 9:18am - 9:30am THE IN-VITRO TEST CONDITIONS INFLUENCE THE BIOMECHANICAL PROPERTIES OF DEGENERATED LATERAL MENISCI ***L. de Roy**, O. Piquet, G. Teixeira, M. Weiske,H. Mayr, M. Seidenstücker, A. Seitz* 9:30am - 9:42am TISSUE INTERNAL STRAINS COMPUTED BY A FINITE ELEMENT MODEL OF THE HUMAN HEEL ANDMEASURED FROM MR IMAGES ***A. Trebbi**, M. Bailet, A. Perrier, Y. Payan*	TR06.1 **BIOMATERIALS I** 8:30am - 8:42am BIOREACTOR EVALUTION OF AN ANTIBACTERIAL AND OSTEOGENIC SILICON NITRIDE REINFORCED CRYOGEL SYSTEM ***S. S. Lee**, L. Laganenka, X. Du, W.-D. Hardt, S. J. Ferguson* 8:42am - 8:54am CORRODED MAGNESIUM-BASED SCAFFOLDS FATIGUE STRAIN ACCUMULATION AND MECHANICAL BEHAVIOUR UNDER CYCLIC LOADING ***R. Bonithon**, S. Davis, M. Morgan, G. Blunn, A. Karali* 8:54am - 9:06am MULTISCALE PERFORMANCES OF ELECTROSPUN BIOSTABLE DEVICES FOR TENDON AND LIGAMENT REPLACEMENT ***A. Sensini**, C. Gotti, C. Gualandi, M. V.Ricioppo, G. Marchiori, N. Sancisi, M. Fini,M. L. Focarete, L. Cristofolini, A. Zucchelli* 9:06am - 9:18am DYNAMIC MECHANICAL ANALYSIS OF COLLAGEN FIBRILS AND ELECTROSPUN PLLA NANOFIBERS *M. Nalbach, A. Sensini, N. Motoi, M. Rufin, O. Andriotis, A. Zucchelli, G. Schitter, L.Cristofolini, **P. Thurner*** 9:18am - 9:30am NATURE-INSPIRED MEMBRANES FOR ARTIFICIAL RESPIRATION – PRODUCTION OF MICRO-STRUCTURED POLYMER HOLLOW FIBERS ***M. Pekovits**, P. Ecker, F. Imran, J. A.Kalarus, M. Harasek, M. Gföhler* 9:30am - 9:42am NANOFIBRE CAPPED MELT ELECTROWRITTEN GRID STRUCTURES MIMICKING THE ARCHITECTURE OF ARTICULAR SURFACES ***M. Santschi**, L. Bienz, M. Leunig, S. Ferguson*	TR07.1 **COMPUTER AIDED DIAGNOSIS, PLANNING AND SURGERY I** *Chairs: Jérôme Noailly, Miguel Ángel Ariza Gracia* 8:30am - 8:55am PRESENT AND FUTURE OF COMPUTER-AIDED DIAGNOSIS, PLANNING AND SURGERY ***M. A. Perez Anson*** 8:55am - 9:07am AN INVESTIGATION OF SPARSE 3D POINT CLOUD REGISTRATION COST FUNCTIONS FOR ESTIMATING 3D POSE OF HUMAN BONE ***D. A. Christie**, R. Fluit, G. V. Durandau, M.Sartori, N. J. J. Verdonschot* 9:07am - 9:19am PREDICTION OF GUIDEWIRE INDUCED AORTIC DEFORMATIONS DURING EVAR: FEA AND IN VITRO STUDY ***M. Emendi**, K.-H. Støverud, G. Tangen, H.Ulsaker, S. K. Dahl, V. E. Prot, T. Langø* 9:19am - 9:31am IN-SILICO BIOMECHANICAL DESCRIPTORS TO STRATIFY REAL WORLD CASES OF PROXIMAL JUNCTION FAILURE IN SPINE SURGERY ***M. Rasouligandomani**, A. del Arco, F. Pellisé, M. González Ballester, F. Galbusera, J. Noailly*	TR08.1 **DENTAL BIOMECHANICS** *Chairs: Christoph Bourauel, Benedikt Sagl* 8:30am - 8:42am DIFFERENCES IN TMJ LOADING BETWEEN MEDIOTRUSIVE AND LATEROTRUSIVE TOOTH GRINDING ***B. Sagl**, M. Schmid-Schwap, E.Piehslinger, X. Rausch-Fan, I. Stavness* 8:42am - 8:54am IMPACT OF SIMULATED TOOTHBRUSHING AND THERMOCYCLING ON SURFACE ROUGHNESS OF CAD/CAM RESIN MATRIX CERAMICS ***L. Porojan**, R. D. Vasiliu, F. R. Toma, S.D. Porojan* 8:54am - 9:06am NUMERICAL AND EXPERIMENTAL ASSESSMENT OF MULTIROOTED ROOT ANALOG IMPLANTS ***M. Aldesoki**, L. Keilig, I. Dörsam, C.Bourauel* 9:06am - 9:18am THE EFFECT OF TRIMMING LINE GEOMETRY ON FORCE TRANSMISSION BY ORTHODONTIC ALIGNERS (A FINITE ELEMENT STUDY) ***T. Elshazly**, L. Ludger, A. Ghoneima, M.Abuzayda, C. Bourauel* 9:18am - 9:30am DESIGN EVALUATION OF SIMPLIFIED CERAMIC CANTILEVER SINGLE-RETAINER RESIN-BONDED FIXED DENTAL PROSTHESES USING FEA *N. Hjort, P. Boitelle, I. Sailer, J.-P. Attal, **A. Benoit*** 9:30am - 9:42am EFFICENCY AND LEARNABILITY OF MAGNETIC MALLET AS A RETRIEVAL TOOL FOR DENTAL CROWNS: A PRELIMINARY STUDY ***A. T. Lugas**, G. Caraceni, G. Schierano,A. L. Audenino, D. Baldi, C. Bignardi, M.Terzini*	8:30 – 9:45

Monday, 27th June 2022

10:15 –11:40

Archive Hall

TR01.2:

CARDIOVASCULAR BIOMECHANICS II: MATERIAL CHARACTERIZATION

Chairs: Selda Sherifova, Stéphane Avril

10:15am - 10:27am

AORTIC MEDIA UNDER RADIAL TENSION: GLOBAL AND LOCAL EFFECTS OF RELAXATION

***S. Sherifova**, S. Avril, G. A. Holzapfel*

10:27am - 10:39am

CHARACTERISING DISSECTION IN AORTIC TISSUE: EFFECT OF LOCATION AND DISSECTED LAYER

***I. Ríos-Ruiz**, M. Á. Martínez, E. Peña*

10:39am - 10:51am

GLOBAL AND LOCAL STIFFENING OF HUMAN THORACIC AORTAS UNDERGOING TEVAR IN VITRO: A MOCK-LOOP STUDY

***E. Agrafiotis**, G. Sommer, C. Mayer, M.Grabenwöger, P. Regitnig, H. Mächler, G. A.Holzapfel*

10:51am - 11:03am

LOCAL RUPTURE ANALYSIS OF ATHEROSCLEROTIC HUMAN CAROTID PLAQUES BY STRUCTURAL IMAGING, DIC AND UNIAXIAL TESTING

***S. Guvenir Torun**, P. de Miguel Munoz, H.Crielaard, H. J. Verhagen, A. van der Lugt,G. J. Kremers, A. C. Akyildiz*

11:03am - 11:15am

MECHANICAL CHARACTERIZATION OF PASSIVE MYOCARDIAL TISSUE PROPERTIES IN HEALTHY AND INFARCTED PORCINE HEARTS

***N. Laita**, M. Á. Martínez, M. Doblaré, E. Peña*

11:15am - 11:27am

NON-HOMOGENEOUS GEOMETRICAL INFLUENCE ON RING-OPENING STRESS RECONSTRUCTION

*A. Utrera, **M. Inostroza**, E. Rivera, D. Celentano, C. Garcia-Herrera*

11:27am - 11:39am

INVESTIGATING LOCAL PROPERTIES OF ATHEROSCLEROTIC PLAQUE CAPS USING A TISSUE-ENGINEERED MODEL

***H. Crielaard**, T. B. Wissing, S. GuvenirTorun, P. de Miguel, R. M. Hengst, G.Kremers, F. J. H. Gijsen, K. van der Heiden,A. C. Akyildiz*

Infante Hall

TR02.2

IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES II: 3D TECHNOLOGY

Chairs: Harry van Lenthe, Vasja Plesec

10:15am - 10:40am

HARNESSING 3D PRINTING TO OPTIMISE MEDICAL DEVICE INTERACTION WITH SOFT TISSUE

E. O'Cearbhaill

10:40am - 10:52am

3D PRINTED SOFT METAMATERIAL FORCE SENSORS FOR GAIT MONITORING USING TPU-GRAPHENE COMPOSITES

***I. Sanz-Pena**, N. Rubio Carrero, H. Xu, M.Hopkins*

10:52am - 11:04am

AN EXPERIMENTAL AND COMPUTATIONAL STUDY ON A PATIENT SPECIFIC 3D PRINTED TI6AL4V HEMIPELVIS PROSTHESIS

***L. Ciriello**, F. Danielli, R. Verga, F. Alemani,M. Cicero, J. F. M. Rodriguez, G. Pennati, L.La Barbera*

11:04am - 11:16am

CAN 3D-PRINTED VORONOI STRUCTURES REDUCE FRICTION IN ORTHOPAEDIC IMPLANTS?

***C. Hou**, I. Nemes-Károly, L. Pastrav, B.Vrancken, G. Kocsis, K. Denis, G. Szebényi*

11:16am - 11:28am

ADDITIVELY MANUFACTURED MICROLATTICE STRUCTURES FOR AN INNOVATIVE INTERVERTEBRAL DEVICE

***F. Distefano**, G. Epasto, E. Guglielmino, R.Mineo*

D. Maria Hall

TR03.2

BIOMECHANICS OF MOVEMENT AND POSTURE II: MODELLING AND SIMULATION OF MOVEMENT

Chairs: Seyyed Hamed Hosseini Nasab, Lennart Scheys

10:15am - 10:27am

PATELLAR TENDON LOADING AND STIFFNESS DERIVED FROM IN VIVO LOADS AND KINEMATICS

***P. F. Kneifel**, P. Moewis, P. Damm, P. Schutz, J. Dymke, W. R. Taylor, G. N. Duda, A. Trepczynski*

10:27am - 10:39am

THE EFFECT OF FOOT ORIENTATION MODIFICATIONS ON KNEE JOINT BIOMECHANICS DURING DIFFERENT ACTIVITIES

***Y. Wan**, L. Wade, P. McGuigan, J. Bilzon*

10:39am - 10:51am

CAN WALKING SPEED BE ACCURATELY ESTIMATED USING A MARKER-BASED GAIT EVENT DETECTION METHOD?

***T. Bonci**, 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*

10:51am - 11:03am

ASSESSING THE IMPACT OF A REHABILITATION TREATMENT WITH EXOSKELETON IN PD: A MUSCULOSKELETAL MODELLING APPROACH

***M. Romanato**, F. Fichera, F. Spolaor, D.Volpe, Z. Sawacha*

11:03am - 11:15am

A QUALITY CHECK TO ENABLE RELIABLE MULTICENTRIC STEREOPHOTOGRAMMETRIC DATA COLLECTION

***K. Scott**, T. Bonci, L. Alcock, C. Hansen, L.Schwickert, E. Gazit, A. Cereatti, C. Mazzà*

11:15am - 11:27am

MUSCLE CONTRIBUTIONS TO CENTER OF MASS ACCELERATION IN SIMULATED CROUCH GAIT BY HEALTHY CHILDREN

*C. Cardadeiro, F. João, R. Mateus, **A. P.Veloso***

11:27am - 11:39am

PROPRIOCEPTION, MUSCLE ACTIVITY AND TIBIAL TRANSLATION DURING HEEL STRIKE IN RUNNING: ROLE OF ACL SURGERY TYPE

***L. Bühl**, N. Bleichner, C. Nüesch, S. Müller,G. Pagenstert, C. Egloff, A. Mündermann*

D. Luis Hall

TR04.2

MECHANOBIOLOGY II: IN VITRO / IN SILICO

Chair: Hans Van Oosterwyck

10:15am - 10:27am

MECHANOBIOLOGY-BASED RAPID DIAGNOSIS AND EARLY PROGNOSIS OF METASTATIC RISK IN CANCER

D. Weihs

10:27am - 10:39am

NANOMECHANICAL SIGNATURE OF FIBROSARCOMA: FROM SINGLE CELLS TO TISSUE LEVEL

***A. Stylianou**, K. Polemidiotou, F. Mpekris, T. Stylianopoulos*

10:39am - 10:51am

EXPERIMENTAL INVESTIGATION OF TROPOCOLLAGEN MECHANCIS

***A. Rohatschek**, P. Steinbauer, S.Baudis, P. Thurner*

10:51am - 11:03am

THEORETICAL AND EXPERIMENTAL MODELLING OF CELL AND TUMOUR GROWTH

*B. Huxford, V. Kumar, L. McNamara, **E.McEvoy***

11:03am - 11:15am

COMBINED EXPERIMENTAL AND COMPUTATIONAL STUDY OF TENSIONAL HOMEOSTASIS IN CELL-SEEDED TISSUE-EQUIVALENTS

***D. Paukner**, J. F. Eichinger, J. D.Humphrey, C. J. Cyron*

11:15am - 11:27am

CREEP BEHAVIOR OF INDIVIDUAL COLLAGEN FIBRILS IN TENSION IS DEPENDENT ON CROSS-LINKING

*M. Nalbach, N. Motoi, M. Rufin, **O.Andriotis**, G. Schitter, P. Thurner*

11:27am - 11:39am

PERFORMANCE OF LINEAR AND NONLINEAR APPROACHES IN TRACTION FORCE MICROSCOPY FOR COLLAGEN HYDROGELS

***A. Apolinar-Fernández**, J. Barrasa-Fano, M. Cóndor, H. Van Oosterwyck, J.A. Sanz-Herrera*

Porto Hall

TR05.2

SOFT TISSUE BIOMECHANICS II

Chairs: Dulce Oliveira, José Felix Rodriguez Matas

10:15am - 10:27am

INTER-DONOR VARIABILITY IN THE TENSILE AND COMPRESSIVE BEHAVIOUR OF IN VITRO HUMAN THROMBI

***R. Cahalane**, J. de Vries, M. de Maat, K. vanGaalen, H. van Beusekom, A. van der Lugt,A. Akyildiz, F. Gijsen*

10:27am - 10:39am

A BAYESIAN CONSTITUTIVE MODEL SELECTION FRAMEWORK FOR BIAXIAL MECHANICAL TESTING OF PLANAR SOFT TISSUES: APPLICATION TO PORCINE AORTIC VALVES

A. AGGARWAL, *L. T. Hudson, D. W. Laurence,C.-H. Lee, S. Pant*

10:39am - 10:51am

MECHANICAL PROPERTIES OF PLANTAR TISSUES: A COUPLED EXPERIMENTAL AND NUMERICAL APPROACH

***S. Pettenuzzo**, A. Berardo, E. Belluzzi, A.Pozzuoli, P. Ruggieri, R. Boscolo Berto, R.De Caro, E. L. Carniel, C. G. Fontanella*

10:51am - 11:03am

OPTIMIZATION OF SINGLE-SIDED NMR AND INDENTATION PROTOCOLS IN EVALUATING CARTILAGE STRUCTURE AND MECHANICS

***M. Berni**, C. Golini, C. Testa, N. F. Lopomo, L. Brizi, M. Baleani*

11:03am - 11:15am

STRUCTURAL MECHANISMS IN SOFT FIBROUS TISSUES: LESSONS FROM BIOMIMETICS

M. Sharabi

11:15am - 11:27am

VISCOELASTIC PROPERTIES OF TUMOUR TISSUE: RELATION WITH STRUCTURE AND COMPOSITION

***A. Levillain**, C. B. Confavreux, M.Decaussin-Petrucci, E. Durieux, P. Paparel,K. Le-Bail Carval, L. Maillard, F. Bermond,D. Mitton, H. Follet*

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, ***A.Berardo***

Arrabida Hall

TR06.2

COMPUTATIONAL BIOLOGY I

Chairs: Maria Angeles Perez Anson, Aurélie Carlier

10:15am - 10:40am

COMPUTATIONAL SIMULATIONS TO UNRAVEL CELL MECHANOTRASDUCTION IN PATHOLOGICAL AND PHYSIOLOCIGAL PROCESSES

M. J. Gómez-Benito

10:40am - 10:52am

MODELLING THE MECHANO-INFLAMMATORY REGULATION OF CHONDROCYTE IN EARLY OSTEOARTHRITIS

***M. Segarra-Queralt**, G. Piella, J. Noailly*

10:52am - 11:04am

A NOVEL TOP-DOWN NETWORK MODELLING APPROACH TO ESTIMATE CELL ACTIVITY IN MULTIFACTORIAL ENVIRONMENTS

***L. Baumgartner**, M. Á. González Ballester, J. Noailly*

11:04am - 11:16am

IN SILICO ANALYSIS OF THE INFLUENCE OF THE SUBSTRATE STIFFNESS ON THE EVOLUTION OF 3D CULTURES OF GLIOBLASTOMA

***M. Pérez-Aliacar**, L. Palos, C. Bayona, J.Ayensa-Jiménez, I. Ochoa, M. Doblaré*

11:16am - 11:28am

SIMULATION OF PIEZOELECTRIC SCAFFOLD FOR BONE REGENERATION

***V. Badali**, M. Mohammadkhah, S. Checa, M.M.Zehn*

11:28am - 11:40am

CELLULAR SENESCENCE IN A MECHANOBIOLOGICAL MODEL OF LONGITUDINAL BONE GROWTH OF THE FEMUR

***A. Lipphaus**, A. Wegener-Panzer, R.-B.Tröbs, U. Witzel*

Miragaia Hall

TR07.2

COMPUTER AIDED DIAGNOSIS, PLANNING AND SURGERY II

Chairs: Jérôme Noailly, Miguel Ángel Ariza Gracia

10:15am - 10:27am

A NUMERICAL STUDY OF THE IMPACT ON GRAFT LONGEVITY FROM CORONARY ARTERY BYPASS GRAFTS' BULK-BODY GEOMETRY

C. J. Bright, A. Deyranlou, S. Grant, ***A.Keshmiri***

10:27am - 10:39am

TOLERANCE ANGLE DETERMINATION FOR PEDICULAR SCEW INSERTION

***L. Leblond**, Y. Godio-Raboutet, Y. Glard, M.Evin*

10:39am - 10:51am

A WEB PLATFORM FOR DATA-DRIVEN REAL-TIME MODELING AND VISUALIZING CARDIOVASCULAR PROBLEMS

***N. Demo**, P. Siena, M. Girfoglio, M. Conti, G.Rozza, F. Auricchio*

10:51am - 11:03am

A BONE-REMODELING DRIVEN NUMERICAL FRAMEWORK FOR HIP PROSTHESIS DESIGN

***F. Rotini**, S. Marconi, G. Alaimo*

11:03am - 11:15am

EVALUATION OF PHARMACOLOGICAL TREATMENTS FOR OSTEOPOROSIS USING DXA-BASED 3D FINITE ELEMENT MODELS

***C. Ruiz Wills**, M. Qasim, R. Winzenrieth, S.Di Gregorio, L. Del Río, L. Humbert, J.Noailly*

11:15am - 11:27am

INFLUENCE OF PLATE DESIGN ON SUBCONDYLAR FRACTURE FIXATION: A COMPARATIVE FINITE ELEMENT ANALYSIS

***A. Gupta**, A. Dutta, K. Mukherjee*

11:27am - 11:39am

LEFT VENTRICULAR ASSIST DEVICE SURGICAL OPTIMISATION USING COMPUTATIONAL FLUID DYNAMICS

G. B. López-

S. Joao Hall

TR08.2

EXPERIMENTAL BIOMECHANICS I

Chairs: Luca Cristofolini, Ingmar Fleps

10:15am - 10:27am

DIGESTION OF COLLAGEN FIBRILS TROUGH MMP-1: LIVE TRACKING OF MECHANICS THROUGH NANOINDENTATION

***M. Rufin**, S. Jaritz, G. J. Schütz, P. J.Thurner, O. G. Andriotis*

10:27am - 10:39am

EXPERIMENTAL VALIDATION OF A MECHANISTIC MODEL OF THE BERLIN HEART EXCOR USING A MOCK CIRCULATION LOOP

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

10:39am - 10:51am

REPRODUCIBLE GENERATION OF PREDEFINED TIBIA FRACTURES

***K. Wickert**, M. Roland, A. Andres, S.Diebels*

10:51am - 11:03am

HOW DOES KINEMATIC ALIGNMENT INFLUENCE FEMOROTIBIAL KINEMATICS IN MEDIAL STABILISED TKA COMPARED TO MECHANICAL ALIGNMENT?

***L. Bauer**, M. Woiczinski, C.Thorwächter, P. Müller, B. Holzapfel, T.Niethammer, J.-M. Simon*

11:03am - 11:15am

DESIGN OF BIOMECHANICAL TESTING DEVICE FOR THE PELVIS INCLUDING GAIT MUSCLE FORCES

***A. Soliman**, P.-L. Ricci, S. Kedziora, J.Kelm, T. Gerich, S. Maas*

11:15am - 11:27am

DEVELOPMENT OF A PHYSICAL TWIN FOR CARDIOVASCULAR LIFE-SUPPORT DEVICES ANALYSIS AND COMPARISON

***E. Vignali**, E. Gasparotti, F. Bardi, S.Prizio, D. Haxhiademi, P. Del Sarto, S.Celi*

11:27am - 11:39am

MECHANICAL PERFORMANCE OF HYBRID FIBROUS STRUCTURES FOR TENDON REPAIR

T. Peixoto, M. A.

10:15 –11:40

Monday, 27th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
11:45 – 12:30	Keynote lecture 1 **PERSONALIZED MODELING OF ALZHEIMER'S DISEASE**, *Ellen Kuhl* *Chairs: Harry van Lenthe, Joao Manuel R.S. Tavares*			
12:30 – 13:15	Lunch break			
13:15 – 14:00	Poster sessions: PS1 - PS6			
14:00 – 15:30	TR01.3 **CLINICAL BIOMECHANICS AWARDS SESSION** *Chairs: Markus Heller, Michelle Conti* 2:00pm - 2:12pm BIOMECHANICS INDEX FOR DIABETIC FOOT RISK CLASSIFICATION *A. Guiotto, G. Bortolami, A. Ciniglio, F.Spolaor, G. Guarneri, A. Avogaro, F. Cibin,F. Silvestri,* ***Z. Sawacha*** 2:12pm - 2:24pm BIOMECHANICAL EVALUATION OF DIAGNOSTIC TESTS FOR ROTATOR CUFF LESIONS ***J. Menze****, T. Rojas, M. A. Zumstein, S. J.Ferguson, K. Gerber* 2:24pm - 2:36pm EFFECT OF ALENDRONATE ON BONE FRACTURE TOUGHNESS IN OSTEOGENESIS IMPERFECTA ***A. Muñoz****, A. Carriero* 2:36pm - 2:48pm APPLICATION OF COG THREADS FOR VAGINAL WALL PROLAPSE REPAIR: EX-VIVO STUDY *R. Rynkevic, C. Soares, L. Hympanova,* ***E. Silva****, T. Mascarenhas, P. Martins*	TR02.3 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES III: FRACTURE REPAIR** *Chair: Marlène Mengoni, Maikel Timmermans* 2:00pm - 2:25pm MODELLING MECHANICAL DEMANDS ARISING FROM CLINICAL REQUIREMENTS FOR FRACTURE FIXATION ***P. Pankaj*** 2:25pm - 2:37pm LIGHT-CURABLE FIXATION COMPARABLE WITH PLATES IN TORSION ***P. Schwarzenberg****, T. Colding-Rasmussen,D. J. Hutchinson, D. Mischler, P.Horstmann, M. Moerk Peterson, M.Malkock, C. Wong, P. Varga* 2:37pm - 2:49pm ARTICULAR CONTACT VS. EMBEDDING: THE EFFECT OF BOUNDARY CONDITIONS ON VOLAR PLATE FIXATION AT THE DISTAL RADIUS *L. Berger, D. H. Pahr,* ***A. Synek*** 2:49pm - 3:01pm AFFORDABLE SOLUTION FOR LOW AND MIDDLE-INCOME COUNTRIES: UNILATERAL EXTERNAL FIXATOR ***M. Saeidi****, S. Barnes, M. Berthaume, S. RHolthof, A. M J Bull, J. Jeffers* 3:01pm - 3:13pm BIOMECHANICAL ANALYSIS OF HELICAL VERSUS STRAIGHT PLATING OF PROXIMAL THIRD HUMERAL SHAFT FRACTURES ***I. Zderic****, T. Pastor, K. van Knegsel, B.-C.Link, F. J. Beeres, F. Migliorini, R. Babst, S.Nebelung, B. Ganse, C. Schoeneberg, B.Gueorguiev, M. Knobe*	TR03.3 **HARD TISSUE I: TISSUE INTERACTIONS** *Chairs: Uwe Wolfram, Pia Stefanek* 2:00pm - 2:25pm MINERALIZED FIBROCARTILAGE AS A HIGHLY TUNABLE TISSUE ALLOWING THE INTEGRATION OF TENDON INTO BONE ***D. Ruffoni*** 2:25pm - 2:37pm COLD-WATER CORALS RETAIN OUTSTANDING TISSUE STRENGTH BUT LOSE TISSUE STIFFNESS IN ACIDIFIED WATERS ***U. Wolfram****, M. Peña Fernández, S.McPhee, E. Smith, R. Beck, J. Shephard, M.Roberts, S. Hennige* 2:37pm - 2:49pm DEGREE OF MINERALIZATION AND MINERALIZED COLLAGEN FIBRE ORIENTATION PREDICTS THE ELASTIC MODULUS OF BONE IN OSTEOGENESIS IMPERFECTA ***M. Indermaur****, T. Kochetkova, D. Casari, B.Willie, J. Michler, J. Schwiedrzik, P. Zysset* 2:49pm - 3:01pm THERMAL ACTIVATION ANALYSIS OF HYDRATED LAMELLAR OVINE BONE ***C. R. P. Peruzzi****, T. Kochetkova, S. Remund,B. Neuenschwander, J. Michler, J.Schwiedrzik* 3:01pm - 3:13pm MINERAL CONTENT AND BIOMECHANICAL PROPERTIES OF FIBROLAMELLAR BONE ***A. Cantamessa****, P. Muraro, Y. Delaunois, P.Compère, S. Blouin, M. A Hartmann, D.Ruffoni* 3:13pm - 3:25pm OPTIMISING METHODS OF MODELLING OSTEOCHONDRAL GRAFTS IN HUMAN TIBIOFEMORAL JOINTS *G. A. Day, A. C Jones, M. Mengoni,* ***R. KWilcox***	TR04.3 **MUSCULOSKELETAL BIOMECHANICS I: MULTIPLE TOPICS** *Chairs: Vee San Cheong, Enrico Dall'Ara* 2:00pm - 2:25pm MECHANOSENSING IN BONE USING FLUID FLOW THROUGH NETWORKS ***R. Weinkamer*** 2:25pm - 2:37pm A REPRESENTATIVE VOLUME ELEMENT FOR BONE EXTRACELLULAR MATRIX ***E. Alizadeh****, D. Casari, J. Michler, J.Schwiedrzik, P. Zysset* 2:37pm - 2:49pm TEMPORAL CHANGES IN THE BONE MICROENVIRONMENT PRIOR TO AND FOLLOWING OVERT BREAST-CANCEROSETOLYSIS ***A. S. Verbruggen****, R. M. Dwyer, E. C.McCarthy, L. M. McNamara* 2:49pm - 3:01pm TOWARDS AN IN SILICO BIOREGULATORY MODEL OF OSTEOGENESIS AND SPROUTING ANGIOGENESIS IN 3D ***L. Lafuente-Gracia****, M. Barzegari, L.Geris* 3:01pm - 3:13pm ALTERED MECHANICAL LOADING IN AMPUTEES RESULTS IN MILD SIGNS OF KNEE DEGENERATION 8 YEARS POST TRAUMA ***F. P. Behan****, A. N. Bennett, A. M. J. Bull* 3:13pm - 3:25pm FATIGUE ANALYSIS USING ELECTROMYOGRAPHY DRIVEN MUSCULOSKELETAL TRUNK MODELS ***M. I. Mohamed Refai****, H. Wang, A. Moya-Esteban, M. Sartori*

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
				11:45 – 12:30
				12:30 – 13:15

TR05.3

SOFT TISSUE BIOMECHANICS III

Chairs: José Felix Rodriguez Matas, Maria José Gómez-Benito

2:00pm - 2:12pm

HIGH FIDELITY SIMULATION OF CEREBRAL ANEURYSM WITH FLOW-DIVERTER

E. Hachem

2:12pm - 2:24pm

A COMPUTATIONAL METHODOLOGY FOR STUDYING THE MURINE BLOOD-BRAIN BARRIER HEMODYNAMICS

S. Mañosas, A. Sanz, C. Ederra, A. Urbiola,E. Rojas de Miguel, A. Ostiz, I. Cortés, N.Ramírez, C. Ortiz de Solórzano, A.Villanueva, ***M. Malve***

2:24pm - 2:36pm

HOW MACROSCOPIC TISSUE DEFORMATION AFFECTS THE BRAIN'S MICROSTRUCTURE

N. Reiter*, F. Paulsen, S. Budday*

2:36pm - 2:48pm

CHARACTERIZATION OF MECHANICAL DAMAGE ON THE ESOPHAGEAL WALL OF CHRONIC-HYPOXIC LAMBS

A. Bezmalinovic*, C. García-Herrera*

2:48pm - 3:00pm

NON-LINEAR HOMOGENIZATION OF SOFT TISSUES: APPLICATION TO TENDONS AND ARTERIES

C. Morin*, C. Hellmich, S. Avril*

3:00pm - 3:12pm

MESH ANCHORING TECHNIQUE IN UTERINE PROLAPSE REPAIR SURGERY: A FINITE ELEMENT ANALYSIS

E. Silva, R. Rynkevic, S. Brandão, T.Mascarenhas, A. Augusto Fernandes

3:12pm - 3:24pm

PORCINE KNEE CARTILAGE MAPS DETERMINED WITH AUTOMATED INDENTATION AND CHARACTERIZED BY MACHINE LEARNING

E. Hamsayeh Abbasi Niasar, ***L. Li***

TR06.3

COMPUTATIONAL BIOLOGY II

Chairs: Maria Angeles Perez Anson, Aurélie Carlier

2:00pm - 2:12pm

COMPUTATIONAL EVIDENCE FOR A MULTI-LAYER CROSSTALK BETWEEN CADHERIN-11 AND PDGFR SIGNALING

Z. Karagöz*, F. Passanha, L. Robeerst, M.van Griensven, V. L. S. LaPointe, A. Carlier*

2:12pm - 2:24pm

UNRAVELLING THE IMPACT OF PRENATAL MUSCLE FORCES ON THE DYNAMIC CELL BEHAVIOURS DRIVING JOINT GROWTH IN MICE

J. Godivier*, Y. Huang, A. J. Bodey, C. L.Hammond, H. Isaksson, N. C. Nowlan*

2:24pm - 2:36pm

AGENT-BASED SIMULATIONS OF BONE REMODELLING INCLUDING OSTEOMORPHS PREDICT RAPID BONE LOSS POST DENOSUMAB

C. Ledoux*, D. Boaretti, J. J. Kendall, R.Müller, C. J. Collins*

2:36pm - 2:48pm

A MULTISCALE, MECHANOBIOLOGICAL MODEL OF CORTICAL BONE ADAPTATION DUE TO PTH AND MECHANICAL LOADING

C. J. Miller*, E. Pickering, E. Dall'ara, V. S.Cheong, P. Pivonka*

2:48pm - 3:00pm

AGENT-BASED IN-SILICO MODEL FOR MULTIPLE MYELOMA TUMOR GROWTH ANALYSIS

P. Urdeitx*, M. H. Doweidar*

3:00pm - 3:12pm

IN SILICO IMMUNOFLUORESCENCE: A NOVEL APPROACH TO CALIBRATE MECHANOREGULATORY MODELS OF EARLY BONE FRACTURE HEALING

E. Borgiani*, G. Nasello, C. Schlundt, K.Schmidt-Bleek, L. Geris*

3:12pm - 3:24pm

UMBRELLA SAMPLING FOR THE ESTIMATION OF THE FREE ENERGY BARRIER OF PI RELEASE IN MYOSIN

R. Manevy*, M. Caruel, F. Detrez, I. Navizet*

TR07.3

OCULAR BIOMECHANICS I

Chairs: Miguel Ángel Ariza Gracia, Philippe Buechler

2:00pm - 2:25pm

THE BIOMECHANICS OF THE EYE LENS AND ACCOMMODATIVE SYSTEM: CLINICAL OPPORTUNITIES AND BIOMECHANICAL CHALLENGES

B. Pierscionek*, K. Wang*

2:25pm - 2:37pm

TISSUE BIOMECHANICS AND PARAMETER IDENTIFICATION OF EX VIVO PORCINE CORNEAL TISSUE

M. H. Nambiar*, L. Liechti, F. Mueller, W.Bernau, T. G. Seiler, P. Büchler*

2:37pm - 2:49pm

A MECHANICAL MODEL OF EXUDATIVE MACULAR OEDEMA

A. Ruffini*, M. Dvoriashyna, R. Repetto*

2:49pm - 3:01pm

MECHANICAL MODELING OF LOCALIZED CROSS-LINKING PATTERN IN HUMAN AND PORCINE CORNEAS

M. Frigelli*, P. Büchler, S. Kling*

3:01pm - 3:13pm

A THEORETICAL MODEL OF AQUEOUS HUMOUR PRODUCTION

M. Dvoriashyna, A. J. E. Foss, E. A.Gaffney, ***R. Repetto***

3:13pm - 3:25pm

DOES CORNEAL STIFFNESS PLAY A ROLE IN POST-SURGICAL CORNEAL ECTASIA?

B. Fantaci*, B. Calvo Calzada, J. Grasa Orús, M. A. Ariza Gracia*

TR08.3

3D PRINTING IN BIOMEDICINE

Chairs: Henrique Amorim Almeida

2:00pm - 2:12pm

MECHANICAL PROPERTIES OF 3D-PRINTED GLASS-CERAMIC SCAFFOLDS ASSESSED THROUGH MICRO-CT-BASED FINITE ELEMENT MODELS

L. D'Andrea*, F. Baino, E. Verné, D.Gastaldi, P. Vena*

2:12pm - 2:24pm

3D BIOPRINTING OF ECM-BASED MULTI-LAYERED SEGMENTS OF TUBULAR CONSTRUCTS

F. Potere*, G. A. Croci, P. Petrini, F.Boschetti, S. Mantero*

2:24pm - 2:36pm

DESIGN AND FUNCTIONAL EVALUATION OF A 3D PRINTABLE CUSTOM PROSTHESIS FOR TALUS REPLACEMENT

F. Danielli*, F. Berti, L. La Barbera, A.Nespoli, C. G. Fontanella, S.Pettenuzzo, T. Villa, L. Petrini*

2:36pm - 2:48pm

MATRIGEL COAXIAL BIOPRINTING FOR IN VITRO CANCER MODELS

P. DE STEFANO*, E. BIANCHI, M.BASHA, R. BIANCHI, G. DUBINI*

2:48pm - 3:00pm

MECHANICAL REPLICA OF SOFT TISSUES: A STRUCTURAL APPROACH

V. Serantoni*, C. Rouby, J. Boisson*

3:00pm - 3:12pm

AN IN-SILICO MODEL FOR CELLS EXTRUSION IN BIOPRINTING

G. Santesarti*, G. Vairo, F. Viola, R.Verzicco, M. Marino*

3:12pm - 3:24pm

BIOMECHANICAL FAILURE BEHAVIOUR OF 3D PRINTED FEMORAL BONES COMPARED TO ARTIFICIAL AND HUMAN BONES

K. Nägl*, A. Reisinger, D. H. Pahr*

3:24pm - 3:36pm

FINITE ELEMENT MODELING OF BIPHASIC CALCIUM PHOSPHATE BONE SCAFFOLDS: AN EXPLORATORY STUDY

N. Rosa, S. Olhero, P. Torres, R. Natal, ***M. Parente***

14:00 – 15:30

Monday, 27th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
15:30 – 16:00	Coffee break			
16:00 – 17:00	ESB STUDENT AWARD SESSION *Chairs: Markus Heller, Aurelie Carlier* - ASSESSING THE PERFORMANCE OF THROMBECTOMY DEVICES WITH IN SILICO MODELS*; S. Bridio* - PREDICTING SURGICAL OUTCOMES ACROSS NINE CORRECTIVE TECHNIQUES FOR SAGITTAL CRANIOSYNOSTOSIS*; C. Cross* - ANGIOGRAPHY-DERIVED WALL SHEAR STRESS TOPOLOGICAL SKELETON VARIABILITY PREDICTS MYOCARDIAL INFARCTION*; M. Lodi Rizzini* - BIOMECHANICS AND MECHANOBIOLOGY OF MINERALIZED FIBROCARTILAGE AT THE TENDON-BONE ATTACHEMENT*; A. Tits*			
17:00 – 18:00	TR01.4 **CARDIOVASCULAR BIOMECHANICS III: TREATMENT DESIGN & CLINICAL OUTCOME** *Chairs: Nele Famaey, Mathias Peirlinck* 5:00pm - 5:12pm MYOCARDIAL BIOMECHANICS OF LEFT ATRIAL LIGATION CHICK EMBRYONIC MODEL OF HYPOPLASTIC LEFT HEART SYNDROME ***S S. Lashkarinia**, W. X. Chan, Z. Yu, H. B.Siddiqui, M. Coban, B. Sevgin, K. Pekkan,C. H. Yap* 5:12pm - 5:24pm FINITE ELEMENT SIMULATIONS OF THE CARDIOBAND PROCEDURE FOR THE TREATMENT OF THE REGURGITANT MITRAL VALVE ***E. Gasparotti**, E. Vignali, M. Mariani, S.Berti, S. Celi* 5:24pm - 5:36pm ON THE RELATIONSHIP BETWEEN KINETIC ENERGY AND HELICITY IN PROSTHETIC HEART VALVES HEMODYNAMICS ***D. Gallo**, M. D. De Tullio, U. Morbiducci* 5:36pm - 5:48pm A PHENOMENOLOGICAL DEGRADATION MODEL TO PREDICT THE LONG-TERM PERFORMANCE OF A POLYMERIC SCAFFOLD ***C. J. Fiuza**, K. Polak-Krasna, G. Poletti, L.Antonini, G. Pennati, W. Ronan, T. JVaughan* 5:48pm - 6:00pm A NOVEL MODEL FOR THE HEMODYNAMICS OF CEREBRAL ANEURYSMS TREATED WITH ENDOVACULAR COILS BASED ON SYNCHROTRON IMAGING AND EXPERIMENTAL VALIDATION *J. Romero Bhathal, S. Faisal, F. Chassagne,L. Marsh, M. Levitt, C. Geindreau, **A. Aliseda***	TR02.4 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES IV: TOTAL HIP ARTHROPLASTY** *Chair: Dennis Janssen, Corina Nüesch* 5:00pm - 5:12pm A FINITE ELEMENT MODEL TO PREDICT THE RISK OF INTRAOPERATIVE FRACTURES IN NEW CEMENTLESS HIP STEM DESIGNS ***M. Petrucci**, A. A. La Mattina, C. Curreli, M.Viceconti* 5:12pm - 5:24pm COMBINED MULTIBODY AND FINITE ELEMENT ANALYSES FOR THE EVALUATION OF THE TAPER JUNCTION IN THA ***G. Putame**, F. A. Bologna, M. Terzini, A. L.Audenino* 5:24pm - 5:36pm FEMORAL FRACTURE PREVENTION VIA VIBRATION ANALYSIS DURING TOTAL HIP ARTHROPLASTY ***G. Athanassoulis Makris**, M. Timmermans,L. Pastrav, Q. Goossens, M. Mulier, G. Vles, W. Desmet, K. Denis* 5:36pm - 5:48pm DVC: A NEW DIAGNOSIS METHOD FOR MICROMOTION AND REMAINING ATTACHMENT LOOSENING OF HIP ARTHROPLASTY ***M. Severyns**, K. Aubert, V. Valle, T.Vendeuvre, A. Germaneau* 5:48pm - 6:00pm ADVANCES IN FIXATION STRENGTH OF REORIENTATING RECTANGULAR TRIPLE PELVIC INNOMATE OSTEOTOMY *J. Richter, **D. Ciric**, K. Kalchschmidt, C. D'Aurelio, A. Pommer, J. Dauwe, B. Gueorguiev*	TR03.4 **PATIENT-SPECIFIC MODELLING I** *Chair: Sebastian Laporte* 5:00pm - 5:12pm COMPARATIVE VALIDATION OF TWO PATIENT-SPECIFIC MODELLING PIPELINES FOR PREDICTIVE KNEE JOINT FORCES ***D. Princelle**, G. Davico, M. Viceconti* 5:12pm - 5:24pm SIGNATURE OF DISEASE PROGRESSION IN KNEE OSTEOARTHRITIS: INSIGHT FROM AN INTEGRATED MULTI-SCALE MODELING APPROACH ***I. Mohout**, A. Esrafilian, S. A. Elahi, B. A.Killen, R. K. Korhonen, S. Verschuere, F.Luyten, I. Jonkers* 5:24pm - 5:36pm SHOULD ROBOTIC-ASSISTED TKA RECONSTRUCT PREMORBID STAGE? THE EFFECTS OF OSTEOPHYTES ON KNEE FUNCTIONALITY ***P. Tzanetis**, K. de Souza, S. Robertson, R.Fluit, B. Koopman, N. Verdonschot* 5:36pm - 5:48pm INTRA-SUBJECT VARIABILITY OF FEMORAL GROWTH SIMULATIONS BASED ON PERSONALIZED FINITE ELEMENT MODELS ***W. Koller**, A. Baca, H. Kainz* 5:48pm - 6:00pm SUBJECT SPECIFIC LOWER LIMB ANTHROPOMETRIC REGRESSION WITH LONG, SHORT AND NO COUNTERMOVEMENT-PERFORMANCE ***C. Rodrigues**, M. Correia, J. Abrantes, M.Benedetti, J. Nadal*	TR04.4 **MUSCULOSKELETAL BIOMECHANICSII: UPPER LIMB** *Chairs: Massimo Sartori, Mohamed Irfan Mohamed Refai* 5:00pm - 5:12pm EFFECT OF SHAPE AND SIZE OF SUPRASPINATUS TEARS IN ROTATOR CUFF STRAIN DISTRIBUTION: AN IN-VITRO STUDY ***I. Santos**, L. Pichler, C. Thorwächter, M.Saller, H. Traxler, P. E. Müller* 5:12pm - 5:24pm SHOULDER POSITIONING DURING SUPERIOR CAPSULAR RECONSTRUCTION: A COMPUTATIONAL ANALYSIS ***M. Antunes**, C. Quental, J. Folgado, C.de Campos Azevedo, A. C. Ângelo* 5:24pm - 5:36pm THE POSITION OF THE SCAPULA INFLUENCES THE DISTANCE BETWEEN LIGAMENTOUS INSERTION OF THE AC AND CC LIGAMENTS *J. C. Katthagen, J. Sußiek, M. J.Raschke, E. Herbst, F. Dyrna, O.Riesenbeck, J. Wermers, **S. Oenning***
18:00 – 19:00	Women in Biomechanics, Infante Hall			
19:00 – 21:30	Welcome Reception, Noble Hall and Quay			

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
				15:30 – 16:00
				16:00 – 17:00
TR05.4 **SOFT TISSUE BIOMECHANICS IV** *Chairs: Dulce Oliveira, Maria José Gómez-Benito* 5:00pm - 5:12pm IN VIVO UNLOADING OF RAT ACHILLES TENDONS LEADS TO A DELAYED COLLAGEN STRUCTURAL RESPONSE TO IN SITU LOADING ***I. Silva Barreto**, M. Pierantoni, M.Hammerman, A. Diaz, J. Engqvist, P.Eliasson, H. Isaksson* 5:12pm - 5:24pm DEVELOPMENT OF A FINITE ELEMENT MODEL TO SIMULATE CHILDBIRTH-RELATED INJURIES ***R. Moura**, D. Oliveira, M. Parente, T.Mascarenhas, R. Natal Jorge* 5:24pm - 5:36pm MECHANICAL CHARACTERIZATION OF THE FETAL MEMBRANE AS A BILAYER STRUCTURE ***D. Fidalgo**, D. Oliveira, K. Myers, E.Malanowska, M. Parente, R. Natal* 5:36pm - 5:48pm MECHANICAL LOADING PROMOTES ANGIOGENESIS: A COMPUTATIONAL APPROACH ***A. Guerra**, J. Belinha, R. Natal Jorge*	TR06.4 **ROUND TABLE ON TECHNOLOGY TRANSFER IN BIOMECHANICS** *Moderator: Jos Vander Sloten, KU Leuven* *Tine Van Lommel, Innovation Manager Leuven Research and Development* *Maria Oliveira, Business Director UPTEC* *Behnam Esfandiar, Academic Market and Innovation Manager Materialise NV* *Ricardo Moura, CEO Wisify Tech Solutions* *Peter Varga, Senior Project Leader Biomedical Development AO Foundation* *Wafa Skalli, ParisTech*	TR07.4 **OCULAR BIOMECHANICS II** *Chairs: Miguel Ángel Ariza Gracia, Philippe Buechler* 5:00pm - 5:12pm A DETAILED METHODOLOGY TO MODEL THE NON CONTACT TONOMETRY: A FLUID-STRUCTURE INTERACTION STUDY. ***E. Redaelli**, J. Grasa Orùs, J. F. RodriguezMatas, B. Calvo Calzada, G. Luraghi* 5:12pm - 5:24pm A NOVEL TECHNIQUE FOR RETINA BIOMECHANICAL CHARACTERIZATION ***B. Belgio**, F. Berti, S. Mantero, F. Boschetti* 5:24pm - 5:36pm COMPUTATIONAL STUDY OF RETINAL BLOOD FLOW COUPLED TO A GLOBAL CIRCULATION MODEL ***A. Casalucci**, L. O. Muller, A. Siviglia, E.Toro, R. Repetto*	TR08.4 **EXPERIMENTAL BIOMECHANICS II** *Chairs: Luca Cristofolini, Ingmar Fleps* 5:00pm - 5:12pm COMBINING NUMERICAL AND EXPERIMENTAL APPROACHES TO ASSESS THE TANGENTIAL DEBONDING OF COIN-SHAPED IMPLANTS *Y. Hériveaux, **S. Le Cann**, K. Immel, E.Vennat, V.-H. Nguyen, R. A. Sauer, G.Haïat* 5:12pm - 5:24pm SPATIALLY-RESOLVED PROTEOMICS AND MICROMECHANICS OF HUMAN MENISCI ***M. Handelshauser**, O. G. Andriotis, M.Marchetti-Deschmann, P. J. Thurner* 5:24pm - 5:36pm PRIMARY STABILITY OF A PRESS-FIT CUP COMBINED WITH IMPACTION GRAFTING IN AN ACETABULAR DEFECT MODEL ***R. A. Schierjott**, G. Hettich, M.Baxmann, F. Morosato, L. Cristofolini,T. M. Grupp* 5:36pm - 5:48pm PERMEABILITY TEST BENCH FOR CHARACTERIZING HARD AND SOFT SCAFFOLD FOR TISSUE ENGINEERING APPLICATIONS ***B. Masante**, S. Gabetti, C. Massini, R.Tassi, F. Mochi, C. Del Gaudio, A.Schiavi, D. Massai* 5:48pm - 6:00pm INTEGRATING µCT AND INDENTATION PROTOCOLS TO ASSESS STRUCTURE ANDMECHANICS OF ARTIFICIAL MENISCUS IMPLANTS *M. Berni, **G. Marchiori**, M. Fini, M.Zingales, C. Trombino, S. Di Paolo, S.Zaffagnini, N. F. Lopomo, M. Baleani*	17:00 – 18:00
				18:00 – 19:00
				19:00 – 21:30

Tuesday, 28th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
7:30 – 8:15	Meet the PI - Student breakfast networking event (West Ground Floor)			
8:30 – 9:45	TR01.5 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES V: TOTAL KNEE ARTHROPLASTY** *Chairs: William R. Taylor, Corine Post*	TR02.5 **CARDIOVASCULAR BIOMECHANICS IV: COMPUTATIONAL METHODS** *Chairs: Selda Sherifova, Stéphane Avril*	TR03.5 **PATIENT-SPECIFIC MODELLING II** *Chairs: Claudio Vergari, Laura Lafuente Gracia*	TR04.5 **TISSUE ENGINEERING I** *Chairs: Gwendolen Reilly, Alberto Sensini*
	8:30am - 8:42am IN VIVO CONTACT MECHANICS IN TOTAL KNEE ARTHROPLASTY IS GOVERENED BY THE IMPLANT CONFORMITY ***S. H. Hosseini Nasab**, B. Szazi, C. Smith, P. Schütz, B. Postolka, W. R. Taylor*	8:30am - 8:42am SEGMENTATION AND MECHANICAL CHARACTERIZATION OF ATHEROSCLEROTIC PLAQUES. ***Á. T. Latorre Molins**, M. Á. Martínez Barca,M. Cilla Hernández, J. Ohayon, E. PeñaBaquedano*	8:30am - 8:42am TOWARDS A REPOSITORY OF PATIENT-SPECIFIC INTERVERTEBRAL DISCS FINITE ELEMENT MODELS ***E. Muñoz-Moya**, M. Rasouligandomani, C.Ruiz Wills, G. Piella, J. Noailly*	8:30am - 8:42am PATIENT SPECIFIC OSTEOGENESIS IMPERFECTA BONE ORGANOIDS DEMONSTRATE INCREASED TISSUE MINERALIZATION ***J. K. Griesbach**, A. de Leeuw, T.Minacci, P. J. Lim, M. Rüger, M.Rohrbach, C. Giunta, R. Müller*
	8:42am - 8:54am CRUCIATE RETAINING TOTAL KNEE ARTHROPLASTY SYSTEMS MAY BE UNSUCCESFUL IN AVOIDING ANTERIOR FEMORAL SHIFT DESPITE DIFFERENT BEARING GEOMETRY. ***P. Moewis**, H. Hommel, A. Trepczynski, L.Krahl, G. Duda*	8:42am - 8:54am ARTIFICIAL NEURAL NETWORK FOR PREDICTION OF MECHANICAL PROPERTIES OF ATHEROMA PLAQUE ***R. Caballero Masa**, M. Á. Martínez Barca, E.Peña Baquedano*	8:42am - 8:54am LUMBAR INTERVERTEBRAL DISC 3D SEGMENTATION FOR BIOMECHANICAL SIMULATION *R. Matos, P. R. Fernandes, N. M. P. L.Matela, **A. P. G. Castro***	8:42am - 8:54am TOWARDS CONTROLLED FORMATION AND RESORPTION IN A 3D HUMAN IN VITRO BONE REMODELING MODEL. ***B. de Wildt**, L. Cuypers, K. Ito, S.Hofmann*
	8:54am - 9:06am BIOMECHANICAL ANALYSIS OF FLEXIBLE FEMORAL CONES IN HINGED TOTAL KNEE ARTHROPLASTY ***B. Innocenti***	8:54am - 9:06am ON THE CFD MODELLING OF HEMODYNAMICS IN UNRUPTURED INTRACRANIAL ANEURYSMS ***P. Jeken Rico**, A. Goetz, R. Nemer, P.Meliga, A. Larcher, J. Viquerat, A. F.Sanches, Y. Özpeynirci, T. Liebig, E.Hachem*	8:54am - 9:06am EFFECT OF INSTRUMENTATION INACCURACIES ON BIOMECHANCIAL AND COMPUTATIONAL FAILURE RISK OF FRACTURE FIXATIONS ***D. Mischler**, L. Tenisch, J. F. Schader, J.Dauwe, B. Gueorguiev, M. Windolf, P. Varga*	8:54am - 9:06am 3D ELECTROSPUN ARCADE-LIKE SCAFFOLDS FOR ARTICULAR CARTILAGE ***A. Semitela**, C. Sousa, A. F. Mendes, P.A. A. P. Marques, A. Completo*
	9:06am - 9:18am DYNAMIC KNEE JOINT LINE ORIENTATION IS NOT A RELIABLE PREDICTOR OF CONTACT LOAD DYNAMICS IN VIVO ***A. Trepczynski**, P. Moewis, P. Damm, P.Schütz, J. Dymke, H. Hommel, W. R. Taylor, G. N. Duda*	9:06am - 9:18am PULSE WAVE VELOCITY AS A GUIDE TO REDUCE THE MATERIAL PARAMETERSPACE IN ARTERIAL COMPUTATIONAL BIOMECHANICS ***L. Gheysen**, L. Maes, N. Famaey, P. Segers*	9:06am - 9:18am VERTEBRAL STRENGTH PREDICTION FROM SINGLE ENERGY BIPLANAR RADIOGRAPHS ***C. Heidsieck**, L. Gajny, J.-Y. Lazennec, C.Travert, W. Skalli*	9:06am - 9:18am AUTOMATED PARALLEL BIOREACTOR PLATFORM COMBINING PERFUSION AND PEMF STIMULATION ***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*
	9:18am - 9:30am UNDERSTANDING KNEE STABILITY AFTER TKA BY MEANS OF DYNAMIC VIDEOFLUOROSCOPY ***L. Rao**, N. Meister, N. Horn, W. R. Taylor, B.Postolka, S. Preiss, P. Schütz*	9:18am - 9:30am FLUID STRUCTURE INTERACTION MODELING OF COMPLIANT AORTIC VALVES USING THE LATTICE BOLTZMANN CFD AND FEM METHODS ***A. Morany**, K. Lavon, R. Bardon, B.Kovarovic, A. Hamdan, D. Bluestein, R. Haj-Ali*	9:18am - 9:30am PATIENT SPECIFIC GROWTH MODEL FOR CRANIOSYNOSTOSIS ***M. Geoffroy**, M. Abbad Andaloussi, P.-M.François, R. H. Khonsari, S. Laporte*	9:18am - 9:30am WALL SHEAR STRESS ANALYSIS TOWARDS THE OPTIMAL DESIGN IN TPMS TISSUE ENGINEERING SCAFFOLDS ***T. Pires**, A. P. G. Castro, P. R.Fernandes*
	9:30am - 9:42am BIOMECHANICAL ANALYSIS OF DIFFERENT LEVEL OF CONSTRAINT IN TOTAL KNEE ARTHROPLASTY DURING DAILY ACTIVITIES ***E. Bori**, S. Pianigiani, L. Rapallo, G.Innocenti, B. Innocenti*	9:30am - 9:42am COMPUTATIONAL MODELLING OF THE EFFECT OF INFARCT STIFFENING ON LOCAL MYOFIBER MECHANICS ***K. L. P. M. Janssens**, M. Kraamer, P. H. M.Bovendeerd*	9:30am - 9:42am MODELLING STRATEGIES FOR ORTHOGNATHIC SURGERY: MECHANICAL OPTIMIZATION OF PATIENT-SPECIFIC PLATES ***I. Rota**, A. Giglio, F. Grecchi, M. Bonacina,D. Gastaldi*	9:30am - 9:42am COMPOSITE METHACRYLOYL GELATIN-BASED HYDROGELS FOR BONE TISSUE ENGINEERING APPLICATIONS *G. Ciardelli, R. Laurano, R. Pappalardo,V. Chiono, M. Boffito*
09:45 – 10:15	Coffee break			

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
				All day
TR05.5 **SPINE BIOMECHANICS I** *Chairs: Marco Palanca, John Costi* 8:30am - 8:42am IN VITRO TESTING OF HYDROGELS FOR THE IVD THERAPY USING A NOVEL ORGAN CULTURE APPROACH: CHONDROITINASE OR PAPAIN? ***J. U. Jansen**, G. Q. Teixeira, A. Vernengo, S.Grad, K. Benz, C. Neidlinger-Wilke, H.-J.Wilke* 8:42am - 8:54am USE OF DISPLACEMENTS FIELD TO VALIDATE SUBJECT-SPECIFIC FINITE ELEMENT MODELS OF SPINE SEGMENTS WITH METASTASIS ***C. Garavelli**, C. Curreli, A. Aldieri, E. Paoli,M. Palanca, L. Cristofolini, M. Viceconti* 8:54am - 9:06am DESIGN AND CHARACTERISATION OF A NOVEL TI-PVA/PAAM ARTIFICIAL INTERVERTEBRAL DISC ***X. Du**, L. Kölle, D. Schümperlin, S. J.Ferguson* 9:06am - 9:18am DEVELOPMENT OF IMAGE-BASED MULTIPHASIC MODELS OF THE INTERVERTEBRAL DISC ***I. Fleps**, E. Morgan* 9:18am - 9:30am BIOMECHANICAL COMPARISON BETWEEN POLY AXIAL AND OAK SCREWS FOR THORACOLUMBAR FRACTURE REDUCTION *A. Y. Moufid, **F. Zot**, A. Duits, M. Severyns,A. Germaneau, T. Vendeuvre* 9:30am - 9:42am THE INFLUENCE OF LOADING CONDITIONS ON THE PRINCIPAL AND NON-PRINCIPAL STIFFNESS OF CERVICAL DISC PROSTHESIS ***H. Ansaripour**, S. J. Ferguson, M. Flohr*	TR06.5 **CLINICAL AND TRANSLATIONAL BIOMECHANICS / IN SILICO TRIALS I** *Chairs: Richie Gill, Marco Viceconti* 8:30am - 8:42am A PARAMETRIC STUDY TO IMPROVE SURGICAL PLANNING OF SPRING-ASSISTED POSTERIOR VAULT EXPANSION ***L. Deliege**, K. Ramdat Misier, G. James, J.Ong, D. Dunaway, N. U. O. Jeelani, S.Schievano, A. Borghi* 8:42am - 8:54am ASSESSING CREDIBILITY OF A MULTISCALE MODEL FOR JOINT REPLACEMENTS SOLUTIONS ***C. Curreli**, S. Huebner, A. Di Pietro, G.Davico, M. Viceconti* 8:54am - 9:06am A MODELING FRAMEWORK TO ENABLE THE DIFFERENTIAL DIAGNOSIS FOR THE LOSS OF MUSCLE FORCE ***G. Davico**, L. Labanca, F. Bottin, F.Baruffaldi, M. G. Benedetti, M. Viceconti* 9:06am - 9:18am RELIABILITY OF FLUOROSCOPIC ASSESSMENT OF GLENOHUMERAL TRANSLATION DURING A 30° SHOULDER ABDUCTION TEST ***E. Croci**, M. Künzler, S. Börlin, F. Eckers, C. Nüesch, D. Baumgartner, A. M. Müller, A. Mündermann* 9:18am - 9:30am INVESTIGATION OF LIMITED CT SCAN COVERAGE IN BIOFIDELIC SIDEWAYS-FALL MODELS FOR CLINICAL COHORTS ***A. Baker**, I. Fleps, P. Guy, S. J Ferguson, B.Helgason*	TR07.5 **ARTIFICIAL INTELLIGENCE IN BIOMECHANICS + ROBOTS IN BIOMECHANICS** *Chair: Massimo Sartori* 8:30am - 8:42am EXAMINATION OF 2D MARKERLESS MOTION CAPTURE FOR SAGITTAL AND FRONTAL JOINT ANGLES OF THE KNEE AND HIP ***L. Wade**, L. Needham, M. Evans, M. P.McGuigan, S. Colyer, D. Cosker, J. Bilzon* 8:42am - 8:54am INTEGRATING ANN-BASED REAL-TIME JOINT FORCE PREDICTION WITH DEEP AUTO-REGRESSIVE GOAL-DRIVEN MOTION SYNTHESIS ***I. Loi**, E. I. Zacharaki, K. Moustakas* 8:54am - 9:06am CONTROL SYSTEM OF A MUSCULAR CONTROLLED, EXPERIMENTAL GLENOHUMERAL SIMULATOR ***J. Genter**, G. Rauter, M. Rohner, A. M. Müller, A. Mündermann, D. Baumgartner* 9:06am - 9:18am INTERFACING NEUROMUSCULOSKELETAL MODELS WITH EXOSKELETONS FOR CONTROLLING NEURO-MUSCULOTENDON PARAMETERS IN VIVO ***G. Durandau**, H. van der Kooij, M. Sartori* 9:18am - 9:30am FORM AND FUNCTION IN THE TAIL FEATHERS OF CLIMBING BIRDS ***M. Granatosky**, M. Young, N. Flaim, D. Deleon, B. Zou, B. Bas, L. Reader, E. Dickinson* 9:30am - 9:42am NEURAL NETWORK FINITE ELEMENT MODELING OF THE HEART MECHANICS ***W. Zhang**, M. S. Sacks*	TR08.5 **RESPIRATORY BIOMECHANICS** *Chair: Sam Bayat* 8:30am - 8:42am THE EFFECT OF PRONE AND SUPINE POSITION VENTILATION ON ALVEOLAR OVERDISTENSION AND COLLAPSE ***S. Quicken**, U. Strauch, E. van Engelen, M. van Mil, F. van de Vosse* 8:42am - 8:54am HOW LUNG LESIONS LOCATION IN ARDS MODIFIES RESPIRATORY BIOMECHANICS? A COMPUTATIONAL FRAMEWORK ***C. Bruna-Rosso**, S. Boussen* 8:54am - 9:06am SPHERICAL, TRANSPARENT AND STREATCHABLE MEMBRANES FOR REPLICATING THE ALVEOLAR INTERFACE IN-VITRO ***L. Cacopardo**, N. Guazzelli, P.Signorello, A. Ahluwalia* 9:06am - 9:18am SIMULATION OF FLUID-STRUCTURE INTERACTION OF FLOW IN COLLAPSIBLE TUBES: A SIMPLIFIED MODEL FOR OBSTRUCTIVE SLEEP APNEA ***B. Akbar**, S. G. Johnsen, P. R. Leinan, B. Müller* 9:18am - 9:30am ASTHMA SEVERITY LEVELS MONITORING BASED ON EEG SIGNALS USING NOVEL CLASSIFICATION ALGORITHMS ***A. Ratnovsky**, R. Haba, G. Singer, M. R. Kramer, S. Naftali*	8:30 – 9:45

Tuesday, 28th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
10:15 –11:40	TR01.6 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES VI: MULTIPLE TOPICS (TOTAL KNEE ARTHROPLASTY, FRACTURE REPAIR)** *Chair: Bernardo Innocenti* 10:15am - 10:27am STANDARDIZED IN VIVO KNEE IMPLANT KINETICS AND KINEMATICS AND THEIR APPLICATION TO IMPLANT WEAR SIMULATION ***M. J. Dreyer**, A. Trepczynski, B. Weisse, W.R. Taylor, P. Damm, C. R. Smith* 10:27am - 10:39am COMPREHENSIVE BOUNDARY CONDITIONS FOR INVESTIGATING TOTAL KNEE REPLACEMENT WEAR DURING WALKING ***M. Febrer-Nafría**, M. Dreyer, N. Guo, S. H.Hosseini Nasab, C. R Smith, W. R Taylor* 10:39am - 10:51am A SIMULATION BASED APPROACH FOR KINEMATICS EVALUATION AND WORST-CASE DETERMINATION IN PRE-CLINICAL TESTING ***A. Maas**, A. L. Puente Reyna, T. M. Grupp* 10:51am - 11:03am THE EFFECT OF INTERFERENCE FIT AND COEFFICIENT OF FRICTION ON THE INTERFACE GAPS OF A PEEK FEMORAL COMPONENT ***C. Post**, T. Bitter, A. Briscoe, N.Verdonschot, D. Janssen* 11:03am - 11:15am SYSTEMATIC VALIDATION OF FINITE ELEMENT SIMULATIONS OF LOCKING PLATE FIXATIONS *D. Mischler, M. Knecht, **P. Varga*** 11:15am - 11:27am INFLUENCE OF CERCLAGE WIRE APPLICATION ON THE DYNAMIC BEHAVIOUR OF A FRACTURED IMPLANT-CYLINDER SYSTEM ***M. Timmermans**, G. Athanassoulis Makris, L. Van Bel, J. Verhoeven, L. C. Pastrav, K.Denis* 11:27am - 11:39am ANALYTICAL MODEL FOR THE MECHANICAL PERFORMANCE PREDICTION OF A BONE-PLATE IMPLANT ***F. A. Bologna**, M. Terzini, A. L. Audenino*	TR02.6 **CARDIOVASCULAR BIOMECHANICS V: THROMBI AND PLAQUES** *Chairs: Selda Sherifova, Stéphane Avril* 10:15am - 10:40am CHALLENGES OF VALIDATING COMPUTATIONAL THROMBOSIS MODELS ***K. B. Manning*** 10:40am - 10:52am THE INFLUENCE OF PLAQUE STRUCTURAL STRESS AND WALL SHEAR STRESS ON HUMAN CORONARY PLAQUE PROGRESSION *A. Tziotziou, E. Hartman, S.-A. Korteland, A. F. van der Steen, J. Daemen, J. Wentzel, **A. C. Akyildiz*** 10:52am - 11:04am IMAGE-BASED SIMULATION OF FLOW IN A PLATELET AGGREGATE ***Y. Hao**, G. Závodszky, C. Tersteeg, A.Hoekstra* 11:04am - 11:16am ON THE INFLUENCE OF THROMBUS PERMEABILITY ON FLUID DYNAMICS IN THORACIC AORTIC ANEURYSM: IN SILICO MODELS ***C. GUIVIER-CURIEN**, V. DEPLANO* 11:16am - 11:28am THE EFFECT OF SIZE AND PROXIMITY OF MICRO-BEADS ON THE RUPTURE THRESHOLD OF ATHEROMA CAP LABORATORY MODELS ***A. Corti**, D. Khalil, S. Weinbaum, L.Cardoso* 11:28am - 11:40am WALL SHEAR STRESS TOPOLOGICAL SKELETON VARIABILITY PREDICTS PLAQUE GROWTH IN HUMAN CORONARY ARTERIES ***G. De Nisco**, E. Hartman, V. Mazzi, D. Gallo, C. Chiastra, J. Daemen, J. Wentzel, U. Morbiducci*	TR03.6 **HARD TISSUE BIOMECHANICS II: BONE TISSUE LEVEL** *Chairs: Vee San Cheong, Gianluca Tozzi* 10:15am - 10:27am REPLICABILITY OF A FINITE ELEMENT MODEL TO QUANTIFY HUMAN FEMUR FAILURE LOAD ***M. Gardegaront**, A. Sas, F. Bermond, C. Confavreux, J.-B. Pialat, G. H. van Lenthe,H. Follet, D. Mitton* 10:27am - 10:39am THE INFLUENCE OF FORAMINA ON FEMORAL NECK FRACTURES AND STRAINS PREDICTED WITH FINITE ELEMENT ANALYSIS ***J. Kok**, L. Grassi, H. Isaksson* 10:39am - 10:51am HIP FRACTURE RISK PREDICTION BASED ON STATISTICAL MODELS INFORMED BY DXA IMAGES *A. Aldieri, F. Pagotto, P. Bhattacharya, M.Paggiosi, R. Eastell, C. Bignardi, A. L.Audenino, **M. Terzini*** 10:51am - 11:03am IDENTIFICATION OF STATISTICAL CRITICAL AREA TO DISCRIMINATE PROXIMAL FEMUR FRACTURE DUE TO LATERAL FALL *N. Morando, C. Ruiz Wills, J. Noailly, **S. Tassani*** 11:03am - 11:15am AGE MODULATES BMD AND STRENGTH BUT NOT FORCE RELAXATION IN HUMAN FEMORA ***S. Martelli*** 11:15am - 11:27am PRINCIPAL COMPONENT ANALYSIS FOR ELUCIDATING IMPORTANT CHANGES IN MOUSE TIBIA GEOMETRY ***S. Moraiti**, V. S. Cheong, E. Dall'Ara, V. Kadirkamanathan, P. Bhattacharya*	TR04.6 **BIOMEDICAL IMAGING I** *Chairs: Dieter Pahr, Uwe Wolfram* 10:15am - 10:40am X-RAY BASED 3D HISTOLOGY OF BIOLOGICAL TISSUES ***G. Kerckhofs*** 10:40am - 10:52am THE OSTEOCYTE LACUNO-CANALICULAR NETWORK AT THE BONE-IMPLANT INTERPHASE IMAGED WITH FOCUSED ION BEAM – SCANNING ELECTRON MICROSCOPY ***E. Törnquist**, G. Haïat, Y. Hériveaux, H.Albini-Lomami, E. Vennat, S. Le Cann* 10:52am - 11:04am LONGITUDINAL CHANGES IN THE SUBCHONDRAL BONE IN A MOUSE MODEL OF KNEE POST TRAUMATIC OSTEOARTHRITIS ***S. Oliviero**, Z. Chen, A. Rayson, B. CRoberts, H. M. Ismail, I. Bellantuono, E.Dall'Ara* 11:04am - 11:16am AN IN SILICO METHOD TO EVALUATE BONE REMODELLING AFTER TOTAL HIP ARTHROPLASTY: A SIX YEARS LONGITUDINAL STUDY ***V. Betti**, H. Jónsson Jr, L. Cristofolini, M. K. Gislason, P. Gargiulo* 11:16am - 11:28am A CORRELATIVE MULTIMODAL IMAGING APPROACH FOR MULTISCALE ANALYSIS OF BONE REGENERATION AND ADAPTATION ***F. Correia Marques**, B. Schroeder, D.Yilmaz, E. Wehrle, R. Müller* 11:28am - 11:40am OSTEOARTHRITIC KNEES CAN BE QUANTIFIED WITH IN VIVO SCANNERS *P. Antonacci, J. Dauwe, P. Varga, D. Ciric, D. Gehweiler, B. Gueorguiev, **K. Mys***
11:45 – 12:30	Keynote lecture 2 **META-BIOMATERIALS**, *Amir Zadpoor* *Chairs: David Mitton, Renato Natal Jorge*			

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
TR05.6 **SPINE BIOMECHANICS II** *Chair: André P. G. Castro, John Costi*	TR06.6: **CLINICAL AND TRANSLATIONAL BIOMECHANICS / IN SILICO TRIALS II** *Chairs: Richie Gill, Marco Viceconti*	TR07.6 **ARTIFICIAL INTELLIGENCE IN BIOMECHANICS II** *Chairs: Konstantinos Moustakas, Idit Avrahami*	TR08.6 **ADVANCE COMPUTING FOR BIOMECHANICS I**	10:15 –11:40
10:15am - 10:40am MULTISCALE BIOMECHANICAL AND STRUCTURAL PROPERTIES OF LUMBAR INTERVERTEBRAL DISCS: MECHANISMS OF INJURY ***J. J. Costi***	10:15am - 10:40am TRANSLATIONAL COMPUTATIONAL STUDIES TOWARD PREVENTING POST-TRAUMATIC OSTEOARTHRITIS AFTER JOINT INJURY *R. K Korhonen,* ***D. D Anderson***	10:15am - 10:40am HEMODYNAMICAL STUDY OF A NOVEL PERCUTANEOUS LEFT VENTRICLE ASSIST DEVICE ***I. Avrahami***	10:15am - 10:27am A NON INTRUSIVE DATA-DRIVEN REDUCED ORDER MODEL FRAMEWORK FOR CARDIOVASCULAR PROBLEMS *M. Girfoglio, P. Siena, N. Demo, M.Conti,* ***G. Rozza*** *, F. Auricchio*	
10:40am - 10:52am COMPARATIVE STUDY OF PEDICLE SCREW STABILIZATIONS FOR METASTASIS TREATMENT ON A BIOMIMETIC LUMBAR CONSTRUCT ***S. Borrelli****, 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 ***N. Famaey***	10:40am - 10:52am AUTOMATED SEGMENTATION AND LANDMARKING OF SCAPULAE TO ASSESS THE OUTCOME OF TOTAL SHOULDER ARTHROPLASTY ***O. B. Satir****, A. Terrier, A. Meylan, F. Becce,P. Goetti, R. Diot, P. Büchler*	10:27am - 10:39am COMPUTATIONAL INVESTIGATION AND VERIFICATION OF THE IN-VITRO PERFORMANCE OF BIORESORBABLE BRAIDED STENTS ***A. Lucchetti****, T. Gries, T. J. Vaughan*	
10:52am - 11:04am MICRO-FE MODELS CAN PREDICT THE DISPLACEMENT FIELD IN HUMAN VERTEBRAE WITH LYTIC AND BLASTIC METASTASES ***M. Palanca****, G. Cavazzoni, L. Cristofolini, E. Dall'Ara*	11:05am - 11:17am USE OF ASME V&V-40-2018 STANDARD AS METHODOLOGICAL FRAMEWORK FOR THE QUALIFICATION OF DIGITAL TWINS ***A. Aldieri****, C. Curreli, A. A. La Mattina, M.Viceconti*	10:52am - 11:04am SUPER-RESOLUTION OF CLINICAL CT DATA: TOWARDS IMPROVING THE STRENGTH OF FRACTURE RISK ASSESSMENTS ***L. Frazer****, J. Vaishnav, N. Louis, D. Nicolella*	10:39am - 10:51am DEVELOPING A FRAMEWORK FOR GENERATING MITRAL VALVE SCALABLE MODELS ***D. M. Cruz de Oliveira****, D. Espino, L.Deorsola, J. Mynard, V. Rajagopal, K.Buchan, D. Dawson, D. Shepherd*	
11:04am - 11:16am HARDWARE DENSITY REDUCTION AVOIDS T3 PROXIMAL JUNCTION FAILURE IN ADULT SPINE SURGERY: FE SIMULATION *M. Rasouligandomani, A. del Arco, F.Pellisé, M. González Ballester, F. Galbusera,* ***J. Noailly***	11:17am - 11:29am THE USE OF MOBILE EYE TRACKING TO ASSESS COGNITIVE LOAD IN LOWER LIMB AMPUTEES: A PILOT STUDY ***S. Manz****, S. Dosen, J. Gonzalez-Vargas*	11:04am - 11:16am TEMPORALLY OPTIMIZED INVERSE KINEMATICS FOR 6DOF HUMAN POSE ESTIMATION ***K. Gildea****, C. Mercadal-Baudart, R.Blythman, C. Simms*	10:51am - 11:03am MODELLING THE BIOMECHANICAL BEHAVIOR OF THE LIVER IN REAL TIME USING ML MODELS TRAINED ON FE SIMULATIONS *O. Pellicer-Valero,* ***M. J. Rupérez****, J. D. Martín-Guerrero*	
11:16am - 11:28am EVALUATION OF METHODS FOR SCREW-VERTERBA FIXATION USING FINITE ELEMENT MODELLING ***S. Vallejo Pareja****, C. Ruiz Wills, J. Ramirez*		11:16am - 11:28am CORRECTION OF MOTION ARTEFACTS IN HR-PQCT USING CYCLE-CONSISTENT ADVERSARIAL NETWORKS *P. Y. Steiner,* ***M. Walle*** *, M. Rigotti, D. E.Whitter, C. McLennan, P. R. Atkins, R.Müller, C. J. Collins*	11:03am - 11:15am ASSESSING PROSTHETIC HAND DESIGNS THROUGH A NEW GRASPING SIMULATION BENCHMARK ***I. Llop-Harillo****, J. L. Iserte, A. Pérez-González*	
11:28am - 11:40am LOWER LIMB COMPENSATION DURING SIT-TO-STAND-TO-SIT AFTER MULTI-LEVEL FUSION SURGERY IN ADULT SPINAL DEFORMITY ***P. Severijns****, T. Overbergh, E. Beaucage-Gauvreau, T. Ackermans, L. Moke, L.Scheys*			11:15am - 11:27am PARAMETRISATION SETTING AND GENERATION ALGORITHM FOR ABDOMINAL AORTIC ANEURYSMS ***L. Saccaro****, G. Ravon, F. Bernard, A.Iollo*	
			11:27am - 11:39am CFD MODELLING OF THE AIRFLOW IN THE HUMAN NASAL CAVITY ***S. G. Johnsen***	
				11:45 – 12:30

Tuesday, 28th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
12:30 – 13:15	Lunch break			
13:15 – 14:00	Poster sessions: PS7 - PS12			

14:00 – 15:30

TR01.7
BIOMECHANICS OF MOVEMENT AND POSTURE: UPPER LIMB AND TRUNK FUNCTION AND POSTURE

Chairs: Lennart Scheys, 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. Demuynck, R. Valentin, **B. Sandoz**, T. Similowski, V. Attalil*

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

Chairs: Selda Sherifova, 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 ANGULATION
*A. Ramella, L. **Iannetti**, J. F. RodriguezMata, 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 MULTISCALE COMPUTATIONAL MODELING
***A. Corti**, M. Colombo, J. M Rozowsky, S.Casarin, Y. He, F. Migliavacca, J. FRodriguez Matas, S. A Berceli, C. Chiastra*

3:00pm - 3:12pm
A SMART PARTICLE IMAGE VELOCIMETRY SYSTEM FOR THE IN VITRO ASSESSMENT OF CORONARY ARTERY HEMODYNAMICS
***E. Torta**, G. C. A. Caridi, C. Chiastra, D.Gallo, U. Morbiducci*

3:12pm - 3:24pm
A HIGH-POWER LED ILLUMINATED PIV SETUP TO CHARACTERIZE THE FLOW BEHAVIOUR IN ABDOMINAL AORTIC ANEURYSM MODELS
***F. Bardi**, E. Gasparotti, E. Vignali, M.Aguirre, S. Avril, S. Celi*

TR03.7
HARD TISSUE BIOMECHANICS III: BONE ORGAN LEVEL

Chairs: Helene Follet, Marta Peña Fernández

2:00pm - 2:12pm
VALIDATION OF LINEAR AND MATERIALLY NONLINEAR MFE 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. Alijani**, 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
CRACK PROPAGATION IN CORTICAL BONE ANALYZED WITH DIGITAL IMAGE CORRELATION
***G. Galteri**, L. Grassi, J. Engqvist, S. A Hall,L. Cristofolini, H. Isaksson, A. Gustafsson*

3:12pm - 3:24pm
NOVEL METHOD TO OBTAIN MECHANICAL PROPERTIES OF ISOLATED TRABECULAE UNDER COMPRESSION IN WET CONDITION
***K. Haslinger**, M. Frank, D. H. Pahr, P. J. Thurner*

TR04.7
BIOMEDICAL IMAGING II

Chairs: Dieter Pahr, Inas H Faris

2:00pm - 2:25pm
VISCOSITY AND NONLINEAR ELASTOGRAPHY WILL BECOME THE NEXT GENERATION BIOMARKERS IN CLINICAL DIAGNOSIS
*G. Rus, **I. 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 LOWERLIMB
***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. Bardi, 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 DIFFUSION TENSOR IMAGING
***Z. Wang**, F. Cenni, A. Destro, S. Petersson, R. Wang*

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
				12:30 – 13:15
TR05.7 **SPINE BIOMECHANICS III** *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. Dubousset* 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 DIS CDEGENERATION 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-WEEK AND 3-MONTHS AFTER SPINAL FUSION SURGERY IN AIS PATIENTS ***T. Ackermans**, S. Schelfaut, P. Severijns, P. Moens, L. Moke, L. Scheys*	TR06.7 **BIOMECHANICS OF AGEING AND NEUROMUSCULAR CONTROL** *Chairs: Stephen Ferguson, 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 FERMORAL 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 ***J. M. N. Essers**, K. Meijer, A. Peters, A. Murgia* 3:00pm - 3:12pm FUNCTIONAL SIMPLIFICATION OF MOTOR CONTROL OF ANTAGONIST MUSCLES AFTER STROKE. ***C. Delcamp**, C. Cormier, A. Chalard, D.Gasq, D. Amarantini* 3:12pm - 3:24pm SHARED SYNERGIES BETWEEN COMPLEX MOVEMENTS ***P. Kaufmann**, L. Zweier, A. Baca, H. Kainz*	TR07.7 **VIRTUAL AND AUGMENTED REALITY IN BIOMECHANICS** *Chairs: Konstantinos Moustakas, 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. Żuk**, M. Popek, K. Bulińska, M. Wojtków, M. Łopusiewicz*	TR08.7 **ADVANCE COMPUTING FOR BIOMECHANICS II** 2:00pm - 2:12pm SPINADOID AND DUAL-LATTICE BASED ALGORITHMS FOR GENERATING BIOMIMETIC TRABECULAR BONE STRUCTURES ***M. Vafaeefar**, 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. Kamml**, 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 PLOYMERIC ANEURYSM IN SUPPORT FOR DIMENSIONNING A MECHANICAL CHARACTERISATION DEVICE ***J. Raviol**, G. Plet, H. Magoariec, C.Pailler-Mattei* 2:48pm - 3:00pm A TWO-PHASE GENETIC ALGORITHM TO MODEL THE MENISCAL HORN REPAIRED WITH SUTURE ***M. B. Estebanez Campos**, A. Peñatrabalon, S. Moreno Vegas, A. Espejo Reina, F. Nadal Martinez, F. M. Garcia Vacas, A. M. Perez Dela Blanca Cobos, M. Pradonovoa* 3:00pm - 3:12pm HOW OXYGEN AND GLUCOSE INFLUENCE CELL GROWTH: A COMPUTATIONAL SIMULATION STUDY ***M. I. Araújo Barbosa**, J. A. O. PintoBelinha, R. Natal Jorge, A. Xavier de Carvalho*	14:00 – 15:30

Tuesday, 28th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
15:30 – 16:00	Coffee break			
16:00 – 17:00	ESB S.M. Perren Research Award *Chairs: Markus Heller, Harry van Lenthe* **STANDARDIZED TIBIO-FEMORAL IMPLANT LOADS AND KINEMATICS** *Michael J. Dreyer, ETH Zurich*			
17:00 – 18:00	TR01.8 **BIOMECHANICS OF MOVEMENT AND POSTURE: MOTOR CONTROL IN AGEING AND PATHOLOGY** *Chairs: William R. Taylor, Lennart Scheys* 5:00pm - 5:12pm WALKING IN CHILDREN WITH HEMIPLEGIA USING DIFFERENT TYPES OF ANKLE FOOT ORTHOSIS ***F. Camuncoli**, A. Barbonetti, L. Piccinini, E. Di Stanislao, C. Corbetta, L. Donno, M. Galli* 5:12pm - 5:24pm A VECTOR FIELDS ANALYSIS TO INVESTIGATE FOOT-GROUND INTERACTIONS IN INFANCY DURING WALKING ***E. Montagnani**, S. C Morrison, C. Price* 5:24pm - 5:36pm EXPLORING MINIMUM TOE CLEARANCE AS A PREDICTOR FOR RISK OF STUMBLES AND FALLS IN OLDER ADULTS ***M. A Avalos**, N. J Rosenblatt* 5:36pm - 5:48pm DEVELOPMENT OF GROSS MOTOR CONTROL IN SCHOOL-CHILDREN: INFLUENCE OF AGE, SEX, AND ANTHROPOMETRY ***R. Stagni**, A. Masini, S. Toselli, S. Marini, L. Bragonzoni, A. Ceciliani, M. Lanari, A. Sansavini, A. Tessari, D. Gori, L. Dallolio, M. C. Bisi* 5:48pm - 6:00pm LONG TERM EFFECTS OF AN ACL RECONSTRUCTION ON KNEE JOINT KINEMATICS AND LOADING ***J. Eichwalder**, W. Koller, A. Baca, P. Weninger, H. Kainz*	TR02.8 **CARDIOVASCULAR BIOMECHANICS VII: IMAGE-BASED BIOMECHANICS** *Chairs: Nele Famaey, Mathias Peirlinck* 5:00pm - 5:12pm MONITORING MECHANICAL AND GEOMETRICAL PROGRESSION OF ABDOMINAL AORTIC ANEURYSMS USING 3D+ TULTRASOUND *E. Maas, A. Nievergeld, J. Fonken, M. Thirugnanasambandam, M. van Sambeek, **R. Lopata*** 5:12pm - 5:24pm AAA MECHANICS DURING ULTRASOUND PROCEDURES: A PATIENT-SPECIFIC COMPUTATIONAL STUDY ***M. I. Bracco**, M. E. Biancolini, L. Rouet, S. Avril* 5:24pm - 5:36pm USING 4D ULTRASOUND IMAGING TO QUANTIFY ARTERIAL WALL PROPERTIES IN VIVO ***C. Blase**, A. Wittek, A. Hegner, W. Derwich, A. Huß* 5:36pm - 5:48pm MECHANICAL CHARACTERIZATION OF ABDOMINAL AORTIC ANEURYSMS USING 4D ULTRASOUND AND VIRTUAL FIELDS METHOD ***M. Thirugnanasambandam**, E. J. Maas, A. H.Nievergeld, M. van Sambeek, S. Avril, R. Lopata* 5:48pm - 6:00pm US-BASED VOLUME-TIME CURVES OF THE AAA FOR ESTIMATING IN-VIVO THROMBUS COMPRESSIBILITY AND WALL STIFFNESS ***A. Nievergeld**, E. Maas, J. Fonken, M. vanSambeek, F. van de Vosse, R. Lopata*	TR03.8 **PATIENT-SPECIFIC MODELLING III** *Chair: Sebastian Laporte* 5:00pm - 5:12pm GENERATING PATIENT GAIT SPECIFIC FINITE ELEMENT MODELS OF THE HAEMOPHILIC ANKLE ***H. G. Talbott**, R. A Wilkins, A. C. Redmond, C. L Brockett, M. Mengoni* 5:12pm - 5:24pm INVESTIGATION OF THE EFFECT OF FOOT SOFT TISSUE STIFFENING ON THE PLANTAR CONTACT PRESSURE ***Z. Kamal**, E. E. Hekman, G. Verkerke* 5:24pm - 5:36pm VALIDATION OF AN MRI-BASED PERSONALIZED MODEL OF THE SUBTALAR JOINT ***M. Conconi**, A. Pompili, N. Sancisi, A. Leardini, C. Belvedere* 5:36pm - 5:48pm A COMPARISON OF FOOT MECHANICS BETWEEN AUTOMATICALLY GENERATED PERSONALISED AND SCALED GENERIC SKELETAL MODELS ***E. A. Meilak**, L. Modenese, C. Stewart* 5:48pm - 6:00pm USING CARBON FIBER CUSTOM DYNAMIC ORTHOSES TO PREVENT POST-TRAUMATIC ANKLE OSTEOARTHRITIS *K. Anderson, M. Corlett, J. Wilken, D. D. Anderson*	TR04.8 **TISSUE ENGINEERING II** *Chairs: Gwendolen Reilly, Alberto Sensini* 5:00pm - 5:12pm TISSUE-ENGINEERED COLLAGENOUS FIBROUS CAP MODELS TO EXPLORE ATHEROSCLEROTIC PLAQUE RUPTURE *T. Wissing, K. van der Heiden, S. Serra, A. Smits, C. Bouten, **F. Gijsen*** 5:12pm - 5:24pm FABRICATION OF MAGNESIUM AND STRONTIUM SUBSTITUTED HYDROXYAPATITE-POLYCAPROLACTONE COMPOSITES VIA 3D PRINTING FOR THE USAGE AS BONEFILLER ***D. Syla**, L. Grillini, L. Forte, F. Claeyssens, G. Reilley* 5:24pm - 5:36pm IN-VITRO/IN-SILICO MODELLING OF CORE-SHELL STRUCTURES AS ADVANCED BARRIER MODELS ***N. Guazzelli**, L. Cacopardo, A. Ieva, A. Corti, A. Ahluwalia* 5:36pm - 5:48pm TISSUE REMODELING AT THE INTERFACE BETWEEN PYROCARBON INTERPOSITION IMPLANTS AND HUMAN HUMERAL BONE ***R. Gauthier**, G. Ouenzerfi, I. de Gaudemaris, N. Attik, M. Hassler, A.-M. Trunfio-Sfarghiu* 5:48pm - 6:00pm ELECTROSPUN POLYMER GRAFT AS AN OPTION FOR TISSUE REPLACEMENT IN SEVERE SPRING LIGAMENT INJURIES ***S. Nieto**, C. J. Cifuentes, J. C. Cruz, J. Hinojosa*
18:00 – 19:00	ESB General Assembly			
20:00 – 23:00	ESB 2022 Congress dinner Venue: Real Companhia Velha Cellars - address: Azevedo Magalhaes 314, Via Nova de Gaia. Metro: General Torres			

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
				15:30 – 16:00
				16:00 – 17:00
TR05.8 **ESB CORPORATE MEMBERS SESSION**	TR06.8 **CLINICAL AND TRANSLATIONAL BIOMECHANICS / IN SILICO TRIALS III** *Chairs: Richie Gill, Marco Viceconti* 5:00pm - 5:25pm IN SILICO TRIALS TO ASSESS THE SAFETY AND EFFICACY OF NEW TREATMENTS FOR MUSCULOSKELETAL DISEASES ***M. Viceconti*** 5:25pm - 5:37pm MARKOV CHAINS WITH PATIENT-SPECIFIC FE MODELS FOR IN SILICO TRIALS OF ANTIRESORPTIVE DRUGS ***A. A. La Mattina**, M. Viceconti* 5:37pm - 5:49pm CHANGES IN GAIT PATTERNS AFTER HIP ARTHROPLASTY - COMPARING IMU- AND MARKER-BASED DATA ***C. Nüesch**, P. Ismailidis, D. Koch, K. Stoffel, A. Mündermann*	TR07.8 **BIOMATERIALS II** *Chair: Hanna Isaksson* 5:00pm - 5:25pm TAILOR-MADE POLYMERS: AN ADDITIONAL DEGREE OF FREEDOM IN THE TUNING OF MECHANICAL PROPERTIES IN TISSUE MODELING ***G. Ciardelli*** 5:25pm - 5:37pm ALIGNED ELECTROSPUN FIBRES GUIDE COLLAGEN DEPOSITION TO SUPPORT A LAMELLA-LIKE TWISTED ORIENTATION BY MSCS ***A. J. Hann**, G. C Reilly, N. Green, F. Claeyssens* 5:37pm - 5:49pm SURFACE MODIFICATIONS TO PROMOTE THE OSTEOCONDUCTIVITY OF UHWMPE FABRICS FOR A NOVEL BIOMIMETIC ARTIFICIAL DISC PROSTHESIS: AN IN VITRO STUDY *C. A. M. Jacobs, **E. E. Cramer**, A. A. Dias, H. Smelt, S. Hofmann, K. Ito* 5:49pm - 6:01pm A FRAMEWORK TOWARDS THE DESIGN OF TUNABLE AND GRADED OPEN-CELL BONE SCAFFOLDS WITH ANISOTROPIC PROPERTIES ***K. Cheikho**, C. Laurent, J.-F. Ganghoffer*	TR08.8 **ADVANCE COMPUTING FOR BIOMECHANICS III** 5:00pm - 5:12pm CFD SIMULATION OF THA FOR DIFFERENT FEMUR POSITIONS INCLUDING MICROMOTION BETWEEN BONE AND IMPLANT ***A. Hrouda**, M. Vanierschot, L. Capek, M. Mulier, K. Denis* 5:12pm - 5:24pm TESTING SIMULATED CARTILAGE BIOMECHANICS TO PREDICT KNEE OSTEOARTHRITIS: DATA FROM THE OSTEOARTHRITIS INITIATIVE ***A. Paz**, R. K. Korhonen, J. J. García, M. E. Mononen* 5:24pm - 5:36pm FLUID-STRUCTURE INTERACTION ANALYSIS OF DESCENDING AORTA AFTER VSRR SURGERY: THE EFFECTS OF GRAFT STIFFNESS ***G. Nannini**, M. C. Palumbo, S. Saitta, A. Caimi, J. D. Humphrey, Y. Wang, L. N. Girardi, M. Gaudino, J. W. Weinsaft, E. Votta, A. Redaelli* 5:36pm - 5:48pm IMPLEMENTATION OF SMOOTHED SURFACE, SLIDING CONTACT IN THE VOXEL BASED FINITE ELEMENT SOLVER POROSOL ***F. M. Trommer**, P. Bhattacharya*	17:00 – 18:00
				18:00 – 19:00
				20:00 – 23:00

Wednesday, 29th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
8:30 – 9:45	TR01.9 **PATIENT-SPECIFIC MODELLING IV** *Chair: Claudio Vergari* 8:30am - 8:42am CT-BASED FEA AND COMPUTATIONAL FLUID DYNAMICS APPLIED TO SCAFFOLD-BASED RECONSTRUCTION OF A SHEEP MANDIBLE ***B. M. Ferguson**, W. Lewin, H. Zreiqat, J. Clark, Q. Li* 8:42am - 8:54am ULTRASOUND-BASED FSI MODELING OF AORTIC ANEURYSMS: IMPACT OF THE AORTIC BIFURCATION AND INLET VELOCITY PROFILE ***J. Fonken**, E. van Engelen, E. Maas, A. Nievergeld, M. van Sambeek, F. van deVosse, R. Lopata* 8:54am - 9:06am VALIDATION OF AN IMAGE-BASED APPROACH FOR PATIENT-SPECIFIC ARTERIAL MODELLING IN CORONARY STENTING SIMULATIONS ***G. Poletti**, L. Antonini, P. Tsompou, G. S. Karanasiou, D. I. Fotiadis, L. Petrini, G.Pennati* 9:06am - 9:18am EVALUATING THE EFFECT OF COMPUTATIONAL DOMAIN REDUCTION IN ASCENDING AORTA SIMULATIONS ***A. Martinez**, L. Geronzi, M. Daniel, P. Escrig, J. Tomasi, M. Rochette, M. E. Biancolini* 9:18am - 9:30am PATIENT-SPECIFIC PRE- AND POST-SURGICAL STOMACH MODELS ***I. Toniolo**, A. Berardo, S. Perretta, G. Quero, C. Fiorillo, E. L. Carniel* 9:30am - 9:42am ON THE USE OF DIGITAL TWIN TECHNOLOGY ARIELLE FOR THE DEVELOPMENT OF PERINATAL LIFE SUPPORT SYSTEMS ***B. G. van Willigen**, M. B. van der Hout-vander Jagt, W. Huberts, F. N. van de Vosse*	TR02.9 **MUSCULOSKELETAL BIOMECHANICS III: HIP, TRUNK, FOOT** *Chairs: Ilse Jonkers, Erica Beaucage-Gauvreau* 8:30am - 8:42am HIP CONTACT FORCES IN PATIENTS WITH INCREASED FEMORAL ANTETORSION DO NOT DIFFER WITH DIFFERENT GAIT PATTERNS ***N. Alexander**, E. Viehweger, J. Cip, R. G. Brunner, E. De Pieri* 8:42am - 8:54am DIFFERENCES IN IMPINGEMENT PATTERNS IN CAM-TYPE HIPS WITH SUPERIOR AND ANTERIOR ASPHERICITY OF THE FEMUR ***A. C. Jones**, T. D. Stewart, N. Maher, C. Holton* 8:54am - 9:06am COMPARATIVE EFFECTS OF SURGICAL AND NON-SURGICAL THERAPY ON HIP CONTACT FORCE FOR FEMOROACETABULAR IMPINGEMENT SYNDROME ***A. Nasseri**, L. Diamond, T. Savage, T. Grant, M. Hall, K. Bennell, J. Eyles, L. Spiers, D. Hunter, D. Lloyd, D. Saxby* 9:06am - 9:18am SINERGY-BASED MULTIBODY KINEMATICS OPTIMIZATION TO TRACK ALL THE FOOT BONES WITH A STANDARD GAIT PROTOCOL ***A. Pompili**, M. Conconi, N. Sancisi, A. Leardini, S. Durante, C. Belvedere* 9:18am - 9:30am REFINING THE OXFORD FOOT MODEL TO DESCRIBE THE KINEMATICS OF THE MEDIAL LONGITUDINAL ARCH ***J. Uhan**, A. Kothari, A. Zavatsky, J. Stebbins* 9:30am - 9:42am VALIDATION OF AN ELECTROMYOGRAPHY-DRIVEN MUSCULOSKELETAL MODEL FOR TRUNK MECHANICAL ANALYSIS ***A. Moya-Esteban**, H. van der Kooij, M. Sartori*	TR03.9 **IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES VII: BONE RESPONSE** *Chairs: Peter Zioupos, Federico Andrea Bologna* 8:30am - 8:42am TRIPLY PERIODIC MINIMAL SURFACE FOR BIOINSPIRED DISSIMILAR MATERIAL INTERFACING ***M. Cruz Saldivar**, E. Tay, E. L. Doubrovski, M. J. Mirzaali, A. A. Zadpoor* 8:42am - 8:54am THE ROLE OF THE SOCKET IN BMD LOSS IN TRANSFEMORAL AMPUTEES ***J. L. Zavaleta Ruiz**, S. Dimartino, L. Hutton, P. Pankaj* 8:54am - 9:06am INCIDENCE OF PELVIC BONE OVER THE STRESS STATE AT THE RESIDUAL LIMB/SOCKET INTERFACE OF TRANSFEMORAL AMPUTEES ***J. Atehortua C.**, V. Mejía Gallón, J. Ramírez* 9:06am - 9:18am VALIDATED FINITE ELEMENT SIMULATION OF POROUS TITANIUM SAMPLES UNDER FATIGUE LOADING FOR DESIGN OPTIMIZATION ***A. Vautrin**, J. Aw, E. Attenborough, P. Varga* 9:18am - 9:30am LONGITUDINAL FUNCTIONAL ASSESSMENT OF A TRANSFERMORAL AMPUTEE PATIENT TREATED WITH OSSEOINTEGRATION SURGERY *S. Di Paolo, D. Alesi, **A. I. Mirulla**, E. Gruppioni, S. Zaffagnini, L. Bragonzoni* 9:30am - 9:42am THE INFLUENCE OF SCREW CONFIGURATIONS ON LCP UNDER THE TIME-DEPENDENT CALLUS HEALING PROCESS ***Z. Li**, Z. Ding, S. Zhu, Z. Wu*	TR04.9 **MECHANOBIOLOGY III: IN SILICO** *Chair: Hans Van Oosterwyck* 8:30am - 8:42am A COUPLED FINITE ELEMENT AND SYSTEMS BIOLOGY MODEL TO STUDY THE ROLE OF MECHANICS AND INFLAMMATION IN KNEE OA ***S. Mukherjee**, R. Lesage, L. Geris* 8:42am - 8:54am IDENTIFICATION OF THE MOST IMPORTANT CELLULAR PROCESSES BEHIND IMPAIRED BONE REGENERATION IN TYPE-2 DIABETES ***M. Jaber**, G. Duda, S. Checa* 8:54am - 9:06am EMERGENCE OF BONE REMODELLING BEHAVIOUR FROM A MICRO-MULTIPHYSICS AGENT-BASED MODEL ***J. J. Kendall**, D. Boaretti, C. Ledoux, F. C. Marques, E. Wehrle, R. Müller* 9:06am - 9:18am BIOMECHANICAL MODEL OF BONE REMODELING COUPLED WITH ADVANCED DISCRETIZATION METHODS ***M. Peyroteo**, J. Belinha, R. Natal* 9:18am - 9:30am THE INFLUENCE OF WNT PATHWAY IN BONE REMODELLING AND CALCIUM CONCENTRATION IN MICROGRAVITY CONDITIONS ***A. Pica**, A. Marinozzi, F. Marinozzi, F. Bini* 9:30am - 9:42am DISRUPTED OSTEOCYTE CONNECTIVITY AND MECHANOSENSATION IN BONE WITH AGING AND DEFECTIVE TGF-B SIGNALLING ***S. Verbruggen**, C. Schurman, T. Alliston*
09:45 – 10:15	Coffee break			

Porto Hall	Arrabida Hall	Miragaia Hall	S. Joao Hall	
TR05.9 **SPORT BIOMECHANICS I** *Chairs: Hans Kainz, António Prieto Veloso* 8:30am - 8:42am HIP CONTACT FORCES DURING SPRINTING IN FEMOROACETABULAR IMPINGEMENT SYNDROME ***B. Goncalves**, E. Meinders, D. Saxby, R. Barrett, L. Diamond* 8:42am - 8:54am MUSCLE CONTRIBUTIONS TO KNEE BONE-ON-BONE FORCES DURING AN HORIZONTAL DECELERATION TASK IN ELITE ATHLETES ***R. B. Mateus**, V. Ferrer-Roca, F. João, A. P. Veloso* 8:54am - 9:06am V-SPINE ANGLE AND GROUND REACTION FORCES IN FAST BOWLING IN CRICKET ***R. E. Ferdinands**, U. Singh* 9:06am - 9:18am HIGHER JOINT LOADING DUE TO INCREASED JOINT ANGLES IN PROFESSIONAL COMPARED TO NOVICE LATIN DANCERS ***C. Egner**, H.-B. Schmiedmayer, H. Kainz* 9:18am - 9:30am A POSTURAL STRATEGY AT STRING RELEASE IN ELITE ARCHERS ***A. Kuch**, R. Tisserand, F. Durand, T. Monnet* 9:30am - 9:42am THE RELIABILITY OF A NOVEL 3D MOTION CAPTURE PROTOCOL FOR THE ANALYSIS OF INSTEP SOCCER KICK KINEMATICS ***D. Al Otti**, L. Scheys*	TR06.9 **IMPACT / INJURY BIOMECHANICS I** *Chairs: David Mitton, Ciaran Simms* 8:30am - 8:55am DIGITAL TWINS AND COUPLED APPROACHES FOR MANAGEMENT OF TIBIAL PLATEAU FRACTURE ***A. Germaneau*** 8:55am - 9:07am A MULTIMODAL FRAMEWORK FOR EVALUATING THE EFFICACY OF ORTHOPAEDIC IMPLANTS IN A SIDEWAYS FALL IMPACT ***E. Bliven**, A. Fung, I. Fleps, A. Baker, B. Helgason, P. Guy, P. Cripton* 9:07am - 9:19am MECHANICAL CARACTERIZATION OF A KNEE COMPRESSION FRACTURE BY H-DVC ON A CLINICAL CT-SCAN *M. Severyns, **T. Vendeuvre**, K. Aubert, V. Valle, A. Germaneau* 9:19am - 9:31am EXPERIMENTAL STUDY OF CERVICAL SPINE INJURY AND KINEMATICS IN LATERAL HEAD IMPACT ***M.-H. Beausejour**, N. Bailly, W. Wei, L. Troude, P. Panichelli, P.-J. Arnoux* 9:31am - 9:43am CHANGE OF DIRECTION BIOMECHANICS AND COORDINATION IN ANTERIOR CRUCIATE LIGAMENT-INJURED FEMALE FOOTBALLERS ***S. Di Paolo**, L. Bragonzoni, A. Grassi, S. Zaffagnini*	TR07.9 **SKIN BIOMECHANICS** *Chair: Jérôme Molimard, Michael Crichton* 8:30am - 8:55am SKIN – AN ACCESSIBLE WINDOW TO HEALTH ***M. Crichton*** 8:55am - 9:07am CHARACTERISING THE MECHANICAL PROPERTIES OF SKIN WOUNDS ***S. Medina-Lombardero**, J. Cash, B. Reuben, M. Crichton* 9:07am - 9:19am COMBINED MEASUREMENT OF FRICTION AND THROUGH-THICKNESS DEFORMATION ON EX VIVO SKIN SAMPLES *B. Eydan, B. Pierrat, N. Curt, H. Zahouani, J. Molimard* 9:19am - 9:31am TENSILE TESTING OF CELL SHEETS: AN EXPERIMENTAL APPROACH *M. G. Fernandes, M. D. Malta, A. André, **P. Martins**, A. P. Marques*	TR08.9 **INSPIRATIONAL KEY NOTE LECTURE - HOW TO COMMUNICATE SCIENCE** *Lecturer: Joana Lobo Antunes, Chair: Marta Campos Ferreira*	8:30 – 9:45

Wednesday, 29th June 2022

	Archive Hall	Infante Hall	D. Maria Hall	D. Luis Hall
10:15 –11:40	TR01.10 **CARDIOVASCULAR BIOMECHANICS VIII: MULTISCALE COMPUTATIONAL MODELING** *Chairs: Fanette Chassagne, Diego Gallo* 10:15am - 10:40am OPPORTUNITIES IN MULTISCALE AND MULTIPHYSICS HUMAN HEART MODELING ***M. Peirlinck*** 10:40am - 10:52am THE INFLUENCE OF THE ORTHOTROPIC TISSUE IN A ELECTROMECHANICAL HEART MODEL ***D. Holz**, D. Martonova, E. Schaller, M. T. Duong, M. Alkassar, S. Leyendecker* 10:52am - 11:04am USING THE DIGITAL TWIN OF HUMAN FETAL HEART TO PREDICT OUTCOMES OF A FETAL HEART INTERVENTION ***L. E. Green**, W. X. Chan, A. Tulzer, G. Tulzer, C. H. Yap* 11:04am - 11:16am COMPUTATIONAL STUDY ON TWO IDEALIZED MODELS OF THE LEFT VENTRICLE WITH DIFFERENT MYOFIBER ARCHITECTURES ***K. Osouli**, F. De Gaetano, P. Zunino, M. L. Costantino* 11:16am - 11:28am IMPACT OF HYPERTENSION AND ARCH MORPHOLOGY ON AORTIC HEMODYNAMICS: A PRELIMINARY NUMERICAL ANALYSIS *M. A. D'Attimo, A. Caimi, M. Marrocco-Trischitta, **F. Sturla**, A. Redaelli*	TR02.10 **MUSCULOSKELETAL BIOMECHANICS IV:METHODS** *Chairs: Claudia Mazzà, Simon Herger* 10:15am - 10:40am BIOMECHANICS OF CRANIOFACIAL GROWTH ***M. Moazen*** 10:40am - 10:52am TENDON COMPLIANCE AFFECTS TIME-SERIES ENERGY EXPENDITURE ***A. I. Luis Pena**, M. Afschrift, F. De Groote, E. M. Gutierrez-Farewik* 10:52am - 11:04am CALIBRATION OF A NEUROMUSCULOSKELETAL MODEL AT THE JOINT TORQUE AND JOINT STIFFNESS LEVELS SIMULTANEOUSLY ***C. P. Cop,** A. C. Schouten, B. Koopman, M. Sartori* 11:04am - 11:16am ESTIMATING A SINGLE MAXIMUM MUSCLE-TENDON LENGTH FROM DISCRETISED MUSCLES ***C. F. Hayford**, E. Montefiori, E. Pratt, C. Mazzà* 11:16am - 11:28am QUANTITATIVE VALIDATION OF A DEEP LEARNING BASED MARKERLESS MOTION CAPTURE SYSTEM *T. Templin, T. Eliason, D. Chambers, N. Louis, O. Medjaouri, K. Saylor, **D. Nicolella*** 11:28am - 11:40am SMART FLEXIBLE GARMENT AND RAPID NEUROMUSCULOSKELETAL MODELLING FOR FAST AND ACCURATE CLINICAL DECISION-MAKING ***D. Simonetti**, B. Koopman, S. Massimo*	TR03.10 **HARD TISSUE BIOMECHANICS IV: BONE REMODELLING, AND DISEASES** *Chairs: Enrico Dall'Ara, Alexandra Tits* 10:15am - 10:27am EFFECTIVENESS OF ALTERNATING PTH AND MECHANICAL LOADING TREATMENT IN AN OVARIECTOMISED MOUSE MODEL ***V. S. Cheong**, B. Roberts, V. Kadirkamanathan, E. Dall'Ara* 10:27am - 10:39am HOMOGENIZED-FE-BASED INVERSE BONE REMODELING: MODIFIED OPTIMIZATION CRITERION AND EVALUATION ON THE DISTAL RADIUS ***S. Bachmann**, D. H. Pahr, A. Synek* 10:39am - 10:51am MICRO-FE DERIVED MECHANICAL PROPERTIES FOR TRABECULAR BONE REMODELING AND ADAPTATION UNDER LOADING ***D. Boarreti**, F. C. Marques, J. J. Kendall, G. A. Kuhn, E. Wehrle, Y. D. Bansod, R. Müller* 10:51am - 11:03am DAMAGE MECHANICS OF TYPE-2 DIABETIC TRABECULAR BONE SUBJECT TO MONOTONIC AND CYCLIC LOADING ***M. Britton**, J. Schiavi, T. J. Vaughan* 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* 11:15am - 11:27am NEW INSIGHTS INTO HIGH-RESOLUTION STRAIN FIELDS OF TRABECULAR BONE USING DIGITAL IMAGE CORRELATION *N. Amraish, **D. Pahr*** 11:27am - 11:39am SITE-MATCHED MICROPILLAR COMPRESSION AND RAMAN SPECTROSCOPY TO ASSESS JAW BONE QUALITY ***T. Kochetkova**, A. Groetsch, C. Peruzzi, M. Indermaur, S. Remund, B. Neuenschwander, J. Hofstetter, B. Bellon, J. Michler, P. Zysset, J. Schwiedrzik*	TR04.10 **MECHANOBIOLOGY IV: IN SILICO** *Chairs: Hans Van Oosterwyck, Daphne Weihs* 10:15am - 10:27am A 3D COMPUTATIONAL MODEL OF AORTIC VALVE INTERSTITIAL CELL CONTRACTILE BEHAVIOR WITHIN A PEG HYDOGEL MEDIUM ***A. Khang, M. S. Sacks*** 10:27am - 10:39am AGENT – BASED MODEL OF VASCULOGENESIS INCLUDING CELL – ECM INTERACTIONS ***A. Carrasco-Mantis**, T. Alarcón, J. A. Sanz-Herrera* 10:39am - 10:51am THE ROLE OF OUTER-VASCULAR MECHANICS ON SPROUTING ANGIOGENESIS: AN IN SILICOSTUDY ***C. Dazzi**, J. Mehl, G. N. Duda, S. Checa* 10:51am - 11:03am NUMERICAL AND EXPERIMENTAL APPROACH TO STUDY THE RESPONSE OF YAP AND NPC TO DIFFERENT MECHANICAL SIGNALS ***S. Saporito**, C. F. Natale, C. Menna, P. A. Netti, M. Ventre* 11:03am - 11:15am MAGNETO-ACOUSTIC INTERACTION IN MAGNETIC NANOSYSTEMS ***R. Marqués**, A. Ashofteh Yazdi, J. Melchor, R. Ibarra, G. Rus* 11:15am - 11:27am AGENT-BASED MODEL OF LONG-TERM DISEASE PROGRESSION IN DUCHENNE MUSCULAR DYSTROPHY ***K. Crump**, S. Peirce-Cottler, S. Blemker* 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. Manifacier*
11:45 – 12:30	Keynote lecture 3 **MODELLING THE HUMAN NEUROMUSCULAR SYSTEM ACROSS SPATIO-TEMPORAL SCALES FOR A NEW CLASS OF MOVEMENT ENHANCING TECHNOLOGIES**, *Massimo Sartori* *Chairs: Jérôme Noailly, Paulo Rui Fernandes*			

Porto Hall

TR05.10

SPORT BIOMECHANICS II

Chairs: António Prieto Veloso, Joao Paulo Vilas-Boas

10:15am - 10:27am
CONTRIBUTIONS TO THE SHAPE OF THE FORCE-VELOCITY RELATIONSHIP IN SIMULATIONS OF LOADED SQUAT JUMPS
S. J. Allen

10:27am - 10:39am
A KINEMATIC ANALYSIS OF THE 10-BALL BREAK IN PROFESSIONAL POOL BILLARDS
P. Kornfeind, *T. Boindl, A. Baca*

10:39am - 10:51am
DO FATIGUE-INDUCED CHANGES IN COGNITIVE PERFORMANCE RELATE TO CHANGES IN KNEE MECHANICS?
F. Bertozzi, *P. D. Fischer, F. Aflatounian, K. A. Hutchison, M. Galli, M. Tarabini, C. Sforza, S. M. Monfort*

10:51am - 11:03am
FINGERBOARD HANGING LOCK-OFFS: REFINING PRACTICE GUIDELINES FOR CLIMBERS
J. Exel, *O. Froschauer, D. Deimel, A. Baca, H. Kainz*

11:03am - 11:15am
FINITE ELEMENT MODELLING OF SPORTS FOOTWEAR GRIP PERFORMANCE ON WET HARD SURFACES
L. Sissler, J. Gringet-Charre, K. Beschorner, ***T. Tarrade***

11:15am - 11:27am
ACCURACY OF A NEW LOCAL POSITIONING SYSTEM IN OBTAINING SPEED AND ACCELERATION DURING GAME SPORTS MOVEMENTS
P. X. Fuchs, *Y.-C. Chou, W.-H. Chen, N. J. Fiolo, T.-Y. Shiang*

Arrabida Hall

TR06.10

IMPACT / INJURY BIOMECHANICS II

Chairs: David Mitton, Ciaran Simms

10:15am - 10:40am
MODELLING BLAST INJURY; FROM CLINICAL DATA TO PATHOPHYSIOLOGY AND PROTECTION
S. Masouros

10:40am - 10:52am
TOWARDS COMPUTATIONAL MODELLING OF ACTIVE RESPONSE IN CYCLIST FALLS FROM IN-THE-WILD FOOTAGE
K. Gildea, ***C. Simms***

10:52am - 11:04am
SIMULATION OF BICYCLE ACCIDENTS USING HUMAN BODY MODELS
K. Brolin, *V. Alvarez, A.-K. Säther, D. Olsson, H. Wendelrup*

11:04am - 11:16am
PERIPROSTHETIC FRACTURE MODELLING USING A COMBINED FINITE ELEMENT – SMOOTH PARTICLE HYDRODYNAMIC METHOD
Ö. Cebeci, *S. Checa*

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*

11:28am - 11:40am
BIOMECHANICAL BEHAVIOUR OF THE TRANSVERSE LIGAMENT OF THE ATLAS: AN IN VITRO EXPERIMENTAL ANALYSIS
S. Laporte, *S. Persohn, B. Sandoz*

Miragaia Hall

TR07.10

ERGONOMICS / OCCUPATIONAL BIOMECHANICS / REHABILITATION I

Chairs: Margit Gföhler, Xuguang Wang

10:15am - 10:40am
EXPERIMENTAL AND BIOMECHANICAL MODELING INVESTIGATIONS FOR UNDERSTANDING SEATING DISCOMFORT
X. Wang

10:40am - 11:05am
EMMA4DRIVE - DIGITAL HUMAN TWINS FOR EVALUATING ERGONOMICS AND SAFETY IN NEW MOBILITY SOLUTIONS
J. Linn, ***J. Fehr***

11:05am - 11:17am
MOTION ANALYSIS OF THERAPEUTIC CLIMBING: A REHABILITATION TOOL FOR CHILDREN WITH CEREBRAL PALSY
C. Monoli, *G. Simoni, J. A Tuhtan, E. Palermo, M. Galli, A. Colombo*

11:17am - 11:29am
MUSCLE ACTIVITY ASSOCIATED WITH PERFORMING ROBOT-ASSISTED AND CONVENTIONAL LAPAROSCOPY
A. Shugaba, *J. Lambert, H. Nuttall, D. Subar, C. Gaffney, T. Bampouras*

S. Joao Hall

TR08.10

BIOFLUID AND TRANSPORT I

Chairs: Frans van de Vosse, Junfeng Zhang

10:15am - 10:40am
COMPUTER MODELLING AND INVESTIGATIONS OF CAPSULE DYNAMICS IN FLOWS: MEMBRANE VISCOSITY EFFECT
J. Zhang

10:40am - 10:52am
UMBILICAL CORDS ABNORMALITIES CLASSIFICATION BASED ON FLOW SIGNALS FROM DOPPLER ULTRASOUND SIMULATOR
S. Naftali, *Y. Nareznoy Ashkenazi, A. Ratnovsky*

10:52am - 11:04am
NEAR WALL DYNAMICS OF A TILTED LIGHTHOUSE RETURN CANNULA
F. Fiusco, *L. M. Broman, L. PrahlWittberg*

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*

10:15 –11:40

11:45 – 12:30

Wednesday, 29th June 2022

12:30 – 13:15	Lunch break
13:15 – 14:00	Poster sessions: PS13 - PS18
14:00 – 15:00	Best Doctoral Thesis Award *Chairs: Markus Heller, Ilse Jonkers*
15:00 – 15:30	Coffee break

15:30 – 16:45

TR01.12
CARDIOVASCULAR IX: IMAGE-BASED BIOMECHANICS

Chairs: Fanette Chassagne, Diego Gallo

3:30pm - 3:42pm
DECIPHERING VORTICITY IN THE ABDOMINAL AORTIC ANEURYSM
***V. Mazzi**, K. Calò, D. Gallo, A. Iollo, U. Morbiducci*

3:42pm - 3:54pm
PREDICTION OF ANALOG THROMBI MECHANICAL PROPERTIES, COMPOSITION, AND CONTRACTION USING CT IMAGING
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. vander Lugt, F. Gijsen, R. Cahalane

3:54pm - 4:06pm
UNIVERSAL LEFT ATRIAL APPENDAGE COORDINATES TO COMPARE AND CLASSIFY PHENOTYPIC FLOW PATTERNS
***J. Dueñas-Pamplona**, A. Gonzalo, S. F. Bifulco, P. M. Boyle, E. McVeigh, A. M. Kahn, P. Martínez-Legazpi, J. García García, J. Sierra-Pallares, M. García-Villalba, Ó. Flores, J. Bermejo, J. C. del Álamo*

4:06pm - 4:18pm
PATIENT-SPECIFIC FLOW SIMULATIONS OF A DISSECTED AORTA INFORMED BY 4D FLOW MRI: THE IMPACT OF SEGMENTAL ARTERIES
***C. Stokes**, F. Haupt, D. Becker, V. Muthurangu, H. von Tengg-Kobligk, S. Balabani, V. Diaz-Zuccarini*

4:18pm - 4:30pm
4D FLOW MRI & NETWORK-BASED ANALYSIS OF THE HEMODYNAMIC CORRELATION PERSISTENCE LENGTH IN THE HEALTHY AORTA
***K. Calò**, A. Guala, D. Gallo, J. Rodriguez Palomares, S. Scarsoglio, L. Ridolfi, U. Morbiducci*

4:30pm - 4:42pm
CALIBRATION OF THE MECHANICAL BOUNDARY CONDITIONS OF A THORACIC AORTA MODEL INCLUDING THE HEART MOTION EFFECT
***L. Geronzi**, A. Martinez, M. E. Biancolini, M. Rochette, O. Bouchot, A. Lalande, P. P. Valentini*

TR02.12
MUSCULOSKELETAL BIOMECHANICS V: KNEE AND OTHERS

Chairs: Annegret Mündermann, Claude Fiifi Hayford

3:30pm - 3:42pm
A NEW GENERALIZED CONTINUUM APPROACH TO MODEL SPINAL GROWTH
***N. M. Castoldi**, M. Antico, M. Martin, P. Pivonka, V. Sansalone*

3:42pm - 3:54pm
EXPERIMENTAL INVESTIGATION OF THE FRACTURE MECHANICS OF FEMURS OF ZUCKER DIABETIC FATTY (ZDF) RATS
***G. E Monahan**, J. Schiavi-tritz, T. J. Vaughan*

3:54pm - 4:06pm
INFLUENCE OF LIMB ALIGNMENT AND KNEE JOINT LOADING ON CONDYLAR KINEMATICS USING DYNAMIC VIDEOFLUOROSCOPY
***B. Postolka**, O. Ulrich, W. R. Taylor, R. List, P. Schütz*

4:06pm - 4:18pm
CHARACTERISING THE RELATIONSHIP BETWEEN KNEE BONE GEOMETRY AND PASSIVE KINEMATICS
***D. O'Rourke**, F. Bucci, W. Burton, R. Al-Dirini, M. Taylor, S. Martelli*

4:18pm - 4:30pm
VARIATION IN KNEE CONTACT MECHANICS DUE TO ANATOMY
*J. Yao, G. Day, N. Wijayathunga, A. Jones, R. Wilcox, **M. Mengoni***

4:30pm - 4:42pm
HIGH TIBIAL OSTEOTOMY NORMALIZES KNEE AMBULATORY LOADS
***E. De Pieri**, C. Nüesch, G. Pagenstert, E. Viehweger, C. Egloff, A. Mündermann*

TR03.12
IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES VIII: MULTIPLE TOPICS

Chairs: Peter Varga, Mauricio Cruz Saldivar

3:30pm - 3:42pm
A LUBRICIN-BINDING COATING FOR CARTILAGE RESURFACING IMPLANTS TO REDUCE FRICTION
***A. H. A. Damen**, C. C. van Donkelaar, P. K. Sharma, T. A. Schmidt, K. Ito*

3:42pm - 3:54pm
LOAD TRANSFER IN CUSTOM MADE IMPLANT FOR OSTEOCHONDRAL LESION, A FINITE ELEMENT STUDY
***A. Ramos**, M. Vieira*

3:54pm - 4:06pm
BIOMECHANICAL EVALUATION OF A NOVEL BIOMIMETIC ARTIFICIAL DISC PROSTHESIS IN CANINE CERVICAL CADAVERIC SPINES
***C. A. M. Jacobs**, R. J. Doodkorte, S. A. Kamali, A. M. Abdelgawad, S. Ghazanfari, M. A. Tryfonidou, J. Arts, B. P. Meij, K. Ito*

4:06pm - 4:18pm
NOVEL BIODEGRADABLE CAROTID GRAFT: EXPERIMENTAL ASSESSMENT THROUG HAN ANIMAL TRIAL
***A. Hendrickx**, M. Ghasemi, T. Vervenne, T. Langenaeken, H. Bauer, H. Fehervary, M.Cox, P. Claus, F. Rega, N. Famaey, B. Meuris*

4:18pm - 4:30pm
INTEGRATION OF MUSCULOSKELETAL AND MODEL ORDER REDUCED FE SIMULATION FOR PASSIVE ANKLE FOOT ORTHOSIS DESIGN
***D. Scherb**, P. Steck, S. Wartzack, J. Miehling*

4:30pm - 4:42pm
HIGH-FIDELITY FINITE ELEMENT STENT-GRAFT MODELING
***A. Ramella**, F. Migliavacca, J. F. Rodriguez Matas, F. Dedola, M. Conti, F. Heim, S. Allievi, D. Bissacco, M. Domanin, S. Trimarchi, G. Luraghi*

TR04.12
ANIMAL AND PLANT BIOMECHANICS

Chairs: Christian Peham, Balázs Gerics

3:30pm - 3:42pm
A COMPUTATIONAL MODEL OF THE ZEBRAFISH HEART ELECTROPHYSIOLOGY
***L. Cestariolo**, G. Luraghi, P. L'Eplattenier, J. F. Rodriguez Matas*

3:42pm - 3:54pm
LAMENESS INFLUENCES BREAKOVER DURATION IN HORSES
***E. V. Briggs**, C. Mazzà*

3:54pm - 4:06pm
HISTOMORPHOMETRIC ANALYSIS OF CANINE TRABECULAR BONE IN THE OSTEOPOROTIC CONTEXT
***E. Kostenko**, A. Pockevičius, A.Maknickas*

16:45 – 17:15	ESB 2022 Closing Ceremony

12:30 – 13:15

13:15 – 14:00

14:00 – 15:00

15:00 – 15:30

15:30 – 16:45

TR05.12
SPORT BIOMECHANICS III

Chairs: Joao Paulo Vilas-Boas, Hans Kainz

3:30pm - 3:42pm
BALL-FINGER POSITIONING FOR ACCURATE BASEBALL PITCHING
A. Kusafuka, *K. Nishikawa, N. Tsukamoto, K. Kudo*

3:42pm - 3:54pm
GROUND REACTION FORCE PREDICTION DURING RUNNING USING A FULL-BODY MULTIBODY MODEL
G. Marta, *J. Folgado, C. Quental, F. G. Pinto*

3:54pm - 4:06pm
EFFECT OF DIFFERENT PLAYERS' MOTION MODELS ON LINEAR AND NON-LINEAR MEASURES OF SPACE CONTROL IN FUTSAL
J. Bischofberger, *J. Exel, B. Travassos, J. Sampaio, A. Baca*

4:06pm - 4:18pm
APPLYING PRINCIPAL COMPONENT ANALYSIS TO CHARACTERIZE THE BALANCING ABILITY OF ELITE SYNCHRONIZED ICE SKATERS
Z. Palya, *B. Petro, R. M Kiss*

4:18pm - 4:30pm
THE INFLUENCE OF SEX, AGE AND PEAK KNEE ISOKINETIC TORQUE ON SINGLE LEG HOP DISTANCE
S. Herger, *L. Bühl, C. Nüesch, S. Müller, C. Egloff, A. Mündermann*

TR06.12
IMPACT / INJURY BIOMECHANICS III

Chair: David Mitton

3:30pm - 3:42pm
BIOMECHANICAL STUDY OF ELECTRIC SCOOTER FALLS
M. Fournier, N. Bailly, A. Schäuble, ***Y. Petit***

3:42pm - 3:54pm
E-SCOOTER CRASH SCENARIO AND KINEMATICS: ANALYSIS OF 112 CRASH VIDEOS
N. Bailly, *S. Honore, Y. Petit, A. Naaim, A. Muller, W. Wei*

3:54pm - 4:06pm
PELVIC SUBCUTANEOUS ADIPOSE TISSUE THICKNESS AND OUTER SHAPE CHANGE WITH POSITION FOR NUMERICAL MODELING
D. Hanesch, ***J. Muehlbauer***, *E. C. Sattler, N. Moellhoff, R. E. Giunta, S. Peldschus, S. Schick*

4:06pm - 4:18pm
BIOMECHANICAL EVALUATION OF THE SPATIAL CONFIGURATIONS OF STABILIZER USED IN DISTAL HUMERUS FRACTURE TREATMENT
A. Kruszewski, P. Piekarczyk, ***S. Piszczatowski***

4:18pm - 4:30pm
CHANGES IN LOADING DURING FRACTURE HEALING DO NOT IMPACT BONE MICROARCHITECTURE OF THE CONTRALATERAL RADIUS
D. Whittier, *M. Walle, P. Christen, P. Atkins, C. Collins, M. Blauth, K. Lippuner, R. Müller*

4:30pm - 4:42pm
DEVELOPMENT OF A SIMPLIFIED HUMAN THORACIC FE MODEL FOR BLUNT IMPACT AND RELATED TRAUMA
M. Chaufer, *R. Delille, B. Bourel, C. Marechal, F. Lauro, O. Mauzac, S. Roth*

TR07.12
ERGONOMICS / OCCUPATIONAL BIOMECHANICS / REHABILITATION II

Chairs: Margit Gföhler, Xuguang Wang

3:30pm - 3:55pm
INDIVIDUALIZED VS. POPULATION-BASED MUSCULOSKELETAL SIMULATION FOR MEDICAL AND PRODUCT ENGINEERING
J. Miehling

3:55pm - 4:07pm
TOWARDS THE LEARNING OF HUMAN-SEAT INTERACTIONS FOR RUNTIME-EFFICIENT HUMAN MODELS BASED ON PRESSURE DISTRIBUTION
D. N. Fahse, *M. Roller, F. Kempter, J. Fehr*

4:07pm - 4:19pm
FE MODELING AND SIMULATION OF THE CUPULA DEFORMATION OF A SEMICIRCULAR CANAL IN A CLINICAL ROUTINE
M. Blaise, *D. Baumgartner, A. Charpiot*

TR08.12
BIOFLUID AND TRANSPORT II

Chairs: Frans van de Vosse, Junfeng Zhang

3:30pm - 3:42pm
THROMBUS FORMATION IN A STENOTIC CHANNEL; A VISCOELASTIC MATERIAL MODEL
M. Rezaeimoghaddam, *O. Dhaenens, A. Germain, F. N van de Vosse*

3:42pm - 3:54pm
STUDY OF THE FLUID BEHAVIOUR IN 3D PRINTED MACROSCAFFOLDS USING CFD ANALYSIS AND PIV
T. Baumgartner, *T. Yorov, M. Bösenhofer, O. Guillaume, A. Ovsianikov, M. Harasek, M. Gföhler*

3:54pm - 4:06pm
HIGH DENSITY MICROFLUIDIC TRAP ARRAY GEOMETRIC OPTIMIZATION VIA COMPUTATIONAL FLUID DYNAMICS STUDY
N. Ruyssen, *J. Fattaccioli, M.-C. Jullien, R. Allena*

16:45 – 17:15

INTERNATIONAL SYMPOSIUM ON RESEARCH AND ENTREPRENEURSHIP

Chairs: Marta Campos Ferreira, Faculdade de Engenharia da Universidade do Porto
João Manuel R.S. Tavares, Faculdade de Engenharia da Universidade do Porto

The symposium is focused on stimulating innovation and entrepreneurship among Biomechanics researchers, and offers them opportunities to start, to grow and to scale up their ideas for businesses. The ultimate goal is to contribute to the development of a Biomechanics ecosystem and to foster a culture of entrepreneurship in the academic Biomechanics community.

Pre-course "Ideation"

Sunday | 26th June 2022 | 10:00 – 12:00
D. Maria Hall

This course aims to increase the impact of biomechanics on society, stimulating entrepreneurship and raising awareness of the processes of creativity, generation of ideas and value propositions. During this course societal challenges related with biomechanics, such as ageing, chronicle diseases, physical activity, and sports, will be discussed. This session will be held by Everythink (www.everythink.com), a design studio from Porto.

Round Table on Technology Transfer in Biomechanics

Monday | 27th June | 17:00 – 18:00
Arrabida Hall

This round table will bring together representatives from a technology transfer office, from academia, from industry and from a research foundation. They will share their views and experiences on transfer of outcomes of biomechanics studies which will serve as a source of inspiration for the delegates.

Organizer and moderator:
Jos Vander Sloten, KU Leuven

Speakers:
Tine Van Lommel, Leuven Research and Development
Maria Oliveira, IPTEC Porto
Behnam Esfandiar, Materialise NV
Markus Windolf, AO Foundation
Prof. Wafa Skalli, ParisTech
Ricardo Moura, CEO Wisify Tech Solutions

Start-up competition

Researchers developing biomechanics solutions will present their ideas to the general public, experts and prospective investors in a dedicated space for pitches. The aim of this initiative is to promote innovative ideas among the wider public, raise awareness about innovation among professionals and link the different Technology Readiness Level in solutions with their deployment.

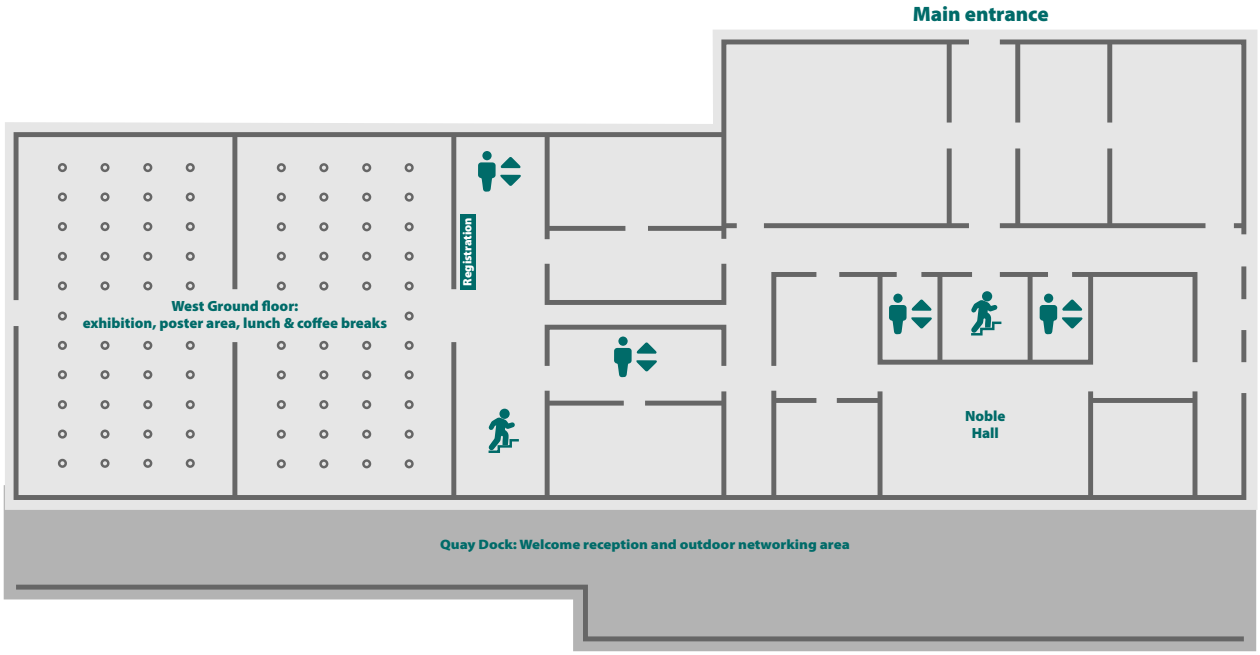
Inspirational Keynote Lecture "How to Communicate Science"

Wednesday | 29th June | 8:30 – 9:30
S. Joao Hall

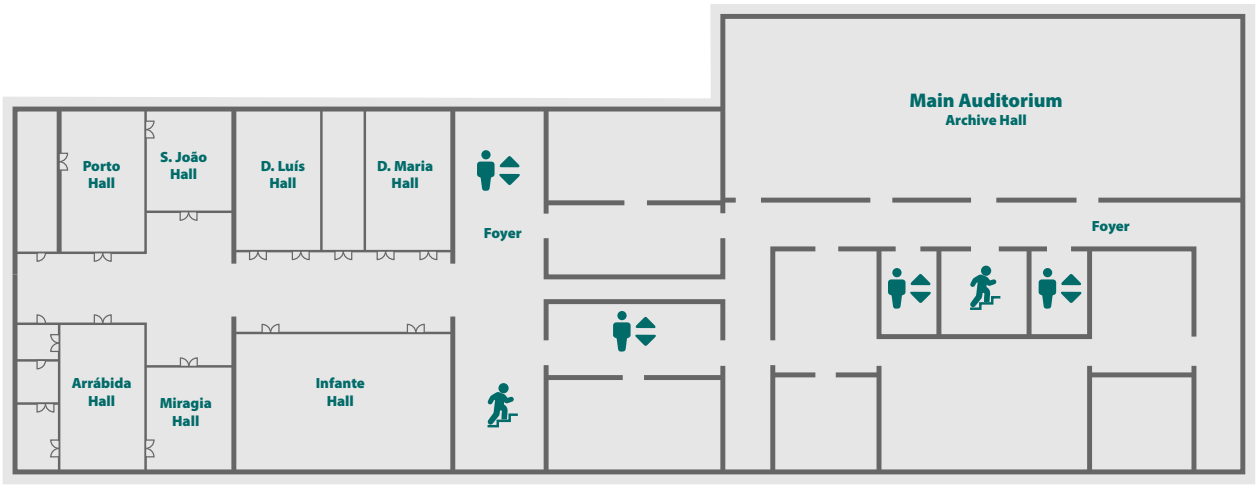
A plenary session will be provided on "how to communicate science" with an expert in the field: Prof. Joana Lobo Antunes, Universidade Nova de Lisboa. The main aim is to inspire participants to engage in science communication and increase the effectiveness of those who already work in it, encouraging them to share their experiences with others.

VENUE PLANS

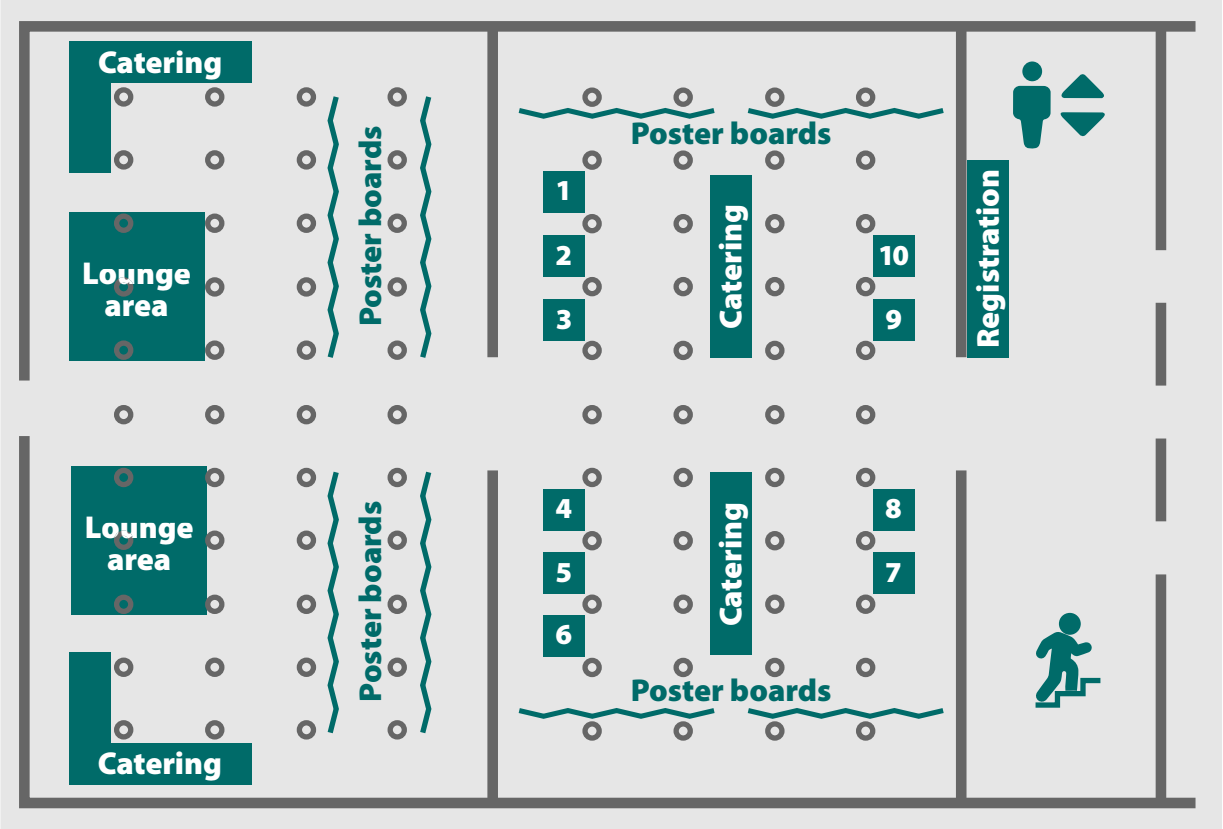
Alfandega - Ground floor



Alfandega - 2nd floor



EXHIBITION PLAN



Company	Stand #
AMTI Europe	#5
AnyBody Technology & Movella, Xsens Technologies B.V.	#1
Bertec	#10
BETA CAE Systems	#4
Biomomentum Inc.	#8
BoB Biomechanics	#3
Delsys Europe	#9
ESB Society	#6
Materialise	#2
Qualisys AB	#7

EXHIBITORS LIST

BETA CAE Systems

www.beta-cae.com

BETA is an engineering simulation solutions provider, dedicated to the development of state-of-the-art software systems. For more than 30 years, we have been developing tools and delivering services for the front runners of numerous sectors by listening to their needs and taking up even the most demanding challenges.

Bertec

www.bertec.com

Thirty years of measurement excellence. Bertec's products have represented a legacy of excellence in biomechanics for over thirty years. We provide solutions founded in accuracy and precision. Our engineering is trusted worldwide to enable a deeper understanding of human movement.

BoB Biomechanics

www.bob-biomechanics.com

BoB (Biomechanics of Bodies) is a biomechanical modelling software package combining a human muscu-loskeletal model with easy to use, intuitive interface and powerful analysis functionality resulting in quan-titative, objective information. There are four variants – BoB/Research, BoB/EMG, BoB/Ergo and BoB/Teaching making it ideal for commercial applications, academic research and teaching.

Qualisys AB

www.qualysis.com

Qualisys is a leading provider of motion capture technology and has a long history of supplying research, engineering, entertainment, and sports facilities with high-end camera systems and expertise in capturing and analyzing movements. Qualisys offers a wide range of products and services and has offices in Gothenburg, Chicago and Shanghai.

Biomomentum Inc.

www.biomomentum.com

Biomomentum manufactures and commercializes the Mach-1 mechanical tester. This all-in-one upgradable multiaxial mechanical tester is designed for compression, tension, bending, shear, friction, torsion and 3D indentation mapping of tissues and biomaterials. Unlike other micro/nanoindenters, the Mach-1 is the only tester that can automatically map the shape and mechanical properties of curved samples in 3D. The Mach-1 is used in research centers and university labs and is deemed an excellent educational tool. It has helped hundreds of scientists around the world to enhance and publish their innovative research activities. Biomomentum is also a service provider of high quality organ culture models and mechanical testing on biomaterials and tissues.

Materialise

www.materialise.com

Materialise Medical, which has pioneered many of the leading medical applications of 3D printing, enables researchers, engineers and clinicians to revolutionize innovative patient-specific treatment that helps improve and save lives. Materialise Medical's open and flexible platform of software and services, Materialise Mimics, forms the foundation of certified Medical 3D printing, in clinical as well as research environments, offering virtual planning software tools, 3D-printed anatomical models, and patient-specific surgical guides and implants. For additional information, please visit: medical.materialise.com

Delsys

www.delsyseurope.com

Delsys are committed to advancing human movement through innovative developments in electromyography (EMG) with an established foundation for unmatched signal quality, consistency and reliability.

Latest EMG innovations from Delsys include; Trigno Avanti (EMG & IMU), Trigno Quattro (4 x EMG miniheads & IMU), Trigno Galileo (EMG decomposition for dynamic contractions) and Trigno Maize (HDsEMG for Spatial Muscle Mapping)

Movella | Xsens Technologies B.V.

www.xsens.com

Our mission is to digitalize movement so that people can extract meaning and impact positive change. We provide intelligent solutions for sensing, capturing, and analyzing motion and states of being. Our products accelerate innovation and create extraordinary outcomes in entertainment, sports, health and industrial markets.

AnyBody Technology

www.anybodytech.com

AnyBody Technology is a leading provider of musculoskeletal modeling. The all-dominating area of application is the human body, but our technology applies to analysis of any creature – living, pre-historic, or imaginary.

Our base technology is the AnyBody Modeling System and the AnyBody Managed Model Repository containing a comprehensive full-body model.

AMTI Europe

www.amti.biz

Because Accuracy Matters… since over 45 years!

AMTI understands that the best quality research and testing in Orthopedics begins with the best equipment. For this reason, AMTI builds the most accurate Biomechanics Force Platforms, Instrumented Treadmills and state-of the art Joint Simulators for your Biomechanical Research.

THINGS TO DO IN PORTO

Enjoy a cruise on the Douro river close to its mouth into the Atlantic ocean. In the Ribeira area, you can purchase a ticket for an affordable rate which will take you on a beautiful cruise under the 6 Porto bridges. Enjoy the the picturesque surroundings and look for the ESB 2022 venue Alfandega which can be spotted from the boat as well! You might even get a free ticket for some Port wine tasting afterwards!

Tasting the Port wine is a must for any visitor. This sweet and fruity liquor will charm your taste buds in a way that no other liquor can. Port wine comes from only one region in the world – the Duoro valley in northern Portugal which is highly controlled and maintained to fulfill the highest standards.

There are several types of Port wine:
red, white, rosé, and an aged style called Tawny Port

One of the most important places to see when visiting Porto is definitely Ribeira. Being located on the bank of the Duoro river makes it a wonderful spot for spending an evening, while enjoying live music and traditional Portuguese cuisine. While being at the most vibrant place of Porto, you can also cross the Dom Luís I bridge and visit wine cellars on the other side in Vila Nova de Gaia!

Restaurants in Porto

Dining:
- Cantinho do Avillez – contemporary Portuguese gastronomy
- KUG Porto – garden restaurant
- Mistu – Asian and South American gastronomy
- O Comercial – in the historic Palacio da Bolsa
- Okra – pizza restaurant
- Almeja – traditional Portuguese fine restaurant

Tabernas:
- Taberna de Santo Antonio – local
- Taberna dos Mercadores – local
- Mercado Bom Successo - market place with restaurants

Wine and Tapas:
- Sagardi (Ribeira)
- Quevedo (Vila Nova de Gaia)

Where to watch the sunset in Porto
Beach bars on the Ocean:
- Brasao Salgueiros
- Praia da Luz restaurant

Student places:
- Base porto (outside place with drinks)
- Armazem (vintage bar close to Alfandega)
- Aliados area

PRACTICAL INFO

METRO

www.metrodoporto.pt
Daily > 06:00 – 01:00

Line A – Blue > Estádio do Dragão - Senhor de Matosinhos
Line B – Red > Estádio do Dragão - Póvoa de Varzim
Line C – Green > Estádio do Dragão - ISMAI
Line D – Yellow > Hospital São João - Santo Ovídio
Line E – Violet > Trindade – Aeroporto
Line F – Orange > Senhora da Hora - Fânzeres

The Andante ticket can be purchased from ticket vending machines inside Metro stations, from Andante Shops and from the Tourism Office Centre. For the occasional ticket (Z2 to Z12) depending on your route, one-hour minimum validity, and is rechargeable. Andante Tour tickets for 1 or 3 days (offer unlimited travel on buses, metro, and urban trains between Trofa and Espinho)

To get to the city centre…

…from the airport

www.ana.pt/portal/page/portal/ANA/AEROPORTO_PORTO
Metro: Line E - Trindade
Bus: Lines 601 e 602 and 3M (01:00 – 05:00)
Taxi: Approximate cost of trip > 25€ (reference value)
Car Rental: Cars may be rented at the airport

…from the Campanhã railway station

Train: S. Bento railway station (city center) - trip included in the cost of an Alfa ticket
Metro: Lines A, B, C and F.
Bus: Line 207
Taxi: Approximate cost of trip > 8€ (reference value)

…from the international bus stations

Campo 24 de Agosto
Metro: Lines A, B, C and F.
Bus: Line 300
Taxi: 4€ (reference value)
On foot: 1 km (approximate distance) - 15 minutes

ESSENTIAL

LOCATION
Southwest Europe
bathed by the Atlantic Ocean

GEOGRAPHIC COORDINATES
41.08N, 08.40W

CLIMATE
Temperate oceanic.
Average temperature
Summer, 14ºC - 30ºC / Winter, 5ºC - 14ºC

TIME ZONE
GMT/UTC + 1 hour in the summer
AREA
45 km^2

POPULATION
240.000 approximately
(Source: INE – Instituto Nacional de Estatística [Statistics Portugal])

DIALLING CODE
Portugal + 351

CURRENCY
€ (euro)

POWER SUPPLY
230/400 volts and frequency of 50 hertz.
European standard electrical sockets.

PORTO AIRPORT
Francisco Sá Carneiro,
11 km away

OPENING HOURS

BANKS
Monday to Friday > 08:30 – 15:00

SHOPS
Monday to Friday > 09:00 or 10:00 – 19:00
Some shops are open all day Saturday.

SHOPPING CENTRES
Daily > 10:00 – 23:00

RESTAURANTS
Lunch > 12:00 – 15:00
Dinner > 19:00 – 22:00

PHARMACIES
Monday to Friday > 09:00 – 19:00
Saturday > 09:00 – 13:00
Rotas for 24-hour pharmacy service displayed at all pharmacies

CONTACTS

EMERGENCY SERVICES | 112
TOURISM POLICE | +351 222 092 006
TOURISM OFFICE | +351 935 557 024
PORTO AIRPORT
FRANCISCO SÁ CARNEIRO | +351 229 432 400

POSTERS OVERVIEW

27 June 2022

PS1

ADVANCE COMPUTING FOR BIOMECHANICS

PS 1.1	483	A VORONOI-BASED HOMOGENIZATION METHOD FOR TRABECULAR MICROACHITECTURE BASED ON PATIENT-SPECIFIC MICRO-CT *Li, Zeyang*
PS 1.2	433	SIMUALTION OF CELLULAR PROLIFERATION USING THE RPIM MESHLESS METHOD *Araújo Barbosa, Maria Inês*
PS 1.3	444	BIOMECHANICAL FINITE ELEMENT METHOD MODEL OF THE PROXIMAL CARPAL ROW AND EXPERIMENTAL CHARACTERIZATION OF THE INTEROSSEOUS *Marqués, Rafael*
PS 1.4	224	A NUMERICAL APPROACH TO THE CALLUS FORMATION IN BONE FRACTURE HEALING *Naveiro, José Manuel*

AI IN BIOMECHANICS

PS 1.5	251	INTRACRANIAL ANEURYSM PREDICTIONS WITH THE USE OF MORPHOMETRIC FEATURES IN A MACHINE LEARNING APPROACH *Aristokleous, Nicolas*

ANIMAL AND PLANT BIOMECHANICS

PS 1.6	519	OVERCOMING A "FORBIDDEN PHENOTYPE": THE PARROT'S HEAD SUPPORTS, PROPELS, AND POWERS TRIPEDAL LOCOMOTION *Young, Melody W.*
PS 1.7	810	ON THE HINDLIMB BIOMECHANICS OF THE AVIAN TAKE-OFF LEAP *Meilak, Erik*
PS 1.8	704	SALBUTAMOL TRANSPORT AND DEPOSITION IN THE CAT AIRWAYS UNDER DIFFERENT BREATHING CONDITIONS AND PARTICLE SIZES *Malve, Mauro*

SPINE BIOMECHANICS

PS 1.9	332	EVALUATION OF TRUNK MUSCLE ANTAGONISM PREDICTIONS BY MULTI-BODY MODELS *Caimi, Alice*
PS 1.10	562	ASSESSMENT OF SAGITTAL BALANCE IN THE DISTAL JUNCTIONAL PATHOLOGY IN THE LUMBAR SPINE: A RETROSPECTIVE ANALYSIS *Montanari, Sara*
PS 1.11	283	THE INFLUENCE OF THE GRADE OF DISC DEGENERATION ON THE BIOMECHANICAL RESPONSE OF LUMBAR SPINE *Khalaf, Kinda*

TISSUE ENGINEERING

PS 1.12	370	RECREATING ARTICULAR CARTILAGE'S ZONAL FIBRE ALIGNMENT ON 3D ELECTROSPUN SCAFFOLDS *Semitela, Angela*
PS 1.13	743	BIOMECHANICAL CHARACTERIZATION OF TPMS SCAFFOLDS FOR BONE AND CARTILAGE TISSUE ENGINEERING *Santos, Jorge E.*
PS 1.14	938	DESIGN AND EXPERIMENTAL STUDY OF TORSIONAL WAVE BIOREACTOR TO EVALUATE EFFECT ON MELANOMA STEM CELL *Hurtado, Manuel*

PS2

BIOMATERIALS

PS2.1	357	HYBRID MEMBRANE AS INNOVATIVE MATERIALS FOR BIOMEDICAL APPLICATIONS *Todesco, Martina*
PS2.2	911	A BIOINSPIRED ORTHOPAEDIC BIOMATERIAL WITH TUNABLE MECHANICAL PROPERTIES BASED ON SINTERED TITANIUM FIBRES *Seitz, Andreas*
PS2.3	176	EFFECTS OF POLOXAMER ADDITIVES ON STRENGTH, INJECTABILITY OF BETA-TRICALCIUM PHOSPHATE CEMENT *Kim, Yeeun*
PS2.4	767	GELATIN/CELLULOSE NANOFIBRIL COMPOSITE: A PROMISING FORMULATION FOR INJECTION AND BIOPRINTING PURPOSES *Mongeau, Luc*
PS2.5	946	EFFECT OF CONDUCTION GAPS AND INCREASED COLLECTOR ROTATION SPEED ON ELECTROSPUN PCL MATRICES *Bissacco, Elisa G*
PS2.6	499	BIOLOGICAL AND MECHANICAL PROPERTIES OF AN EXPERMINTAL DENTAL ALGINATE MODIFIED FOR SELF DISINFECTION *Singer, Lamia*
PS2.7	244	PRELIMINARY APPROACH OF AN ALTERNATIVE SOLUTION FOR THE BREAST IMPLANT SHELL *Teixeira, Ana Margarida*

BIOMECHANICS OF MOVEMENT AND POSTURE

PS2.8	776	EVALUATION OF MARKER-BASED MOTION CAPTURING TO CHARACTERIZE BASIC HAND MOVEMENTS IN RHEUMATIC PATIENTS ***Coppers, Birte Luise***
PS2.9	885	QUANTIFICATION OF POST-OPERATIVE CORRECTION OF FOOT POSTURE THROUGH NEW ANATOMICAL REFERENCE SYSTEMS ***Conconi, Michele***
PS2.10	915	THE KINEMATICS OF THE FOOT DURING DROP JUMPS: A SIX-SEGMENT FOOD MODEL APPROACH ***Fennen, Lena***
PS2.11	165	TIGHTLY COUPLED INERTIAL AND RADIO-BASED FOOT-WORN SENSORS FOR AMBULATORY SPATIAL GAIT ANALYSIS ***Wouda, Frank Jasper***
PS2.12	181	EFFECTS OF HANDLE-HEIGHT ON GAIT KINETICS IN OLDER ADULTS WHILE WALKING WITH A ROLLATOR ***Avalos, Marco A***
PS2.13	243	EFFECT OF SENSOMOTORIC INSOLES ON POSTURAL STABILITYINKIDS WITH CEREBRAL PALSY ***Bartošová, Simona***

PS3

BIOMEDICAL IMAGING

PS3.1	506	ULTRASOUND IMAGING OF BONE CORTEX: BEAMFORMING OPTIMIZATION FOR OSTEOPOROTIC BONES ***Grimal, Quentin***

CARDIOVASCULAR BIOMECHANICS

PS3.2	150	ESTIMATION OF WALL VISCOELASTIC PARAMETERS FROM THE PRESSURE AND DIAMETER CURVE OF A CAROTID ARTERY ***Rhee, Kyehan***
PS3.3	199	USING HYPER- OR LINEAR- PROPERTIES DOES NOT AFFECT PREDICTIVE CAPABILITY OF VULNERABLE CORONARY PLAQUES ***Stefanati, Marco***
PS3.4	563	ANALYSIS OF THE INFLUENCE OF PLAQUES COMPOSITION AND GEOMETRY ON DRUG TRANSPORT FROM DRUG ELUTING STENTS ***Martínez, Miguel A.***
PS3.5	629	NUMERICAL STUDY OF NON-NEWTONIAN EFFECTS ON THROMBUS FORMATION UNDER VENOUS FLOW CONDITIONS ***Dušková, Veronika***
PS3.6	794	THE EFFECT OF TISSUE PRESERVATION ON THE MECHANICAL BEHAVIOR OF PORCINE AORTA ***Fehervary, Heleen***
PS3.7	847	NUMERICAL ANALYSIS OF THE HEMODYNAMICS AND PERFORMANCE OF A MINIATURE VENTRICULAR ASSIST DEVICE ***Gabso, Yuval***

CELLULAR AND MOLECULAR BIOMECHANICS / MECHANOBIOLOGY

PS3.8	657	CHANGES IN NUCLEAR MORPHOLOGY CORRELATE WITH INVASIVENESS IN BREAST CANCER CELLS ***Zbiral, Barbara***
PS3.9	458	CULTURE OF PORCINE BONE EXPLANTS UNDER COMPRESSIVE LOADING ***Cramer, Esther Elisabeth Agnes***
PS3.10	996	COMPUTATIONAL MODELING REVEALS ROLE OF PROXIMITY-DRIVEN, NONCONTACT CELL-CELL INTERACTIONS IN CANCER INVASIVENESS ***Weihs, Daphne***
PS3.11	412	CELL'S SENSE OF SLOPE ***Frascogna, Crescenzo***
PS3.12	449	MICROFLUIDIC PLATFORM TO STUDY THE ROLE OF DYNAMIC MECHANICAL LOADING ON CELL FATE AND BEHAVIOR ***Saporito, Stefania***
PS3.13	492	LARGE-SCALE QUANTIFICATION OF OSTEOCYTE MORPHOMETRY AND PROTEIN EXPRESSION FROM MURINE BONE HISTOLOGY ***Correia Marques, Francisco***

PS4

CARDIOVASCULAR BIOMECHANICS

PS4.1	510	MECHANICAL ASPECTS OF DRUG-COATED BALLOON ANGIOPLASTY DETERMINING THE EFFICIENCY OF THE COATING TRANSFER ***Stratakos, Efstathios***

CLINICAL AND TRANSLATIONAL BIOMECHANICS / IN SILICO TRIALS

PS4.2	299	PROXIMAL FEMUR BONE MINERAL DENSITY IN OSTEOPOROTIC PATIENTS: A REVIEW OF PLACEBO GROUPS IN CLINICAL TRIALS ***Oliviero, Sara***

COMPUTATIONAL BIOLOGY

PS4.3	387	GROWTH ORIENTATION, AND NOT HETEROGENEOUS GROWTH RATES, DOMINATES ZEBRAFISH JAW JOINT MORPHOGENESIS ***Godivier, Josepha***
PS4.4	669	NETWORK MODELLING FOR NUCLEUS PULPOSUS CELL ACTIVITY IN EARLY INTERVERTEBRAL DISC DEGENERATION ***Tseranidou, Sofia***
PS4.5	989	PLANTAR PRESSURE DATA RECONSTRUCTION BASED ON REDUCED DATA USING COMPRESSIVE SENSING TECHNIQUE ***Kamal, Zeynab***

COMPUTER AIDED DIAGNOSIS, PLANNING, AND SURGERY

PS4.6	722	COMPARISON BETWEEN TRANSTIBIAL AND ANTEROMEDIAL PORTAL ACL RECONSTRUCTION THROUGH FINITE ELEMENT ANALYSIS *Risvas, Konstantinos*
PS4.7	778	NON-INVASIVE METHOD OF FRACTIONAL FLOW RESERVE ESTIMATION IN PATIENTS SUFFERING FROM ISCHEMIC HEART *Jankowski, Krzysztof*

DENTAL BIOMECHANICS

PS4.8	175	THE INFLUENCE OF THE IMPLANT GEOMETRY CONCEPTS IN BONE STRAINS DISTRIBUTION *Ramos, António*

ERGONOMICS / OCCUPATIONAL BIOMECHANICS / REHABILITATION

PS4.9	409	PRECISION REHABILITATION: TARGETED ASSISTANCE OF INDIVIDUAL MUSCLES VIA EXOSKELETONS *Durandau, Guillaume*

EXPERIMENTAL BIOMECHANICS (OTHERS)

PS4.10	782	IN VITRO OVINE MODEL CONFIRMS IMPORTANCE OF SCREW POSITIONING FOR STABILITY OF BONE-FRACTURE TREATMENT *Comtesse, Simon*
PS4.11	943	DEVELOPMENT AND VALIDATION OF CUSTOM-MADE MARKER SETS FOR MICRO-MOVEMENT ANALYSIS *Seitz, Andreas*

SPINE BIOMECHANICS

PS4.12	712	AN INVERSE DYNAMIC ACTIVE HYBRID MODEL TO PREDICT EFFECTS OF THE INTRA-ABDOMINAL PRESSURE ON THE LUMBAR SPINE *Remus, Robin*
PS4.13	814	FORWARD DYNAMIC SIMULATION OF A DETAILED THORACOLUMBAR SPINE MODEL UNDER GRAVITATIONAL LOAD *Hammer, Maria*
PS4.14	886	VERTEBRAL BODY TETHERING VS SPINAL FUSION: LOOKING BEYOND THE RADIOGRAPHICAL OUTCOME *Ackermans, Thijs*

PS5

HARD TISSUE BIOMECHANICS

PS5.1	670	ASSESSING BONE ULTRASTRUCTURE VIA NANOSCALE X-RAY COMPUTED TOMOGRAPHY AND QUANTITATIVE POLARIZED RAMAN SPECTROSCOPY *Kochetkova, Tatiana*
PS5.2	522	THE EFFECT OF MICROSTRUCTURAL ANISOTROPY ON LOAD-BEARING CAPACITY OF THE ENTIRE HUMAN FEMUR *Martelli, Saulo*
PS5.3	637	INTERNAL STRAIN FIELD OF A HUMAN TIBIA WITH TITANIUM TIBIAL TRAY DURING STAIR DESCENT: A MICRO-CT AND DVC ANALYSIS *Wearne, Lauren S*
PS5.4	875	UNDERSTANDING BONE MATURITY: PROPERTIES AT THE INTERSTITIAL AND OSTEONAL LAMELLAR LEVEL *Zioupos, Peter*
PS5.5	179	GRAFT POSITIONING DURING THE LATARJET PROCEDURE: COMPUTATIONAL ANALYSIS OF SHOULDER STABILITY AND CONTACT *Quental, Carlos*

IMPACT / INJURY BIOMECHANICS

PS5.6	212	EFFICACY OF KARTING NECK BRACES IN REDUCING NECK INJURIES IN ROLLOVER ACCIDENTS: A FINITE ELEMENT STUDY *Wei, Wei*
PS5.7	557	BIOMECHANICAL ANALYSIS OF THE CORRELATION BETWEEN MID-SHAFT ATYPICAL FEMORAL FRACTURE AND VARUS DEFORMATION *Severyns, Mathieu*
PS5.8	525	COMPARISON OF THE LOWER EXTREMITY DYNAMICS OF THE ELDERLY FEMALE, HIII 50TH MALE AND HIII 5TH FEMALE DUMMIES *Schäuble, Andreas*

IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES

PS5.9	619	NUMERICAL SIMULATION OF STRESS-SHIELDING AT THE BONE-IMPLANT INTERFACE UNDER SHEAR LOADING *Elsa*
PS5.10	174	LOW-PROFILE DUAL MINI-FRAGMENT PLATING OF DIAPHYSEAL CLAVICLE FRACTURES. A BIOMECHANICAL STUDY *Ciric, Daniel*
PS5.11	242	BIOMECHANICAL ANALYSIS OF SEVERAL HINGED TKA FEATURES IN WELL-ALIGNED AND VALGUS/VALGUS KNEE *Bori, Edoardo*
PS5.12	154	INTRAMEDULLARY NAILS VS. BONE PLATE AT THE PROXIMAL HUMERUS - COMPUTERSIMULATION *Lehner, Stefan*

SPORT BIOMECHANICS

PS5.13	935	FORCE AND SWIMMING PERFORMANCE: POOL AND OPEN WATER *Chainok, Phornpot*
PS5.14	745	BIOMECHANICAL ANALYSIS OF RUNNING AND ASSOCIATED INJURES BASED ON A LITERATURE REVIEW *Parra Gómez, Laura Daniela*

PS6

MUSCOLOSKELETAL BIOMECHANICS

PS6.1	177	MUSCULOSKELETAL ANALYSIS OF ELBOW STABILITY FOR COMMON INJURY PATTERNS *Melzner, Maximilian*
PS6.2	857	FEASIBILITY STUDY TO TRANSFER MUSKULOSKELETAL MODEL DATA TO A 6 DOF JOINT SIMULATOR *Henke, Paul*
PS6.3	866	EFFECT OF CORACOACROMIAL LIGAMENT RELEASE IN SHOULDER BIOMECHANICS: A PRELIMINARY IN-VITRO STUDY *Santos, Ines*
PS6.4	918	IMPLEMENTATION OF AN AUTOMATED METHOD FOR THE SELECTION OF SUBJECT-SPECIFIC MUSCLE INSERTION POINTS *Maioli, Vera*

NEUROMUSCULAR CONTROL

PS6.5	601	A PIPELINE TO CONVERT OPENSIM MUSCULOSKELETAL MODELS INTO MUJOCO PRESERVING ANATOMICAL CONSISTENCY *Wang, Huawei*

OCULAR BIOMECHANICS

PS6.6	263	MODELLING THE EYE LENS: INFLUENCE OF CAPSULAR THICKNESS ON LENS ACCOMMODATION *Ye, Lin*
PS6.7	904	CHARACTERIZATION OF CORNEAL VISCOSITY USING TORSIONAL WAVES *Cortés Cortés, José Manuel*
PS6.8	258	BIOMECHANICAL CHARACTERIZATION AND MODELING OF HUMAN LENTICULES *Nambiar, Malavika Harikrishnan*

REPRODUCTIVE BIOMECHANICS

PS6.9	221	A MESHLESS METHOD TO STUDY THE EFFECT OF VEGF DIFFUSION IN CAPILLARY NETWORK MORPHOLOGY *Guerra, Ana*

ROBOTS AND BIOMECHANICS

PS6.10	518	UNUSUAL PHALANGEAL PROPORTIONS IMPROVE GRASPING POTENTIAL IN BIRDS, MAMMALS, AND BIOINSPIRED DESIGN *Granatosky, Michael*

SOFT TISSUE BIOMECHANICS

PS6.11	922	DESIGN AND EXPERIMENTAL STUDY OF ULTRASONIC WAVE BIOREACTOR TO EVALUATE EFFECT ON TUMORS *Hurtado, Manuel*
PS6.12	507	NUMERICAL AND EXPERIMENTAL EVALAUTION OF THE BULGE TEST IN THE CHARACTERISATION OF THE BIOLOGICAL SOFT TISSUES *Gasparotti, Emanuele*
PS6.13	295	ADAPTIVE QUASI-LINEAR MODEL – UNIVERSAL MATERIAL PARAMETERS OF LIVER TISSUE FOR DIFFERENT LOAD CASES? *J. Aryeetey, Othniel*

28 June 2022

PS10

CARDIOVASCULAR BIOMECHANICS

PS10.1	701	2D FLUID-STRUCTURE INTERACTION MODELING OF THE LEFT ATRIUM – IMPACT OF MITRAL VALVE STIFFENING *Meskin, Masoud*
PS10.2	756	AN IMPEDANCE PUMP FOR ASSISTING FAILING FONTAN CIRCULATION *Anatol, Joaquín*
PS10.3	187	HEMODYNAMICS OF AN IDEALIZED MECHANICAL HEART VALVE – PREDICTIONS BY FVM AND SPH *Laha, Sumanta*
PS10.4	441	PATIENT-SPECIFIC SIMULATION AIMED AT EVALUATION OF THE NEOINTIMA GROWTH EFFECT ON ANASTOMOSIS HEMODYNAMICS *Ivanova, Yana*
PS10.5	529	THE EFFECT OF STENT GRAFT CURVATURE ON MIGRATION RISK IN ABDOMINAL AORTIC ANEURYSM ENDOVASCULAR REPAIR *Brand, Moshe*

HARD TISSUE BIOMECHANICS

PS10.6	373	CHARACTERISATION OF THE SPECIFIC GEOMETRIC ANISOTROPY OF TRABECULAR PLATES AND RODS *Rogalski, Nicolas*
PS10.7	480	A PK-PD MODEL OF ALENDRONATE FOR THE TREATMENT OF POSTMENOPAUSAL OSTEOPOROSIS *Ruiz-Lozano, Rocío*
PS10.8	503	POROSITY AND MATRIX MINERAL CONTENT DETERMINE THE VARIATION OF COMPRESSION STRENGTH OF CORTICAL BONE FROM ELDERLY DONORS *Grimal, Quentin*
PS10.9	624	HYDROXYAPATITE CRYSTAL THICKNESS AND ORIENTATION AT THE BONE IMPLANT INTERFACE: SPATIAL AND TEMPORAL EVOLUTIONS *Le Cann, Sophie*

PS10.10	862	CONCURRENT IMAGING AND DIFFRACTION OF TRABECULAR BONE CONSTRUCTS WITH IN SITU SCANNING AND COMPRESSION *Gupta, Himadri Shikhar*
PS10.11	978	A COARSE GRAINED MODEL OF MINERALISED COLLAGEN FIBRIL BIOMECHANICS: UNDERSTANDING THE ROLE EXTRAFIBRILLAR MINERALIZATION *Tavakol, Mehdi*
PS10.12	211	EPIPHYSEAL BONE HEALING WITHIN CONTINUUM BONE REMODELING *Schmidt, Ina*
PS10.13	268	BONE REMODELLING ALGORITHM. A VOXEL BASED APPROACH *Roces García, Jorge*
PS10.14	400	PRELIMINARY INVERSE ANALYSIS FOR CRACK PROPAGATION MECHANICAL PARAMETERS ON LONG HUMAN CORTICAL BONE *Kurtz, Théophile*
PS10.15	479	A BONE CELL POPULATION MODEL DESCRIBING INTERMITTENT ACTIVATION OF BMUS BASED ON CELL AVAILABILITY *Calvo-Gallego, José Luis*

PS11

3D PRINTING IN BIOMEDICINE

PS11.1	742	DEVELOPMENT AND CHARACTERIZATION OF 3D PRINTED BONE SUBSTITUTES MIMICKING TRABECULAR BONE ARCHITECTURE *Leborgne, Fanny*

IMPACT / INJURY BIOMECHANICS

PS11.2	315	APPLICATION OF MARKERLESS POSE ESTIMATION TO RUGBY COLLISION TRACKING *Simms, Ciaran*
PS11.3	381	EVALUATION OF FINITE ELEMENT HEAD MODELS USING 3D PRINTED SURROGATE - PRELIMINARY CONTROL OF BOUNDARY CONDITIONS *Jonca, François*

IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES

PS11.4	532	POSTERIOR CRUCIATE LIGAMENT TENSION AND TIBIAL COMPONENT MALROTATION IN TOTAL KNEE REPLACEMENT *Sass, Jan-Oliver*
PS11.5	695	BIOMECHANICAL ANALYSIS OF SURGICAL ALIGNMENT AND DESIGN IN TOTAL KNEE ARTHROPLASTY *Innocenti, Bernardo*
PS11.6	696	ASSESSING THE FIRST RESONANCE FREQUENCY OF SCREWS IN BONE BLOCKS FOR ESTIMATION OF SCREW FIXATION *Timmermans, Maikel*
PS11.7	201	A COMPUTATIONAL METHODOLOGY FOR THE INVESTIGATION AND COMPARISON OF THE ASSEMBLY EFFECTIVENESS DURING TOTAL HIP ARTHROPLASTY *Messellek, Ali Cherif*
PS11.8	226	ON MEASURING IMPLANT FIXATION STABILITY IN ACL RECONSTRUCTION *Varga, Peter*
PS11.9	425	COMPUTATIONAL TOOLS FOR BIO-COMPATIBLE GYROID FOAMS *Pais, Ana*
PS11.10	621	TOPOLOGY OPTIMIZATION OF A UNIVERSAL ARTIFICIAL TALUS IMPLANT *El-Rich, Marwan*

SPINE BIOMECHANICS

PS11.11	951	DEVELOPMENT OF A FULLY-PARAMETRIC THORACOLUMBAR SPINE MODEL AND CALIBRATION OF T6-T7-R7 FSU *La Barbera, Luigi*

SPORT BIOMECHANICS

PS11.12	983	VECTOR CODING ASSESSMENT OF LOWER LIMB JOINT ANGULAR COORDINATION ON LONG, SHORT AND NO COUNTERMOVEMENT *Rodrigues, Carlos*

TISSUE ENGINEERING

PS11.13	793	POROUS GEOMETRY OF TISSUE ENGINEERING SCAFFOLD INFLUENCES ITS INTERNAL MICROFLUIDIC ENVIRONMENT *Bedding, Matthew Joshua Ashley*

IMPACT / INJURY BIOMECHANICS

PS11.14	760	PREDICTIVE SIMULATION OF SINGLE-LEG LANDING SCENARIOS FOR ACL INJURY RISK FACTORS EVALUATION *Risvas, Konstantinos*

PS12

OCULAR BIOMECHANICS

PS12.1	273	HOW REFRACTIVE POWER OF THE EYE MAY EFFECT THE CHANGE OF FOCUS *Debowy, Fabian Krzysztof*
PS12.2	346	EFFECTS OF CORNEAL PRESERVATION ON THE MECHANICAL PROPERTIES OF PORCINE CORNEAS *Büchler, Philippe*
PS12.3	392	ANALYSIS OF THE CILIARY MUSCLE MOVEMENT DURING ACCOMMODATION USING ARTIFICIAL INTELLIGENCE *Cabeza Gil, Iulen*

PATIENT-SPECIFIC MODELLING

PS12.4	771	COMPUTATIONAL METHOD FOR EVALUATING FRACTURE-FIXATION STABILITY OF COMPLEX BONE FRACTURES ***Comtesse, Simon***
PS12.5	783	SIMULATING THE IMPACT OF DIABETIC FOOT INSOLES: A FINITE ELEMENT ANALYSIS ***Sawacha, Zimi***
PS12.6	290	UNCERTAINTIES QUANTIFICATION ON ARTERIES RECONSTRUCTED FOR CORONARY STENT DEPLOYMENT SIMULATIONS ***Antonini, Luca***
PS12.7	475	BIOMECHANICAL MODELING OF THE ANOMALOUS AORTIC ORIGIN OF THE CORONARY ARTERY ***Ceserani, Valentina***
PS12.8	495	AN ULTRASOUND-BASED MODELING FRAMEWORK FOR THE ASSESSMENT OF PERIPHERAL ARTERIAL DISEASE ***Gillissen, Milan***

SOFT TISSUE BIOMECHANICS

PS12.9	735	EXPERIMENTAL PROCEDURE AND FINITE ELEMENT ANALYSIS TO MAP MECHANICAL CONSTITUTIVE PARAMETERS OF ARTIFICIAL MENISCUS ***Marchiori, Gregorio***
PS12.10	878	EX-VIVO HUMAN TONGUE MUSCLE MECHANICAL CHARACTERIZATION ***Nazari, Mohammad Ali***
PS12.11	908	FINITE ELEMENT MODELING OF THE COUPLING BETWEEN THE EARCANAL AND THE TEMPOROMANDIBULAR JOINT ***Demuynck, Michel***
PS12.12	628	TRACHEOBRONCHIAL MATERIALS COMPUTATIONAL DEFINITION ***Ruben, Rui B.***
PS12.13	656	HIS ANGLE, FOOD VISCOSITY AND LSG: HOW THEY AFFECT GASTROESOPHAGEAL REFLUX. A FLUID-STRUCTURE STUDY ***Toniolo, Ilaria***

PS7

ADVANCE COMPUTING FOR BIOMECHANICS

PS7.1	331	NUMERICAL MODELLING OF THE BREAST RECONSTRUCTION USING SILICONE GEL-FILLED IMPLANTS ***Martins, Pedro***

BIOMATERIALS

PS7.2	753	TEMPORAL DESIGN FOR ADDITIVE MANUFACTURING AND ITS POTENTIAL FOR TUNING THE SURFACE ROUGHNESS ***Mahmoodi, Nasim***

BIOMECHANICS OF AGEING

PS7.3	848	A PRELIMINARY STUDY FOR THE ASSESSMENT OF A COMPLEMENTARY THERAPY IN PARKINSON'S DISEASE ***Pegolo, Elena***

BIOMECHANICS OF MOVEMENT AND POSTURE

PS7.4	453	THE EFFECT OF THE OF RUNNING-INDUCED FATIGUE ON THE SYMMETRY OF KINEMATICS AND KINETIC VARIABLES OF KNEE JOINTS IN A COUNTERMOVEMENT JUMP ***Gao, Zixiang***
PS7.5	666	EFFECT OF ACL RECONSTRUCTION ON THE MUSCLE ACTIVITY OF THE KNEE DURING SELECTED ACTIVITIES ***Zalewska, Paulina***
PS7.6	766	A NEW METHOD FOR DETERMINING THE KNEE AXIS OF ROTATION FOR MOTION CAPTURE ***O'Regan, Eimear Bernadette***
PS7.7	773	DYNAMIC ANALYSIS OF GAIT MOTION IN OSTEOARTHRITIC WOMEN ***Tassani, S.***
PS7.8	785	RECORDING WRIST CIRCUMDUCTION WITH DIFFERENT SENSORS FOR CLINICAL ASSESSMENT ***Vergara, Margarita***
PS7.9	905	MOTOR CONTROL IN A POPULATION OF YOUNG SUBJECTS WITH IDIOPATHIC SCOLIOSIS: THE MOTOR-CHILD STUDY ***Stagni, Rita***
PS7.10	157	DETECTING A NEW CATEGORY OF FLEXION CONTRACTURE PATIENTS IN TOTAL HIP ARTHROPLASTY ***Vergari, Claudio***
PS7.11	188	WEIGHT-BEARING SYMMETRY IN HEALTHY AND ACTIVE WORKERS: AN OCCUPATIONAL STUDY WITH INSTRUMENTED INSOLES ***Alves, Sónia A.***
PS7.12	334	HAND POSTURE AND FOREARM MUSCLE ACTIVITY DURING REACHING AND TRANSPORTATION TASKS: EFFECT OF PRODUCT WEIGHT AND TASK HEIGHT ***Jarque-Bou, Néstor J.***
PS7.13	455	MIMU KINEMATICS FOR MONITORING RECOVERY FROM ANKLE FRACTURE ***Mattila, Olli-Pekka***

PS8

BIOMEDICAL IMAGING

PS8.1	311	INFANT GASTROCNEMIUS GROWTH IN THE FIRST TWO YEARS OF LIFE *Florez, Ricardo*
PS8.2	631	IMAGE-BASED CHARACTERIZATION OF LARGE VESSELS INTEGRATING IN-VITRO AND IN-SILICO METHODS *Fanni, Benigno Marco*
PS8.3	641	CRANIAL BONE MICROARCHITECTURE IN A MOUSE MODEL FOR SYNDROMIC CRANIOSYNOSTOSIS *Hut, Julia Elizabeth*
PS8.4	944	IMAGE-BASED IN-VIVO ESTIMATION OF AORTIC LOCAL STIFFNESS AND HEMODYNAMICS *Vignali, Emanuele*
PS8.5	247	IMPLEMENTATION OF A WAVELET-BASED PROCESSING METHOD ADAPTED TO DIFFRACTION ULTRASOUND COMPUTED TOMOGRAPHY OF BONE TISSUES *Lasagyues, Philippe*

MUSCOLOSKELETAL BIOMECHANICS

PS8.6	349	REPRODUCIBILITY OF MUSCLE FORCES ESTIMATION DURING POST-STROKE GAIT USING OPENSIM *Giarmatzis, Georgios*
PS8.7	404	COMPARING CALCULATED AND MEASURED MUSCLE ACTIVITY OF THIGH MUSCLES IN DYNAMIC MOTION *Auer, Simon*
PS8.8	748	VALIDATION OF REMOTE METHODS FOR MEASURING FOOT ARCH HEIGHT AND SHAPE *Uhan, Jerneja*
PS8.9	854	FINITE ELEMENT MANDIBLE MODEL OPTIMIZATION FOR LARGE MANDIBULAR DEFECT REGENERATION *Parente, Marco*
PS8.10	914	TOWARDS THE MEASUREMENT OF ELBOW JOINT FORCES IN MAN: A FINITE ELEMENT STUDY *Basiouny, Marim*
PS8.11	402	A NOVEL METHOD FOR ARTIFICIAL INTELLIGENCE BASED GROUND REACTION FORCE MEASUREMENT FROM VIDEO *Templin, Tylan*
PS8.12	472	HOW DO THE MUSCULOSKELETAL MODELING PARAMETERS AFFECT THE ESTIMATION OF THE TIBIOFEMORAL CONTACT FORCES? *Bernardes, Williane*
PS8.13	599	PRIMITIVE-DRIVEN MUSCULOSKELETAL MODELLING OF HUMAN LOCOMOTION: TOWARDS MODEL-BASED CONTROL OF BIONIC LEGS *Damonte, Federica*
PS8.14	614	EXPERIMENTAL AND NUMERICAL CHARACTERIZATION OF THE ACTIVE BEHAVIOUR OF MOUSE ROTATOR CUFF MUSCLES *Martins, Pedro*

PS9

CELLULAR AND MOLECULAR BIOMECHANICS / MECHANOBIOLOGY

PS9.1	347	MECHANOBIOLOGICAL COMPUTER MODELING OF MANDIBULAR FRACTURE HEALING *Orassi, Vincenzo*
PS9.2	351	DESIGN AND CHARACTERIZATION OF A FLEXIBLE SUBSTRATE FOR CULTURING ADHERENT CELLS UNDER DEFINED UNIAXIAL STRETCH *Putame, Giovanni*
PS9.3	586	BIOMECHANICAL MODEL REPRODUCING THE ACTIVE RESPONSE OF A CARDIAC SARCOMERE *Peyroteo, Madalena*

CLINICAL AND TRANSLATIONAL BIOMECHANICS / IN SILICO TRIALS

PS9.4	618	ANALYZING MECHANICAL CIRCULATORY SUPPORT IN PATIENTS WITH SINGLE VENTRICLE PHYSIOLOGY USING A MULTISCALE MODEL *Yuan, Victoria*
PS9.5	622	INFLUENCE OF TRANSURETHRAL CATHETERS ON URODYNAMICS MEASUREMENTS IN MALE: A COMPUTATIONAL STUDY *Mascolini, Maria Vittoria*
PS9.6	636	EDGE LOADING TESTING OF HIP REPLACEMENTS: TECHNIQUES FOR EFFICIENT AND ACCURATE MODELLING *Etchels, Lee William*
PS9.7	655	LATERAL MENISCUS ANTERIOR ROOT AVULSION INCREASES CONTACT PRESSURES: A FINITE ELEMENT STUDY *Peña-Trabalón, Alejandro*

COMPUTATIONAL BIOLOGY

PS9.8	337	EXPLOITING CELL MODULARITY TO CREATE REPURPOSABLE DIGITAL TWINS *Manifacier, Ian*

ERGONOMICS / OCCUPATIONAL BIOMECHANICS / REHABILITATION

PS9.9	838	BALANCE RECOVERY PREDICTION UNDER THE INFLUCENCE OF DIFFERENT ACTUATION MODELS *Harant, Monika*
PS9.10	964	ASSESSING INTUITIVE DESIGN OF ASSISTIVE DEVICES TO IMPROVE HUMAN BIOMECHANICAL DEFICIENCIES: AN EYE-TRACKER STUDY *Vergara, Margarita*

EXPERIMENTAL BIOMECHANICS (OTHERS)

PS9.11	363	DESIGN OF AN IN VIVO BIOMECHANICAL CHARACTERISATION DEVICE FOR UNRUPTURED INTRACRANIAL ANEURYSMS: CALIBRATION STUDY ON PHANTOM ARTERIES *Plet, Guillaume*

NEUROMUSCULAR CONTROL

PS9.12	533	HUMAN BRAIN AND MUSCLE ACTIVITIES COUPLING DURING ISOKINETIC CONTRACTIONS WITH INCREMENTAL MOTOR OUTPUT *Glories, Dorian*

CELLULAR AND MOLECULAR BIOMECHANICS / MECHANOBIOLOGY

PS9.13	570	DYSREGULATED ENERGY PRODUCTION IMPACT THE OUTCOME OF SCAFFOLD-GUIDED BONE REGENERATION IN TYPE 2 DIABETES *Bastos Dias, Daniela Sofia*

29 June 2022

PS13

3D PRINTING IN BIOMEDICINE

PS13.1	589	3D-PRINTER ENABLING CUSTOMIZED ANATOMIC MODELS *Jaksa, Laszlo*

BIOMECHANICS OF MOVEMENT AND POSTURE

PS13.10	685	CALIBRATION WAND DESIGN FOR MOTION ANALYSIS *Rácz, Kristóf*
PS13.11	941	PARROTS ACHIEVE GREATER MECHANICAL EFFICIENCY ON ARBOREAL SUBSTRATES *Young, Melody W.*
PS13.12	169	MUSCULOSKELETAL SOFTWARE FOR TEACHING BIOMECHANICS AT UNDERGRADUATE AND MASTERS LEVEL *Shippen, James*

BIOMEDICAL IMAGING

PS13.13	770	COLOR-DOPPLER BASED HEMODYNAMICS OF AORTIC PHANTOMS ANTONUCCIO, MARIA NICOLE
PS13.14	746	RELIABILITY ANALYSIS OF MAGNETIC RESONANCE MEASUREMENTS OF FATTY INFILTRATION IN ADULTS WITH SPINAL DEFORMITIES *Beaucage-Gauvreau, Erica*

ADVANCE COMPUTING FOR BIOMECHANICS

PS13.2	537	A VIRTUAL LABORATORY FOR THE DETERMINATION OF MINIMAL FUSION AREAS IN TIBIA PSEUDARTHROSIS *Roland, Michael*

BIOMATERIALS

PS13.3	865	DEVELOPMENT OF SOL-GEL TIO2/HYDROXYAPATITE COMPOSITE OSTEOINDUCTIVE COATINGS *Rodrigues, José*
PS13.4	578	LOW-COST METHODOLOGY FOR PVA PHANTOM MANUFACTURING AS SOFT TISSUE SIMULANT *Miguélez Garrido, Beatriz*
PS13.5	322	CORROSION RESISTANCE OF THE GRADE 2 TITANIUM AFTER THERMOPLASTIC DEFORMATION *Bańczerowski, Jakub*
PS13.6	665	DEVELOPMENT AND MODELLING OF FUNCTIONALLY GRADED BIOINSPIRED HIP IMPLANT IN REDUCING STRESS SHIELDING *Chaozong, Liu*

BIOMECHANICS OF MOVEMENT AND POSTURE

PS13.7	777	DESIGN, DEVELOPMENT, AND TESTING OF A NOVEL WEARABLE DEVICE FOR REHABILITATION AFTER ANKLE SPRAIN *Breitman, Nitzan*
PS13.8	759	EFFECTS OF BREATHING ON SPINE POSTURE AND STABILITY *Tassani, S.*
PS13.9	265	MECHANICAL BEHAVIORS OF THE SACROILIAC JOINT *Kwak, Dai-Soon*

ADVANCE COMPUTING FOR BIOMECHANICS

PS13.15	198	GENERATIVE DESIGN OF ORTHOSIS FOR PATIENTS WITH DEGENERATIVE SCOLIOSIS *Landinez Leon, David Felipe*

PS14

CARDIOVASCULAR BIOMECHANICS

PS14.1	910	FLUID-STRUCTURE INTERACTION ANALYSES OF BLOOD FLOWS IN LARGE ARTERIES *Jodko, Daniel*

CELLULAR AND MOLECULAR BIOMECHANICS / MECHANOBIOLOGY

PS14.10	250	ACOUSTIC LENS DESIGN FOR IN-VITRO CELL STIMULATION: A NUMERICAL STUDY *Doveri, Elise*
PS14.11	755	COMPUTATIONAL MODELLING OF CELL RESPONSE TO VARIOUS MECHANICAL STIMULI *Orlova, Lucie*
PS14.12	411	CLOSED-LOOP BIAXIAL CELL STRETCHING SYSTEM FOR CONTROLLING CELL MECHANO-TRANSDUCTION PROCESSES *Crimaldi, Luigi*
PS14.13	389	COMPARISON OF DIFFERENT TENSEGRITY MODELS OF THE LIVING CELL UNDERGOING COMPRESSION *Arduino, Alessandro*

CARDIOVASCULAR BIOMECHANICS

PS14.2	232	TRILEAFLET VS BILEAFLET MECHANICAL AORTIC VALVE – ASSESSMENT OF THEIR BLOOD ANTICOAGULATION PERFORMANCE *Nieroda, Anna*
PS14.3	476	ADHESION PROPERTIES OF A MONOLAYER OF ENDOTHELIAL CELLS ON MICROFLUIDICS DEVICES *Peña, Estefania*
PS14.4	376	A NOVEL FSI FRAMEWORK FOR HIGH-FIDELITY SIMULATION OF HEMODYNAMICS IN INTRACRANIAL ANEURYSMS *Goetz, Aurèle*
PS14.5	511	ANALYSIS OF THE INFLUENCE OF THE ARTERIAL WALL MECHANICS IN A MECHANOBIOLOGICAL MODEL OF ATHEROSCLEROSIS *Hernández-López, Patricia*
PS14.6	705	A NEW TECHNIQUE OF RECONSTRUCTING 3D GEOMETRIES FROM CT IMAGES – A CFD STUDY *Meskin, Masoud*
PS14.7	931	A FLUID-STRUCTURE INTERACTION APPROACH FOR PATIENT-SPECIFIC THORACIC AORTIC WALL STRESS ANALYSIS USING SIMVASCULAR *Valente, Rodrigo Baptista*

CELLULAR AND MOLECULAR BIOMECHANICS / MECHANOBIOLOGY

PS14.8	550	IN SILICO ULTRASOUND STIMULATION OF OSTEOCYTE IN BONE LACUNO-CANALICULAR NETWORK *Baron, Cécile*

PS15

CLINICAL AND TRANSLATIONAL BIOMECHANICS / IN SILICO TRIALS

PS15.1	844	SILICO AND IN VITRO TESTS TO ASSESS MECHANICAL HEMOLYSIS IN HEMODIALYSIS CATHETERS *Guidetti, Ilaria*

EXPERIMENTAL BIOMECHANICS (OTHERS)

PS15.10	294	WHICH POSTERIOR SLOPE SHOULD BE USED WITHIN A MEDIAL STABILISED TKA DESIGNS: AN IN VITRO WEIGHT-BEARING KNEE RIG STUDY *Woiczinski, Matthias*
PS15.11	741	APPROACH TO HUMAN JOINT ANALYSIS IMPLEMENTING ACCELEROMETERS FOR OUTDOOR MOTION STUDIES *Hinojosa Virviescas, Jorge Andrés*
PS15.12	856	A VISCOELASTOPLASTIC MODEL TO INTERPRET DENTAL CEMENTS RESPONSE TO A NANOINDENTATION TEST *Serino, Gianpaolo*
PS15.13	564	FINITE ELEMENT ANALYSIS OF MECHANICAL BEHAVIOR OF A JAW PLATE DURING THE IMPLANT BIODEGRADATION PROCESS *Ansoms, Pieter*

CLINICAL AND TRANSLATIONAL BIOMECHANICS / IN SILICO TRIALS

PS15.2	973	VENTRICULAR SEPTAL DEFECT FROM IN SILICO STUDY TO CLINICAL PRACTICE BELGHITI *Alaoui, Myriem*

DENTAL BIOMECHANICS

PS15.3	375	FRACTURE RESISTANCE OF ZIRCONIA REINFORCED LITHIUM SILICATE DENTAL RESTORATIONS AFTER THERMOCYCLING *Vasiliu, Roxana Diana*
PS15.4	900	STRESS RELAXATION PHENOMENA IN POLYMERIC ORTHODONTIC LIGATURES *Milewski, Grzegorz*

ERGONOMICS / OCCUPATIONAL BIOMECHANICS / REHABILITATION

PS15.5	711	DIABETIC SHOE UPPER PRESSURES: RESULTS OF A PROOF CONCEPT *Martins, Pedro*
PS15.6	731	A THUMS BASED MULTIBODY MODEL FOR DRIVING SIMULATIONS WITH SEAT INTERACTION *Roller, Michael*
PS15.7	907	EVALUATION OF OPTIMAL PROCEDURES FOR MEDICAL STAFF HANDLING WITH PATIENTS IN NURSING CARE *Horak, Zdenek*
PS15.8	868	EON THE PERFORMANCE OF CABLE-DRIVEN MOBILE LOWER LIMB REHABILITATION EXOSKELETON: THREE VERSUS FOUR CABLES *Rich, Marwan El*
PS15.9	195	SOFT DESIGN FOR AN REHABILITATION EXOSUIT: A PRELIMINARY APPROACH *André, António Diogo*

PS16

HARD TISSUE BIOMECHANICS

PS16.1 829 PREDICTING FRACTURE LOCALIZATION IN TRABECULAR BONE
Pani, Martino

IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES

PS16.10 335 NUMERICAL APPROACH TO IMPROVE SOCKET-LINER SYSTEM USING TAILORABLE 3D PRINTED METAMATERIALS
Plesec, Vasja

SOFT TISSUE BIOMECHANICS

PS16.11 714 ANALYSIS OF THE EFFECT OF SKINFOLD THICKNESS ON MYOTONOMETRIC SIGNAL CHARACTERISTICS
Banerjee, Shib Sundar

PS16.12 961 STUDY OF TORSIONAL WAVE BEHAVIOR DUE TO DEPTH CHANGE IN HYDROGEL PHANTOMS
Shamimi Noori, Hirad

PS16.13 611 DETERMINING TIP RADIUS IN AFM NANOINDENTATION
Stylianou, Andreas

HARD TISSUE BIOMECHANICS

PS16.2 870 AGE AT DEATH ESTIMATION BASED ON BONE TISSUE PROPERTIES BEFORE AND AFTER SKELETAL MATURITY
Zioupos, Peter

IMPACT / INJURY BIOMECHANICS

PS16.4 896 ANALYSIS OF EYE LOAD DURING BALL IMPACT
Bacova, Tereza

IMPLANTS / ORTHOTICS / PROSTHETICS / DEVICES

PS16.5 906 MEASURING SPINAL ROD FORCES FOR SCOLIOSIS AND/ OR FRACTURE FIXATION IN VIVO
Mangaleshwaran, Meera

PS16.6 991 DESIGN AND TRANSLATION OF A MODULAR HIP IMPLANT DEVICE FOR SOFT TISSUE TENSION AND MOTION TRACKING EVALUATED IN A SHEEP MODEL DURING HIP ARTHROPLASTY
Wei, Jonathan CJ

PS16.7 426 MECHANICAL PROPERTIES OF GYROID UNIT CELLS FOR BIOMEDICAL APPLICATIONS
Pais, Ana

PS16.8 772 A PROTOCOL FOR EVALUATING HAND PROSTESIS CONTROL
Llop Harillo, Immaculada

PS16.9 267 NUMERICAL STUDY FOR PRIMARY STABILITY ASSESSMENT IN OSSEOINTEGRATED TRANSFEMORAL PROSTHESES
Mirulla, Agostino Igor

PS17

MUSCOLOSKELETAL BIOMECHANICS

PS17.1 780 THE RELATIVE BITE FORCE AND GAPE POTENTIAL OF PSITTACIFORMES
Dickinson, Edwin

PS17.10 633 MONITORING LOWER LIMB ASYMMETRY DURING REHABILITATION OF ACL RECONSTRUCTED PATIENTS USING DINABANG DEVICE
Santos, Dario

PS17.11 279 A PROCEDURE TO PERSONALIZE A MUSCLE FATIGUE MODEL FOR SOLVING THE MUSCLE RECRUITMENT PROBLEM
Michaud, Florian

PS17.12 286 COMPARING THE EFFICIENCY AND ACCURACY OF SEVERAL CONTACT METHODS FOR HUMAN-ENVIRONMENT INTERACTION
Mouzo, Francisco

PS17.13 639 AN INNOVATIVE APPROACH TO INVESTIGATE THE TIBIOFEMORAL ELASTICITY DURING GAIT WITH IN-VIVO 3D COMPLIANCE MATRIXES
Martelli, Saulo

NEUROMUSCULAR CONTROL

PS17.14 890 DIFFERENT MUSCLE EXCITATION PATTERNS AND MODEL-BASED MUSCLE FORCES IN PARKINSON'S DISEASE
Romanato, Marco

PS17.2 950 BIOMECHANICAL ANALYSIS OF STRESS CHANGES IN MEDIAL ANKLE LIGAMENTS CAUSED BY ADULT ACQUIRED FLAFOOT DEFORMITY
Hinojosa Virviescas, Jorge Andrés

PS17.3 293 DEVELOPMENT OF A MUSCULOSKELETAL MODEL FOR THE DETERMINATION OF MUSCLE ACTIVITY IN THE HEALTHY SHOULDER
Bauer, Leandra

PS17.4 754 THE EFFECT OF SUBSTRATE SIZE ON GRIP AND PULL FORCES IN PARROTS
Dickinson, Edwin

PS17.5 310 MUSCLE TORQUE GENERATORS FOR DIGITAL HUMAN MODEL CONTROL - MEASUREMENT PROTOCOL FOR DATA AQUSITION
Obentheuer, Marius

PS17.6 485 NORMATIVE DATA SET OF THE KNEE EXTENSORS' RATE OF FORCE DEVELOPMENT USING A FIXED HAND-HELD DYNAMOMETER
Yona, Tomer

PS17.7	883	ENHANCING DYNAMIC CONSISTENCY OF MULTIMODAL MOTION DATA IN MUSCULOSKELETAL SIMULATION *Wechsler, Iris*
PS17.8	956	ESTIMATION OF THE FREE ENERGY BARRIER OF THE STEP OF PI RELEASE IN MYOSIN VI CYCLE *Manevy, Robin*
PS17.9	484	KNEE EXTENSORS' RATE OF FORCE DEVELOPMENT MEASUREMENT USING A HAND-HELD DYNAMOMETER AND A 3D PRINTED ADAPTER *Yona, Tomer*

PS18

OCULAR BIOMECHANICS

PS18.1	873	CORNEAL STIFFNESS – IMPORTANT PARAMETER IN INTRAOCULAR PRESSURE MEASUREMENT *Hučko, Branislav*

SPINE BIOMECHANICS

PS18.10	808	IN VITRO STUDY OF THE INFLUENCE OF VERTEBRAE GEOMETRY ON THE BEHAVIOUR OF LUMBAR ARTHROPLASTY PROSTHESES *Zot, François*
PS18.11	816	INTRA-OPERATIVE MEASUREMENT OF THE SPINE: TOWARDS IN VIVO BIOMECHANICAL DATA OF PATIENTS WITH IDIOPATHIC ADOLESCENT SCOLIOSIS *Erb, Felix*

SPORT BIOMECHANICS

PS18.13	792	A METHODOLOGY TO DETERMINE THE EFFECTS OF THE PITCHER-GROUND INTERACTION ON FASTBALL PITCH VELOCITY *Tuttle, Noelle*
PS18.14	440	THE EFFECT OF CRYOTHERAPY ON BALANCE RECOVERY AT DIFFERENT MOMENTS AFTER LOWER EXTREMITY MUSCLE FATIGUE *He, Yuqi*

PATIENT-SPECIFIC MODELLING

PS18.2	675	EFFECT OF SUBJECT-SPECIFIC MASS DISTRIBUTION ON JOINT BIOMECHANICS DURING GAIT *El Rich, Marwan*
PS18.3	679	INFLUENCE OF MODIFIED MUSCULOSKELETAL MODEL ON THE HIP LOADING IN CEREBRAL PALSY PATIENT *Piszczatowski, Szczepan*
PS18.4	688	PATIENT-SPECIFIC DESIGN OF HIGH TIBIAL OSTEOTOMY PLATES USING DENSITOMETRIC CALIBRATION *Chowdhury, Shafath*
PS18.5	699	ESTIMATION OF TIBIA AXES ON PARTIAL DISTAL SCANNER IMAGES : A NOVEL APPROACH IN THREE DIMENSIONS *Dufrenot, Maryama Suzanne*
PS18.6	867	IN SILICO STUDY ON ALLOGRAFT-BASED ACETABULAR RECONSTRUCTION *Goyal, Ajay*
PS18.7	543	MECHANICAL FRACTURE ENVIRONMENT IN LOWER EXTREMITY NON-UNIONS – AN INDIVIDUALIZED SIMULATION-BASED STUDY *Andres, Annchristin*
PS18.8	796	MORPHOLOGICAL AND HAEMODYNAMIC CHARACTERISATON OF TURNER SYNDROME AORTAE *Johnston, Lauren*

ROBOTS AND BIOMECHANICS

PS18.9	343	THE FEASIBILITY OF BESPOKE REHABILITATION ROBOT HANDGRIPS TO MEET THE SPECIFIC NEEDS OF STROKE PATIENTS *Li, Lutong*

ESB 2023

Combining data- and knowledge-driven modeling: from measurements, through insights to decisions

28TH CONGRESS OF THE EUROPEAN SOCIETY OF BIOMECHANICS

9-12 JULY 2023, MECC MAASTRICHT, THE NETHERLANDS www.esbiomech2023.org

KEY DATES

- **October 2022** — Call for perspective talks submission
- **November 2022** — Perspective talks submission deadline
- **December 2022** — Call for abstract submission
- **January 2023** — Abstract submission deadline
- **March 2023** — Abstract review notification
- **May 2023** — Early registration deadline

ESB 2023 CONGRESS CHAIRS

Frans van de Vosse
Cardiovascular Biomechanics
Eindhoven University of Technology

Keita Ito
Orthopaedic Biomechanics
Eindhoven University of Technology

Liesbet Geris
Biomechanics and Computational Tissue Engineering
Liège University

Hans Van Oosterwyck
Mechanobiology
KU Leuven

ESB 2023 LOCAL ORGANISING COMMITTEE

Frans van de Vosse - TU/e
Keita Ito - TU/e
Liesbet Geris - Liège University
Hans Van Oosterwyck - KU Leuven
Alice van Litsenburg - TU/e
Yvon Biemans - TU/e
Evelien Arts - TU/e

ESB 2023 PROGRAMME

The programme will be composed on the basis of the theme of the congress: 'Combining data- and knowledge-driven modeling: from measurements, through insights to decisions.' You are all welcome to join us for interesting pre-courses, plenary lectures, perspective talks, poster sessions, and more!

SOCIAL EVENTS

9 July Students night
10 July Welcome reception
11 July Conference dinner

ESB 2023 CONGRESS SECRETARIAT

Alice van Litsenburg
esb2023@tue.nl
tel +31 (0)40 2474060

KU LEUVEN LIÈGE université TU/e

Mimics Innovation Suite

Engineer the future of personalized care

materialise
innovators you can count on

Imagine and create the next breakthroughs with our medical image software suite. We have affordable and exciting options for universities and researchers.
Meet us on our booth to discover more!

Meet us on booth #2

Contact Behnam Esfandiar, Academic Market Manager <behnam.esfandiar@materialise.be>

QUALISYS
Motion Capture Systems

Industry-leading motion capture technology

Supplying sports performance and research solutions for over 30 years.

ESB 2022 PARTNER ORGANISATIONS

U.PORTO FEUP FACULDADE DE ENGENHARIA UNIVERSIDADE DO PORTO

TÉCNICO LISBOA

European Society of Biomechanics

LABORATÓRIO DE BIOMECÂNICA DO PORTO

idmec IST engenharia mecânica

inegi Instituto de Engenharia Mecânica e Gestão Industrial

visit Porto&North Portugal

visit Portugal

ESB 2022 PARTNER ORGANISATIONS

AMTI FORCE AND MOTION

ANYBODY TECHNOLOGY

BERTEC

BETA SIMULATION SOLUTIONS

BIOMOMENTUM

BoB Biomechanics

DELSYS EUROPE

materialise innovators you can count on

QUALISYS Motion Capture Systems