Conference Agenda

Session Overview

Date: Sunday, 26/June/2022

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

Date: Monday, 27/June/2022

8:30am - 9:45am

TR01.1: Cardiovascular biomechanics I: Developmental biomechanics and mechanobiology
Location: Archive Hall
Chair: Selda Sherifova
Chair: 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. De Backer, 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
Location: Infante Hall
Chair: Harry van Lenthe
Chair: 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
Location: D. Maria Hall
Chair: William R. Taylor
Chair: 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-BASED GAIT 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
Location: D. Luis Hall
Chair: 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

TR05.1: Soft tissue biomechanics I
Location: Porto Hall
Chair: Maria José Gómez-Benito
Chair: 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 AND MEASURED FROM MR IMAGES
A. Trebbi, M. Bailet, A. Perrier, Y. Payan

TR06.1: Biomaterials I
Location: Arrabida Hall

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 he architecture of articular surfaces
M. Santschi, L. Bienz, M. Leunig, S. Ferguson

TR07.1: Computer aided diagnosis, planning and surgery I
Location: Miragaia Hall
Chair: Jérôme Noailly
Chair: 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
Location: S. Joao Hall
Chair: Christoph Bourauel
Chair: 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

9:45am - 10:15am
Coffee Break

10:15am - 11:40am

TR01.2: Cardiovascular biomechanics II: Material characterization
Location: Archive Hall
Chair: Selda Sherifova
Chair: 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

TR02.2: Implants / orthotics / prosthetics / devices II: 3D Technology
Location: Infante Hall

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

TR03.2: Biomechanics of movement and posture II: Modelling and simulation of movement
Location: D. Maria Hall
Chair: Seyyed Hamed Hosseini Nasab
Chair: 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. Schütz, J. Dymke, W. R. Taylor, G. N. Duda, A. Trepczynski

TR04.2: Mechanobiology II: In vitro / In silico
Location: D. Luis Hall
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

TR05.2: Soft tissue biomechanics II
Location: Porto Hall
Chair: Dulce Oliveira
Chair: 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. van Gaalen, H. van Beusekom, A. van der

TR06.2: Computational biology I
Location: Arrabida Hall
Chair: Maria Angeles Perez Anson
Chair: 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-

TR07.2: Computer aided diagnosis, planning and surgery II
Location: Miragaia Hall
Chair: Jérôme Noailly
Chair: 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

TR08.2: Experimental biomechanics I
Location: S. Joao Hall
Chair: Luca Cristofolini
Chair: 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

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. Guvenir Torun, P. de Miguel, R. M. Hengst, G. Kremers, F. J. H. Gijsen, K. van der Heiden, A. C. Akyildiz

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 PATIENTSPECIFIC 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

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

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

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

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

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-Santana, A. De Rosis, A. Keshmiri

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. Lopes, R. Fangueiro, R. M. Guedes

11:45am - 12:30pm	KL1: Personalized modeling of Alzheimer's disease, Ellen Kuhl
12:30pm - 1:15pm	Lunch Break
1:15pm - 2:00pm	PS1: Poster session 1

2:00pm - 3:30pm

TR01.3: Clinical Biomechanics Awards Session
Location: Archive Hall

2:00pm - 2:12pm

Biomechanical Evaluation of Diagnostic Tests for Rotator Cuff Lesions

J. Menze, T. Rojas, M. A. Zumstein, S. J. Ferguson, K. Gerber

2:12pm - 2:24pm

APPLICATION OF COG THREADS FOR VAGINAL

TR02.3: Implants / orthotics / prosthetics / devices III: Fracture repair
Location: Infante Hall

2:00pm - 2:25pm

MODELLING MECHANICAL DEMANDS ARISING FROM CLINICAL REQUIREMENTS FOR FRACTURE FIXATION

P. Pankaj

TR03.3: Hard tissue I: Tissue interactions
Location: D. Maria Hall
Chair: Enrico Dall'Ara
Chair: 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

TR04.3: Musculoskeletal biomechanics I: Methods
Location: D. Luis Hall
Chair: Ilse Jonkers

2:00pm - 2:25pm

Biomechanics of craniofacial growth

M. Moazen

2:25pm - 2:37pm

Tendon compliance affects time-series energy expenditure

TR05.3: Soft tissue biomechanics III
Location: Porto Hall
Chair: José Felix Rodriguez Matas
Chair: Maria José Gómez-Benito

2:00pm - 2:12pm

HIGH FIDELITY SIMULATION OF CEREBRAL ANEURYSM WITH FLOW-DIVERTER

E. Hachem

TR06.3: Computational biology II
Location: Arrabida Hall
Chair: Maria Angeles Perez Anson
Chair: Richie Gill

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

TR07.3: Ocular biomechanics I
Location: Miragaia Hall
Chair: Miguel Ángel Ariza Gracia
Chair: Philippe Buechler

2:00pm - 2:25pm

The biomechanics of the eye lens and accommodative system: clinical opportunities and biomechanical challenges

B. Pierscionek, K. Wang

TR08.3: 3D printing in biomedicine
Location: S. Joao Hall
Chair: Henrique Amorim Almeida

2:00pm - 2:12pm

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

WALL PROLAPSE REPAIR: EX-VIVO STUDY
R. Rynkevic, C. Soares, L. Hympanova, E. Silva, T. Mascarenhas, P. Martins

2:24pm - 2:36pm
EFFECT OF ALENDRONATE ON BONE FRACTURE TOUGHNESS IN OSTEOGENESIS IMPERFECTA
A. Muñoz, A. Carriero

2:36pm - 2:48pm
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

2:25pm - 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. R Holthof, 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

3:13pm - 3:25pm
THE INFLUENCE OF SCREW CONFIGURATIONS ON LCP UNDER THE TIME-DEPENDENT CALLUS HEALING PROCESS
Z. Li, Z. Ding, S. Zhu, Z. Wu

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. K Wilcox

A. I. Luis Pena, M. Afschrift, F. De Groote, E. M. Gutierrez-Farewik

2:37pm - 2:49pm
CALIBRATION OF A NEUROMUSCULOSKELETAL MODEL AT THE JOINT TORQUE AND JOINT STIFFNESS LEVELS SIMULTANEOUSLY
C. P. Cop, A. C. Schouten, B. Koopman, M. Sartori

2:49pm - 3:01pm
Estimating a single maximum muscle-tendon length from discretised muscles
C. F. Hayford, E. Montefiori, E. Pratt, C. Mazzà

3:01pm - 3:13pm
SMART FLEXIBLE GARMENT AND RAPID NEUROMUSCULOSKELETAL MODELLING FOR FAST AND ACCURATE CLINICAL DECISION-MAKING
D. Simonetti, B. Koopman, S. Massimo

3:13pm - 3:25pm
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

3:25pm - 3:37pm
FATIGUE ANALYSIS USING ELECTROMYOGRAPHY DRIVEN MUSCULOSKELETAL TRUNK MODELS
M. I. Mohamed Refai, H. Wang, A. Moya-Esteban, M. Sartori

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

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

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

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

3:30pm - 4:00pm Coffee Break

4:00pm - 5:00pm Student A.: ESB Student Award

4:00pm - 4:12pm
Assessing the performance of thrombectomy devices with in silico models
S. Bridio, G. Luraghi, P. R. Konduri, N. Arrarte Terreros, H. A. Marquering, C. B. Majoie, J. F. Rodriguez Matas, F. Migliavacca

4:12pm - 4:24pm
Predicting surgical outcomes across nine corrective techniques for sagittal craniosynostosis
C. Cross, R. H Khonsari, G. Patermoster, E. J Arnaud, D. Larysz, L. Kölby, D. Johnson, Y. Ventikos, M. Moazen

4:24pm - 4:36pm
ANGIOGRAPHY-DERIVED WALL SHEAR STRESS TOPOLOGICAL SKELETON VARIABILITY PREDICTS MYOCARDIAL INFARCTION
M. Lodi Rizzini, A. Candreva, D. Gallo, J.-P. Aben, C. Chiastra, C. Collet, U. Morbiducci

4:36pm - 4:48pm
Biomechanics and mechanobiology of mineralized fibrocartilage at the tendon-bone attachement
A. Tits, S. Blouin, M. Rummler, J.-F. Kaux, P. Drion, G H. van Lenthe, R. Weinkamer, M. A Hartmann, D. Ruffoni

5:00pm - 6:00pm

TR01.4: Cardiovascular biomechanics III: Treatment design & clinical outcome
Location: Archive Hall
Chair: Nele Famaey
Chair: Mathias Peirlinck

5:00pm - 5:12pm

TR02.4: Implants / orthotics / prosthetics / devices IV: Total hip arthroplasty
Location: Infante Hall

5:00pm - 5:12pm

TR03.4: Patient-specific modelling I
Location: D. Maria Hall
Chair: Sebastian Laporte

5:00pm - 5:12pm

TR04.4: Musculoskeletal biomechanics II: Upper limb
Location: D. Luis Hall

5:00pm - 5:12pm
Effect of shape and size of supraspinatus tears in

TR05.4: Soft tissue biomechanics IV
Location: Porto Hall
Chair: Dulce Oliveira
Chair: María José Gómez-Benito

5:00pm - 5:12pm

TR06.4: Round table - symposium
Location: Arrabida Hall

TR07.4: Ocular biomechanics II
Location: Miragaia Hall
Chair: Miguel Ángel Ariza Gracia
Chair: Philippe Buechler

5:00pm - 5:12pm

TR08.4: Experimental biomechanics II
Location: S. Joao Hall
Chair: Luca Cristofolini
Chair: Ingmar Fleps

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. J Vaughan

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

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

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

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

5:36pm - 5:48pm
GLENOHUMERAL JOINT FORCE PREDICTION WITH MACHINE LEARNING
P. Eghbali, F. Becce, P. Goetti, P. Büchler, D. Pioletti, A. Terrier

5:48pm - 6:00pm
Personalised approach to restoration of arm function in people with tetraplegia: identifying muscle weakness
M. Seyres, D. Blana, N. Postans, R. J. O'Connor, S. Pickard, E. K. Chadwick

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

A detailed methodology to model the non contact tonometry: a fluid-structure interaction study.
E. Redaelli, J. Grasa Orùs, J. F. Rodriguez Matas, 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

5:36pm - 5:48pm
A PRE-STRESS WHOLE EYE MODEL FOR THE INVESTIGATION OF FUNCTIONS OF ZONULAR SYSTEM DURING ACCOMMODATION
Y. Pu, K. Wang, B. K Pierscionek, Y. Fan

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 AND MECHANICS OF ARTIFICIAL MENISCUS IMPLANTS
M. Berni, G. Marchiori, M. Fini, M. Zingales, C. Trombino, S. Di Paolo, S. Zaffagnini, N. F. Lopomo, M. Baleani

6:00pm - 7:00pm **Women in Biomechanics**

7:00pm - 9:30pm **Welcome Reception**

Date: Tuesday, 28/June/2022

7:30am - 8:15am

Meet the PI - Student Breakfast networking event

8:30am - 9:45am

TR01.5: Implants / orthotics / prosthetics / devices V: Total knee arthroplasty

Location: Archive Hall

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

8:42am - 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

8:54am - 9:06am

BIOMECHANICAL ANALYSIS OF FLEXIBLE FEMORAL CONES IN HINGED TOTAL KNEE ARTHROPLASTY

B. Innocenti

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

9:18am - 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

9:30am - 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

TR02.5: Cardiovascular biomechanics IV: Computational methods

Location: Infante Hall
Chair: Selda Sherifova
Chair: Stéphane Avril

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. Peña Baquedano

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

8:54am - 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

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

9:18am - 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

9:30am - 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

TR03.5: Patient-specific modelling II

Location: D. Maria Hall
Chair: Claudio Vergari

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

8:42am - 8:54am

LUMBAR INTERVERTEBRAL DISC 3D SEGMENTATION FOR BIOMECHANICAL SIMULATION

R. Matos, P. R. Fernandes, N. M. P. L. Matela, A. P. G. Castro

8:54am - 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

9:06am - 9:18am

VERTEBRAL STRENGTH PREDICTION FROM SINGLE ENERGY BIPLANAR RADIOGRAPHS

C. Heidsieck, L. Gajny, J.-Y. Lazennec, C. Travert, W. Skalli

9:18am - 9:30am

PATIENT SPECIFIC GROWTH MODEL FOR CRANIOSYNOSTOSIS

M. Geoffroy, M. Abbad Andaloussi, P.-M. François, R. H. Khonsari, S. Laporte

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

TR04.5: Tissue engineering I

Location: D. Luis Hall
Chair: Gwendolen Reilly
Chair: Alberto Sensini

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

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

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

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

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

COMPOSITE METHACRYLOYL GELATIN-BASED HYDROGELS FOR BONE TISSUE ENGINEERING APPLICATIONS

G. Ciardelli, R. Laurano, R. Pappalardo, V. Chiono, M. Boffito

TR05.5: Spine biomechanics I

Location: Porto Hall

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

Location: Arrabida Hall
Chair: Richie Gill
Chair: 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

Location: Miragaia Hall
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

Location: S. Joao Hall
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

9:45am - 10:15am

Coffee Break

10:15am - 11:40am

TR01.6: Implants / orthotics / prosthetics / devices VI: Multiple (Total knee arthroplasty, Fracture repair)

Location: Archive Hall

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

TR02.6: Cardiovascular biomechanics V: Thrombi and plaques

Location: Infante Hall
Chair: Selda Sherifova
Chair: Stéphane Avril

10:15am - 10:40am

CHALLENGES OF VALIDATING COMPUTATIONAL THROMBOSIS MODELS

K. B. Manning

10:40am - 10:52am

THE INFLUENCE OF PLAQUE STRUCTURAL

TR03.6: Hard tissue biomechanics II: Bone tissue level

Location: D. Maria Hall
Chair: Vee San Cheong
Chair: Martina Todesco

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

TR04.6: Biomedical imaging I

Location: D. Luis Hall
Chair: Dieter Pahr

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 –

10:27am - 10:39am

TR05.6: Spine biomechanics II

Location: Porto Hall

10:15am - 10:40am

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

J. J. Costi

10:40am - 10:52am

TR06.6: Clinical and translational biomechanics / in silico trials II

Location: Arrabida Hall
Chair: Richie Gill
Chair: Marco Viceconti

10:15am - 10:40am

Translational Computational Studies Toward Preventing Post-Traumatic Osteoarthritis After Joint Injury

R. K Korhonen, D. D Anderson

TR07.6: Artificial intelligence in biomechanics II

Location: Miragaia Hall
Chair: Konstantinos Moustakas

10:15am - 10:40am

Hemodynamical Study of a Novel Percutaneous Left Ventricle Assist Device

I. Avrahami

10:52am - 11:04am

AUTOMATED SEGMENTATION AND LANDMARKING OF

TR08.6: Advance computing for biomechanics I

Location: S. Joao Hall

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

10:27am - 10:39am

COMPUTATIONAL INVESTIGATION AND VERIFICATION OF

	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	**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	**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	**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. C Roberts, 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	**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 10:52am - 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 11:04am - 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 11:16am - 11:28am **EVALUATION OF METHODS FOR SCREW-VERTERBA FIXATION USING FINITE ELEMENT MODELLING** S. Vallejo Pareja, C. Ruiz Wills, J. Ramirez 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	10:40am - 11:05am **C4Bio: Community Challenge towards Consensus on Characterization of Biological tissue** N. Famaey 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 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	**SCAPULAE TO ASSESS THE OUTCOME OF TOTAL SHOULDER ARTHROPLASTY** O. B. Satir, A. Terrier, A. Meylan, F. Becce, P. Goetti, R. Diot, P. Büchler 11:04am - 11:16am **Super-Resolution of Clinical CT Data: Towards Improving the Strength of Fracture Risk Assessments** L. Frazer, J. Vaishnav, N. Louis, D. Nicolella 11:16am - 11:28am **TEMPORALLY OPTIMIZED INVERSE KINEMATICS FOR 6DOF HUMAN POSE ESTIMATION** K. Gildea, C. Mercadal-Baudart, R. Blythman, C. Simms 11:28am - 11:40am **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	**THE IN-VITRO PERFORMANCE OF BIORESORBABLE BRAIDED STENTS** A. Lucchetti, T. Gries, T. J. Vaughan 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 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 11:03am - 11:15am **ASSESSING PROSTHETIC HAND DESIGNS THROUGH A NEW GRASPING SIMULATION BENCHMARK** I. Llop-Harillo, J. L. Iserte, A. Pérez-González 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
11:45am - 12:30pm	KL2: Modelling the human neuromuscular system across spatio-temporal scales for a new class of movement enhancing technologies, Massimo Sartori							
12:30pm - 1:15pm	Lunch Break							
1:15pm - 2:00pm	PS2: Poster session 2							
2:00pm - 3:30pm	**TR01.7: Biomechanics of movement and posture: Upper limb and trunk function and posture** Location: Archive Hall Chair: Lennart Scheys Chair: William R. Taylor 2:00pm - 2:25pm **QUANTITATIVE FUNCTIONAL ASSESSMENT IN THE SETTING OF ADULT SPINAL DEFORMITY USING 3D MOVEMENT ANALYSIS** A. Assi, V. Lafage, W. Skalli 2:25pm - 2:37pm **A novel method to quantify pseudo-kinematics of the rib cage over the vital capacity range** C. Vergari, W. Skalli, L. Clavel, M. Demuynck, R.	**TR02.7: Cardiovascular biomechanics VI: Treatment design and clinical outcome** Location: Infante Hall Chair: Selda Sherifova Chair: Stéphane Avril 2:00pm - 2:12pm **VASCULAR ADAPTATION FOLLOWING ENDOVASCULAR AORTIC ANEURYSM REPAIR** S. Zhang, J. Laubrie, J. Mousavi, S. Avril 2:12pm - 2:24pm **FINITE ELEMENT STUDY ON THE PROXIMAL FIXATION OF A STENT-GRAFT: IMPACT OF THE AORTIC ARCH ANGULATION** A. Ramella, L. Iannetti, J. F. Rodriguez Mata, F.	**TR03.7: Hard tissue biomechanics III: Bone organ level** Location: D. Maria Hall Chair: Helene Follet Chair: Marta Peña Fernández 2:00pm - 2:12pm **VALIDATION OF LINEAR AND MATERIALLY NONLINEAR μFE 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**	**TR04.7: Biomedical imaging II** Location: D. Luis Hall Chair: Dieter Pahr 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**	**TR05.7: Spine biomechanics III** Location: Porto Hall 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.	**TR06.7: Biomechanics of ageing and neuromuscular control** Location: Arrabida Hall Chair: Stephen Ferguson Chair: Annegret Mündermann 2:00pm - 2:12pm **AGE-RELATED DEGENERATION AFFECTS THE STRUCTURE–FUNCTION RELATIONSHIP OF HUMAN MENISCI** G. Q. Teixeira, J. Schwer, A. Ignatius, L. Dürselen, A. M. Seitz 2:12pm - 2:24pm **Influence of Ageing on Micromechanical Properties of the Femoral Neck Using the Inverse Method** B. Voumard, P. Stefanek, M. Pretterklieber, D.	**TR07.7: Virtual and augmented reality in biomechanics** Location: Miragaia Hall Chair: Konstantinos Moustakas Chair: Bill Baltzopoulos 2:00pm - 2:25pm **Knee joint forces and cartilage stress in Osteoarthritis** V. Baltzopoulos, D. Britzman, D. Tsaopoulos 2:25pm - 2:37pm **BALANCE REACTION & MOTOR CONTROL DURING SIMULATED FEAR OF HEIGHT IN CHILDREN WITH CEREBRAL PALSY – A PILOT STUDY** R. Winter, R. Lohss, N. B. Singh, W. R. Taylor, R. M. Visscher, E. Viehweger 2:37pm - 2:49pm	**TR08.7: Advance computing for biomechanics II** Location: S. Joao Hall 2:00pm - 2:12pm **SPINADOID AND DUAL-LATTICE BASED ALGORITHMS FOR GENERATING BIOMIMETIC TRABECULAR BONE STRUCTURES** M. 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

Valentin, B. SANDOZ, T. Similowski, V. ATTALI

2:37pm - 2:49pm

A slouched or erect spinal posture modifies upper limb kinematics

A. Tomezzoli, A. Naaïm, B. Fréchède, S. Duprey

2:49pm - 3:01pm

Impact of the time scale of muscle activation dynamics on reaching performance

T. Murtola, C. Richards

3:01pm - 3:13pm

Upper limb functional evaluation of a complementary therapy in Parkinson's Disease: a preliminary study

E. Pegolo, M. Romanato, C. Riccò, A. Cucca, F. Spolaor, D. Volpe, Z. Sawacha

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. F Rodriguez 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

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

deformable image registration from MR images of human lower limb

W. H. Henson, C. Mazzà, E. Dall'Ara

2:49pm - 3:01pm

A non rigid registration algorithm to build Statistical shape model of thoracic Aorta, together with aortic arch and supra aortic vessels

M. A. Scarpolini, M. Mazzoli, F. 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

Ebermeyer, R. Vialle, T. Langlais, J. Duboussset

2:37pm - 2:49pm

DETERMINATION OF A LUMPED-PARAMETER MODEL OF THE INTERVERTEBRAL JOINT FROM AN EXPERIMENTAL DATASET

S. L. Gould, G. Davico, M. Palanca, L. Cristofolini, M. Viceconti

2:49pm - 3:01pm

The effect of intervertebral disc degeneration on the flexibility of the thoracic spine: An in vitro study

C. Liebsch, H.-J. Wilke

3:01pm - 3:13pm

Multiscale Mechanics of Collagen-Hyaluronan Interfaces in Annulus Fibrosus

S. Bhattacharya, D. K. Dubey

3:13pm - 3:25pm

RECOVERY OF TRUNK MOTION DURING GAIT AT 1-WEEK AND 3-MONTHS AFTER SPINAL FUSION SURGERY IN AIS PATIENTS

T. Ackermans, S. Schelfaut, P. Severijns, P. Moens, L. Moke, L. Scheys

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

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

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. PEÑA TRABALON, S. MORENO VEGAS, A. ESPEJO REINA, F. NADAL MARTINEZ, F. M. GARCIA VACAS, A. M. PEREZ DE LA BLANCA COBOS, M. PRADO NOVOA

3:00pm - 3:12pm

HOW OXYGEN AND GLUCOSE INFLUENCE CELL GROWTH: A COMPUTATIONAL SIMULATION STUDY

M. I. Araújo Barbosa, J. A. O. Pinto Belinha, R. Natal Jorge, A. Xavier de Carvalho

3:30pm - 4:00pm — Coffee Break

4:00pm - 5:00pm

ESB S.M. Perren Research Award: Standardized Tibio-Femoral Implant Loads and Kinematics, Michael J. Dreyer, ETH Zurich

ESB S.M. Perren Research Award The winner of the 2022 ESB S.M. Perren Research Award is Michael Dreyer from the ETH, Zurich (Switzerland) for the manuscript entitled: "Standardized Tibio-Femoral Implant Loads and Kinematics" by MJ Dreyer, A Trepczynski, SH Hosseini Nasab, I Kutzner, P Schütz, B Weisse, J Dymke, B Postolka, P Moewis, G Bergmann, GN Duda, WR Taylor, P Damm, and CR Smith. Michael Dreyer is originally from Munich, Germany. He did his Bachelor's and Master's degree in mechanical engineering at ETH Zurich, Switzerland. There, he focused on robotics and composite materials. Currently, Michael is pursuing a Ph.D. under the supervision of Prof. William R. Taylor at the Laboratory for Movement Biomechanics at ETH Zurich and in close collaboration with Empa, the Swiss Federal Laboratories for Materials Science and Technology. In his project, Michael investigates the wear of joint implants. The project aims to develop validated simulation tools for the preclinical prediction...

5:00pm - 6:00pm

TR01.8: Biomechanics of movement and posture: Motor control in ageing and pathology
Location: Archive Hall
Chair: William R. Taylor
Chair: 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

TR02.8: Cardiovascular biomechanics VII: Image-based biomechanics
Location: Infante Hall
Chair: Nele Famaey
Chair: Mathias Peirlinck

5:00pm - 5:12pm

Monitoring mechanical and geometrical progression of abdominal aortic aneurysms using 3D+t ultrasound

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

TR03.8: Patient-specific modelling III
Location: D. Maria Hall
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

TR04.8: Tissue engineering II
Location: D. Luis Hall
Chair: Gwendolen Reilly
Chair: 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 BONE FILLER

D. Syla, L. Grillini, L. Forte, F. Claeyssens, G.

TR05.8: Corporate Members Session
Location: Porto Hall

TR06.8: Clinical and translational biomechanics / in silico trials III
Location: Arrabida Hall
Chair: Richie Gill
Chair: 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

TR07.8: Biomaterials II
Location: Miragaia Hall

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

TR08.8: Advance computing for biomechanics III
Location: S. Joao Hall

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. Garcia, M. E.

	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	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. van Sambeek, F. van de Vosse, R. Lopata	**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	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		**arthroplasty - comparing IMU- and marker-based data** C. Nüesch, P. Ismailidis, D. Koch, K. Stoffel, A. Mündermann	**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	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
6:00pm - 7:00pm	**ESB General Assembly**							
8:00pm - 11:00pm	**ESB 2022 Congress Dinner** Venue: Real Companhia Velha Cellars - Baron´s hall (Azevedo Magalhaes 314, Via Nova de Gaia. Metro: General Torres							

Date: Wednesday, 29/June/2022

8:30am - 9:45am	**TR01.9: Patient-specific modelling IV** Location: Archive Hall 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 de Vosse, 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-van der Jagt, W. Huberts, F. N. van de Vosse	**TR02.9: Musculoskeletal biomechanics III: Multiple topics** Location: Infante Hall **8:30am - 8:55am** **MECHANOSENSING IN BONE USING FLUID FLOW THROUGH NETWORKS** R. Weinkamer **8:55am - 9:07am** **A REPRESENTATIVE VOLUME ELEMENT FOR BONE EXTRACELLULAR MATRIX** E. Alizadeh, D. Casari, J. Michler, J. Schwiedrzik, P. Zysset **9:07am - 9:19am** **TEMPORAL CHANGES IN THE BONE MICROENVIRONMENT PRIOR TO AND FOLLOWING OVERT BREAST-CANCER OSETOLYSIS** A. S. Verbruggen, R. M. Dwyer, E. C. McCarthy, L. M. McNamara **9:19am - 9:31am** **Towards an in silico bioregulatory model of osteogenesis and sprouting angiogenesis in 3D** L. Lafuente-Gracia, M. Barzegari, L. Geris **9:31am - 9:43am** **EXPERIMENTAL INVESTIGATION OF THE FRACTURE MECHANICS OF FEMURS OF ZUCKER DIABETIC FATTY (ZDF) RATS** G. E Monahan, J. Schiavi-tritz, T. J. Vaughan	**TR03.9: Implants / orthotics / prosthetics / devices VII: Bone response** Location: D. Maria Hall **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	**TR04.9: Mechanobiology III: In silico** Location: D. Luis Hall 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	**TR05.9: Sport biomechanics I** Location: Porto Hall Chair: **Hans Kainz** Chair: **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** Location: Arrabida Hall Chair: **David Mitton** Chair: **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** **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 **9:19am - 9:31am** **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 **9:31am - 9:43am** **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	**TR07.9: Skin biomechanics** Location: Miragaia Hall Chair: **Jérôme Molimard** Chair: **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"** Location: S. Joao Hall Lecturer: prof. Joana Lobo Antunes
9:45am - 10:15am	**Coffee Break**								
10:15am - 11:40am	**TR01.10: Cardiovascular biomechanics VIII: Multiscale computational modeling** Location: Archive Hall Chair: **Fanette Chassagne** Chair: **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**	**TR02.10: Musculoskeletal biomechanics IV: Hip, trunk, foot** Location: Infante Hall **10:15am - 10:27am** **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 **10:27am - 10:39am** **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 **10:39am - 10:51am** **COMPARATIVE EFFECTS OF SURGICAL AND NON-**	**TR03.10: Hard tissue biomechanics IV: Bone remodelling, and diseases** Location: D. Maria Hall Chair: **Uwe Wolfram** Chair: **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	**TR04.10: Mechanobiology IV: In silico** Location: D. Luis Hall Chair: **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**	**TR05.10: Sport biomechanics II** Location: Porto Hall Chair: **António Prieto Veloso** Chair: **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**	**TR06.10: Impact / injury biomechanics II** Location: Arrabida Hall Chair: **David Mitton** Chair: **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**	**TR07.10: Ergonomics / occupational biomechanics / rehabilitation I** Location: Miragaia Hall Chair: **Margit Gföhler** Chair: **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	**TR08.10: Biofluid and transport I** Location: S. Joao Hall Chair: **Frans van de Vosse** **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**

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

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

10:51am - 11:03am
REFINING THE OXFORD FOOT MODEL TO DESCRIBE THE KINEMATICS OF THE MEDIAL LONGITUDINAL ARCH
J. Uhan, A. Kothari, A. Zavatsky, J. Stebbins

11:03am - 11:15am
Validation of an electromyography-driven musculoskeletal model for trunk mechanical analysis
A. Moya-Esteban, H. van der Kooij, M. Sartori

11:15am - 11:27am
A NEW GENERALIZED CONTINUUM APPROACH TO MODEL SPINAL GROWTH
N. M. Castoldi, M. Antico, M. Martin, P. Pivonka, V. Sansalone

11:27am - 11:39am
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

10:39am - 10:51am
MICRO-FE DERIVED MECHANICAL PROPERTIES FOR TRABECULAR BONE REMODELING AND ADAPTATION UNDER LOADING
D. BOARETTI, 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

SPROUTING ANGIOGENESIS: AN IN SILICO STUDY
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

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

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

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

return cannula
F. Fiusco, L. M. Broman, L. Prahl Wittberg

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

11:45am - 12:30pm | KL3: Meta-biomaterials, Amir Zadpoor

12:30pm - 1:15pm | Lunch Break

1:15pm - 2:00pm | PS3: Poster session 3

2:00pm - 3:00pm | Best Doctoral Thesis Award

3:00pm - 3:30pm | Coffee Break

3:30pm - 4:45pm

TR01.12: Cardiovascular IX: Image-based biomechanics
Location: Archive Hall
Chair: Fanette Chassagne
Chair: 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. van der Lugt, F. Gijsen, R. Cahalane

3:54pm - 4:06pm

TR02.12: Musculoskeletal biomechanics V: Multiple topics and Knee
Location: Infante Hall

3:30pm - 3:42pm
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

3:42pm - 3:54pm
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

3:54pm - 4:06pm

TR03.12: Implants / orthotics / prosthetics / devices VIII: Multiple topics
Location: D. Maria Hall

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

TR04.12: Animal and plant biomechanics
Location: D. Luis Hall
Chair: Christian Peham
Chair: 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

On the hindlimb biomechanics of the avian take-off leap
E. Meilak, P. Provini, C. Palmer, N. J. Gostling, M. O. Heller

3:54pm - 4:06pm

TR05.12: Sport biomechanics III
Location: Porto Hall
Chair: Joao Paulo Vilas-Boas
Chair: 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

TR06.12: Impact / injury biomechanics III
Location: Arrabida Hall
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

TR07.12: Ergonomics / occupational biomechanics / rehabilitation II
Location: Miragaia Hall
Chair: Margit Gföhler
Chair: Xuguang Wang

3:30pm - 3:42pm
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

3:42pm - 3:54pm
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
Location: S. Joao Hall
Chair: Frans van de Vosse

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

	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	**Characterising the relationship between knee bone geometry and passive kinematics** D. O'Rourke, F. Bucci, W. Burton, R. Al-Dirini, M. Taylor, S. Martelli **4:06pm - 4:18pm** **Variation in knee contact mechanics due to anatomy** J. Yao, G. Day, N. Wijayathunga, A. Jones, R. Wilcox, M. Mengoni **4:18pm - 4:30pm** **High Tibial Osteotomy Normalizes Knee Ambulatory Loads** E. De Pieri, C. Nüesch, G. Pagenstert, E. Viehweger, C. Egloff, A. Mündermann	**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 Through An 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	**HISTOMORPHOMETRIC ANALYSIS OF CANINE TRABECULAR BONE IN THE OSTEOPOROTIC CONTEXT** E. Kostenko, A. Pockevičius, A. Maknickas	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	**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** **CHANGE OF DIRECTION BIOMECHANICS AND COORDINATION IN ANTERIOR CRUCIATE LIGAMENT-INJURED FEMALE FOOTBALLERS** S. Di Paolo, L. Bragonzoni, A. Grassi, S. Zaffagnini	**3:54pm - 4:19pm** **Individualized vs. Population-based Musculoskeletal Simulation for Medical and Product Engineering** J. Miehling	**HIGH DENSITY MICROFLUIDIC TRAP ARRAY GEOMETRIC OPTIMIZATION VIA COMPUTATIONAL FLUID DYNAMICS STUDY** N. Ruyssen, J. Fattaccioli, M.-C. Jullien, R. Allena
4:45pm - 5:15pm	**ESB 2022 Closing Ceremony**							