CBM X Program

08:30-08:50 Opening - Ten Years of Computational Biomechanics for Medicine Workshop Series
Karol Miller; The University of Western Australia

08:50-09:40 Keynote Lecture I
Medical Image Computing Meets Biomechanics
Ron Kikinis; Harvard Medical School and Fraunhofer MEVIS

Part I: Biomechanics of Solids

09:40-10:10 Computer Assisted Planning of Periacetabular Osteotomy with Biomechanical Optimization: Constant Thickness Cartilage Models vs. Patient-specific Cartilage Models
L. Liu, T.M. Ecker, S. Schumann, K.A. Siebenrock, G. Zheng; University of Bern

10:10-10:40 Role of Ligaments in the Knee Joint Kinematic Behavior: Development and Validation of a Finite Element Model

10:40-11:00 Coffee Break

11:00-11:30 Challenges to Validate Multi-physics Model of Liver Tumor Radiofrequency Ablation from Pre-clinical Data
Chloé Audigier, Tommaso Mansi, Herve Delingette, Saikiran Rapaka, Tiziano Passerini, Viorel Mihalef, Raoul Pop, Michele Diana, Luc Soler, Ali Kamen, Dorin Comaniciu, Nicholas Ayache; INRIA

11:30-12:00 Investigation of Modelling Parameters for Finite Element Analysis of MR Elastography
Lyam Hollis, Lauren EJ Thomas-Seale, Noel Conlisk, Neil Roberts, Pankaj Pankaj and Peter R. Hoskins; University of Edinburgh

12.00-12:30 Forward Problem of Time-resolved Diffuse Optical Tomography Considering Biological Tissue Deformation
A.Y. Potlov, T.I. Avsievich, S.V. Frolov, S.G. Proskurin; Tambov State Technical University
12:30-13:40  Lunch & Posters

13:40-14:30  **Keynote Lecture II**  
Improving Patient Safety through Real-time Numerical Simulation  
*Stephane Cotin; INRIA, France*

**Part II:  Vascular System and the Brain**

14:30-15:00  Computational Simulation of Blood Flow and Drug Transportation in a Large Vasculature  
*Clement Coutey, Maxime Berg, Harvey Ho, Peter Hunter; Auckland Bioengineering Institute*

15:00-15:30  Fundus Image Based Blood Flow Simulation of the Retinal Arteries  
*Andreas Kristen, Lachlan Kelsey, Erich Wintermantel, Barry Doyle; UWA*

15:30-16:00  **Coffee Break**

16:00-16:30  Integration of an Electrophysiologically-Driven Heart Model into Three-Dimensional Haemodynamics Simulation using the CRIMSON Control Systems Framework  
*Christopher J. Arthurs, C. Alberto Figueroa; King’s College London*

16:30-17:00  Simulating Patient Specific Multiple Time-point MRIs from a Biophysical Model of Brain Deformation in Alzheimer's Disease  
*Bishesh Khanal, Marco Lorenzi, Nicholas Ayache, Xavier Pennec; INRIA*

17:00-17:30  **Panel Discussion and Best Paper Award** (led by Karol Miller and Poul Nielsen)
**Poster Presentations**

**CBMX-P-1** Mechanical Models of Endothelial Mechano-transmission Based on a Population of Cells  
*Yi Chung Lim, Michael T. Cooling, Sue R. McGlashan, David S. Long; University of Auckland*

**CBMX-P-2** Robust Landmark Identification for Generating Subject Specific Models for Biomechanics  
*Duane T.K. Malcolm, Habib Y. Baluwala, Poul M.F. Nielsen, Martyn P. Nash; Auckland Bioengineering Institute*

**CBMX-P-3** Traumatic Brain Injury – an Investigation into Shear Waves Interference Effects  
*Grand R. Joldes, Alesio L. Lanzara, Adam Wittek, Barry Doyle, Karol Miller; UWA*

**CBMX-P-4** Modelling the Presence of Diffuse Axonal Injury in Primary Phase Blast-Induced Traumatic Brain Injury  
*Matthew Sinclair, Adam Wittek, Barry Doyle, Karol Miller, Grand R. Joldes; UWA*

**CBMX-P-5** Fuzzy Tissue Classification for Non-linear Patient-Specific Biomechanical Models for Whole-Body Image Registration  
*Mao Li, Adam Wittek, Grand Joldes, Karol Miller; UWA*

**CBMX-P-6** Modeling of Bifurcated Tubular Structures for Vessel Segmentation  
*Haoyin Zhou, Peng Sun, Seongmin Ha, James K. Min, Guanglei Xiong; Dalio Institute of Cardiovascular Imaging NewYork*

**CBMX-P-7** GPU-based Fast Finite Element Solution for Nonlinear Anisotropic Material Behavior and Comparison of Integration Strategies  
*Vukasin Strbac, David M. Pierce, Jos Vander Sloten, Nele Famaey; KU Leuven/University of Connecticut*

**CBMX-P-8** Fast Prediction of Femoral Biomechanics Using Supervised Machine Learning and Statistical Shape Modeling  
*Elham Taghizadeh, Michael Kistler, Philippe Büchler, Mauricio Reyes; University of Bern*

**CBMX-P-9** Some Use Cases for Composite Finite Elements in Image Based Computing  
*Lars Ole Schwen, Torben Patz, Tobias Preusser; Fraunhofer MEVIS*