

# Japan-Portugal Nano-Biomedical Engineering Symposium 2011

## Programme

| <b>Fri. 3 June 2011</b><br>Faculty of Engineering of the University of Porto (Anfiteatro B024, FEUP)  |                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15:00                                                                                                 | Opening Remarks                                                                                                                                                                                     |
| Keynote Lecture Chair: Rui Lima (Polytechnic Institute of Bragança)                                   |                                                                                                                                                                                                     |
| 15:10                                                                                                 | <b>Computational Biomechanics for Respiratory and Micro-circulatory Systems</b><br>Takami Yamaguchi (Department of Biomedical Engineering, Tohoku University)                                       |
| Keynote Lecture Chair: Mónica Oliveira (University of Porto)                                          |                                                                                                                                                                                                     |
| 15:50                                                                                                 | <b>Transport Phenomena Research Center (CEFT): Research on Complex Flows of Complex Fluids</b><br>Fernando T. Pinho (CEFT, DEMec, Faculty of Engineering, University of Porto)                      |
| 16:30                                                                                                 | Adjournment                                                                                                                                                                                         |
| 19:00                                                                                                 | Banquet                                                                                                                                                                                             |
| <b>Mon. 6 June 2011</b><br>Polytechnic Institute of Bragança (Auditorium Alcino Miguel, ESTiG)        |                                                                                                                                                                                                     |
| 14:15                                                                                                 | Opening Remarks                                                                                                                                                                                     |
| Keynote Lecture Chair: Rui Lima (Polytechnic Institute of Bragança)                                   |                                                                                                                                                                                                     |
| 14:30                                                                                                 | <b>Computational Biomechanics for Respiratory and Micro-circulatory Systems</b><br>Takami Yamaguchi (Department of Biomedical Engineering, Tohoku University)                                       |
| 15:00                                                                                                 | Coffee Break                                                                                                                                                                                        |
| Session I Chair: Rui Lima (Polytechnic Institute of Bragança) / Mónica Oliveira (University of Porto) |                                                                                                                                                                                                     |
| 15:15                                                                                                 | <b>Numerical Simulation on Margination of Malaria-infected Red Blood Cells in Microvessels</b><br>Yohsuke Imai (Department of Bioengineering and Robotics, Tohoku University)                       |
| 15:30                                                                                                 | <b>Analysis of Ciliary Motion and Fluid Flow on the Surface of Tracheal Cells</b><br>Hironori Ueno (International Advanced Research and Education Organization (IAREO), Tohoku University)          |
| 15:45                                                                                                 | <b>Numerical Simulation of Cell Depleted Peripheral Layer and Red Blood Cells Motion in Microvascular Blood Flow</b><br>Davod Alizadehrad (Department of Biomedical Engineering, Tohoku University) |
| 16:00                                                                                                 | <b>Gradient Diffusion of Red Blood Cells in a Y-shape Microchannel</b><br>Cheng-Hsi Chuang (Department of Biomedical Engineering, Tohoku University)                                                |
| 16:15                                                                                                 | <b>High Performance GPU Computing of Capsule Flow using Boundary Integral Method</b><br>Daiki Matsunaga (Department of Bioengineering and Robotics, Tohoku University)                              |
| 16:30                                                                                                 | Coffee Break/ Poster Session                                                                                                                                                                        |

| Session II Chair: Yohsuke Imai (Tohoku University) |                                                                                                                                                                                   |
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| 17:30                                              | <b>A Numerical Study on the Cooling Power of an Enhanced Convection Solution for Footwear</b><br>Tiago S. Mayor (Centre for Nanotechnology and Smart Materials (CeNTI))           |
| 17:45                                              | <b>Flow of a Blood Analogue Solution through Microchannels with Bifurcations</b><br>Patrícia C. Sousa (CEFT, DEQ, Faculty of Engineering, University of Porto)                    |
| 18:00                                              | <b>Motions of Trace Particles and Red Blood Cells in a PDMS Microchannel with a Converging Bifurcation</b><br>Vladimir Leble (ESTiG, Polytechnic Institute of Bragança)           |
| 18:15                                              | <b>Tracking Erythrocytes in a 100 <math>\mu\text{m}</math> Glass Capillary</b><br>Diana Pinho (ESTiG, Polytechnic Institute of Bragança)                                          |
| 18:30                                              | <b>Classification of Alzheimer's Electroencephalograms using Artificial Neural Networks and Logistic Regression</b><br>Pedro Rodrigues (ESTiG, Polytechnic Institute of Bragança) |
| 18:45                                              | Adjournment                                                                                                                                                                       |

| Poster Session |                                                                                                                                                                        |
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|                | <b>Flow of Red Blood Cells in Capillary Networks</b><br>Ana Couto/Lúcia Teixeira (Polytechnic Institute of Bragança)                                                   |
|                | <b>Analysis of the Cell-Free Layer in a Circular Microchannels: Trajectories of Labeled Red Blood Cells</b><br>Catarina Meireles (Polytechnic Institute of Bragança)   |
|                | <b>Synthesis of Magnetic Iron Oxide Nanoparticles for Biomedical Applications</b><br>Cidália Gomes/Luís Veiga (Polytechnic Institute of Bragança)                      |
|                | <b>Production of Chitosan Based Films Enriched with Essential Oils for Biomedical Applications</b><br>Diana Vilas-Boas/Erica Leite (Polytechnic Institute of Bragança) |
|                | <b>Experimental and Numerical Characterization of Displacement Field on Biological Tissues</b><br>João Ribeiro (Polytechnic Institute of Bragança)                     |
|                | <b>Dynamic Sedimentation Measurements of Physiological Fluids in Biomedical Devices</b><br>Valdemar Garcia (Polytechnic Institute of Bragança)                         |
|                | <b>Development of a Microfluidic Device for Partial Cell Separation</b><br>Rui Lima/Mónica Oliveira (Polytechnic Institute of Bragança)                                |