Technical Program

Wednesday 5 October 2011

08:00-08:30 **Registration**

08:30-08:45 **Opening – Welcome**

08:45-09:00 **Award Presentation**

09:00-09:30 **Keynote We.1**- " Engineering proper tissues and organs: the cells require ALL the appropriate signals"

Prof. Yannis Missirlis

Chair: Demosthenes Polyzos

09:30-10:30 **Session We1.1:** Modeling of Physiological Systems

Chair: Nigel Lovel, *Co-Chair:* Antti Vehkaoja

374 - Two-phase blood flow modeling and mass transport in the human aorta

G. C. Bourantas , E. D. Skouras , V. C. Loukopoulos , V. N. Burganos , G. C. Nikiforidis

348 - Mechanical eye model for evaluation of IOP-measuring under consideration of the biomechanical characteristics

Kutaiba Saleh, Volkmar Unger, Alexander Dietzel, Rico Grossjohann, Clemens Jürgens, Frank Tost, Jens Haueisen

329 - Quantitative comparison of 4D MRI flow measurements to 3D computational fluid dynamics simulation of cerebrospinal fluid movement in the spinal subarachnoid space

Theresia I. Yiallourou, Léonie Asboth, Jan-Robert Kroeger, David Maintz, A. C Bunck, Nikolaos Stergiopulos, Bryn A. Martin

331 - Experimental and Computer Model of Plaque Formation in the Artery

Nenad Filipovic, Dimitris Fotiadis, Walter Pelosi, Oberdan Parodi

10:30-11:00 **Coffee Break**

11:00-12:30 **Session We1.2:** Biomedical Signal and Image Processing

Chair: Themis Exarchos, *Co-Chair:* Theresia Yiallourou

306 - A Survey on Talamocortical Activity of ADHD Patients Based on mean-field bursting model

Abdollah Arasteh, Amin Janghorbani, Bijan Vosoughi vahdat

313 - Arterial Stiffness modeling using variations of Pulse Transit Time

Aleksandar Peulic, Emil Jovanov, Milos Radovic, Igor Saveljic, Nebojsa Zdravkovic, Nenad Filipovic

315 - Unobtrusive Night-Time EKG and HRV Monitoring System

Mikko Peltokangas, Jarmo Verho, Antti Vehkaoja

344 - Equivalent Cardiac Dipole Localization from ECG Data using Proper Orthogonal Decomposition

Elias Aitides, Panagiotis Bonovas, Heracles Panagiotides, George Kyriacou

358 - A Closed-Loop Drop-Foot Correction System with Gait Event Detection from the Contralateral Lower Limb using Fuzzy Logic

Vassilis Moulianitis, Vasileios Syrimpeis, Nikolaos Aspragathos, Elias Panagiotopoulos

368 - Multiscale approach for weighted least-squares optical flow for estimating arterial wall displacements

Aimilia Gastounioti, Spyretta Golemati, Nikolaos Tsiaparas, John Stoitsis, Konstantina Nikita

12:30-14:00 **Lunch Break**

14:00-14:45 **Keynote We.2-**

Prof. Metin Akay

Chair: Dimitrios Fotiadis

14:45-16:15 **Session We1.3:** Tissue Engineering and Regenerative Medicine

Chair: Yannis Missirlis, *Co-chair:* Simeon Agathopoulos

318 - Accelerated Differentiation of Myoblast with Electric Pulses in Vitro

Ryuhei Uemura, Shigehiro Hashimoto

320 - Accelerated Differentiation of Myoblast with High Gravitational Force in Vitro

Shigehiro Hashimoto, Takeshi Iwagawa, Aki Nakajima

341 - Use of Atmospheric Plasma Jet Treatments for the Enhancement of Cell Adhesion to 1 mm Internal Diameter Microwell Cell Arrays

Maria Katsikogianni, Feidhlim O'Neill, Anthony Davies, Peadar Mac Gabhann, Denis Dowling

350 - Cell Adhesion on Nanostructured Surfaces Designed by Nanosphere Lithography

Marcus Niepel, Parul Singh, Hartmut Leipner, Bodo Fuhrmann, Thomas Groth

362 - Culture of Central Nervous System Neurons on Electrospun Polymer Fiber-Covered Surfaces

Tanseli Nesil, Melis Olcum, Ismet Deliloglu Gurhan, Ersin Koylu, Aylin Sendemir Urkmez

363 - Influence of Processing Flaws on Cytotoxicity and Genotoxicity of Co-Cr and Ni-Cr Based Dental Crowns and Bridges

Emrah Altas, Ismet Deliloglu Gurhan, Aylin Sendemir Urkmez

16:15-16:45 **Coffee Break**

16:45-18:15 **Session We1.4:** Biomechanics

Chair: Nenad Filipovic, *Co-Chair:* Johannes Soulis

312 - A finite element model of the Ilizarov fixator system

Themis Toumanidou, Leonidas Spyrou, Nikolaos Aravas

325 - Active Segmentation of micro-CT Trabecular Bone Images

Fragiskos Demenegas, Simone Tassani, George Matsopoulos

342 - Supplementary fixation impact on the stability of Ludloff oblique first metatarsal osteotomy

Ilias Theodorakos, Panagiotis Chatzistergos, Athanasios Mitousoudis, Emmanouil Stamatis, Stavros Kourkoulis

359 - Comparative study of mechanical strength of callus after bridging of segmental bone defects with the use of allografts in immunodeficient mice

Grigorios Manoudis, Vekris Marios, Anastasios Korompilias, Simeon Agathopoulos, Alexandros Beris

365 - Biomechanical and in vivo comparison of three fixation devices for the long lasting maintenance of a critical size bone defect in the rat femur _ A proposed model for segmental bone defect research

George Mataliotakis, Simeon Agathopoulos, Marios Vekris, Grigorios Mitsionis

371 - Wave propagation of Rayleigh waves in bones: a gradient viscoelastic approach

Alexios Papacharalampopoulos, Demosthenes Polyzos

20:00-23:00 **Welcome Reception**

Thursday 6 October 2011

08:30-09:00 **Keynote Th.1-** "From Falls Prevention to Vision Restoration: Medical Device Technologies for Improving Quality of Life"

Prof. Nigel Lovell

Chair: Nenad Filipovic

09:00-10:30 **Session Th1.1:** Modeling of Physiological Systems

Chair: Nikos Karacapilidis, *Co-Chair:* Fotini Kariotou

307 - Relative Residence Time and Oscillatory Shear Index of Non-Newtonian Flow Models in Aorta

Johannes Soulis, Olga Lampri, Dimitrios Fytanidis, George Giannoglou

308 - Impact of aortic grafts on hemodynamics: A 1D computational assessment

Orestis Vardoulis, Eline Coppens, Bryn Martin, Philippe Reymond, Nikolaos Stergiopulos

330 - Computer Modeling of Drag Forces in Endoluminal Stent-Graft

Dejan Krsmanovic, Igor Koncar, Dejan Petrovic, Danko Milasinovic, Lazar Davidovic, Nenad Filipovic

332 - Modeling Ablation on the Endocardium and Temperature Distribution during RF Ablation

Milica Obradovic, Nenad Filipovic

339 - A Semi-Automated Patient Specific CFD Analysis Framework for Cardiovascular System Simulations

Evangelos Makris, Panagiotis Neofytou, Sokrates Tsangaris, Christos Housiadas

372 - Exploring the Effect of Arterial Geometry in a Realistic 3D Coronary Arterial Model

Panagiotis Siogkas , Antonis Sakellarios , Kostas Stefanou , Themis Exarchos, Lambros Athanasiou , Konstantinos Siogkas , Lampros Michalis , Katerina Naka , Catrin Bludszuweit-Philipp , Dimitrios Fotiadis

10:30-11:00 **Coffee Break**

11:00-12:30 **Session Th1.2:** Medical Informatics

Chair: Robert Allen , *Co-Chair:* Antonis Billis

317 - An Improved Algorithm for the Automatic Isolation of Lungs in CT Studies

Alberto Rey, Alfonso Castro, Bernardino Arcay

336 - Presentation and study of a fuzzy system: Application to diabetes

Farida Benmakrouha , Christiane Hespel , Edouard Monnier , Daniele Quichaud

353 - Evaluating affective usability experiences of an exergaming platform for seniors

Antonis Billis, Evdokimos Konstantinidis, Aristea Ladas, Panos Bamidis

354 - Fusion of Multimodal Temporal Clinical Data for the Retrieval of Similar Patient Cases

Spyros Tsevas, Dimitris Iakovidis

360 - Advanced treatment and care for patients receiving Ventricular Assist Device (VAD) therapy through efficient monitoring and intelligent decision support algorithms

Evaggelos Karvounis, Nikolaos Katertsidis, Themis Exarchos, Dimitrios Fotiadis

369 - Facilitating Scientific Collaboration in Data-Intensive Biomedical Settings

Nikos Karacapilidis, Manolis Tzagarakis, Spyros Christodoulou, Georgia Tsiliki

13:00-16:30 **Excursion to Asclepieion**

17:00-18:30 **Session Th1.3:** Biomedical Signal and Image Processing

Chair: Metin Akay, *Co-chair:* Matthew Pediaditis

311 - Segmentation of pathology by statistical modeling and distributed estimation

Evangelia Zacharaki, Anastasios Bezerianos

327 - A Bilinear Feature Extraction Method for Rapid Serial Visual Presentation Triage

Ke Yu, Kaiquan Shen, Shiyun Shao, Wu Chun Ng, Xiaoping Li

328 - Detecting Hyper-/Hypothyroidism from Tongue Color Spectrum

Satoshi Yamamoto, Norimichi Tsumura, Masao Ogawa, Keiko Ogawa-Ochiai

335 - An Automatically Initialized Level-Set Approach for the Segmentation of Proteomics Images

Michalis Savelonas, Eleftheria Mylona, Dimitris Maroulis

338 - Recognition and Identification of Red Blood Cell size using Zernike Moments and Multicolor Scattering Images

George Apostolopoulos, Stefanos Tsinopoulos, Evaggelos Dermatas

351 - A methodology for the estimation of the optimal iteration in MLEM-based image reconstruction in PET

Christos Pafilis, Anastasios Gaitanis, Chris Gatis, George Kontaxakis, George Spyrou, George Panayiotakis, George Tzanakos

18:30-20:00 **Session Th1.4:** Biomechanics

Chair: Demosthenes Polyzos, *Co-Chair:* Panagiotis Neofytou

309 - The Effect of Continuous Positive Airway Pressure on Total Cerebral Blood Flow in 23 Healthy Awake Volunteers

Theresia I. Yiallourou , Céline Odier, Bryn A. Martin , José Haba-Rubio, Raphael Heinzer, Lorenz Hirt, Nikolaos Stergiopulos

314 - Large Artery Biomechanical Adaptation Induced by Flow-Overload

Dimitrios Sokolis, Eleftherios Kritharis, John Kakisis, Nikos Stergiopulos , Sokrates Tsangaris

316 - Rupture Properties of Aneurysmal Aortic Roots

Eleftherios Kritharis, Dimitrios Iliopoulos, Spyridon Boussias, Alexandros Demis, Dimitrios Koudoumas, Christos Iliopoulos, Dimitrios Sokolis

334 - Afferent loop syndrome CFD simulation after Billroth II gastric resection

Danko Milasinovic, Aleksandar Cvetkovic, Srđan Ninković, Nenad Filipovic, Milos Kojic

361 - A Computational Model for Tumor Cell Membrane Tolerance and Rigidy Limits

George Lambrou, Apostolos Zaravinos, Maria Adamaki, Spiros Vlaopoulos

370 - Experimental Investigation of the Hemodynamic Field of Occluded Arteries with Double Stenosis

Athanasios Giannadakis, Kostas Perrakis, Thrassos Panidis, Alexandros Romeos

20:30-22:30 **Gala dinner**

Friday 7 October 2011

08:30-09:00 **Keynote Fr.1 -** "Clinical Assessment of the Motion of the Lumbar Spine and of Resistance to Fatigue of the Spinal Muscles"

Prof. Robert Allen

Chair: Yannis Missirlis

09:00-10:30 **Session Fr1.1:** Biomedical Signal and Image Processing

Chair: Franco Simini , *Co-Chair:* Evangelia Zacharaki

333 - Investigation of both power and coherence differences of brain lobes in two mathematical thinking tasks

Vasiliki Iordanidou, Kassia Kanatsouli, Kostas Michalopoulos, Sifis Michelogiannis, Michalis Zervakis

340 - Characterization of evoked and induced activity in EEG and assessment of intertrial variability

Kostas Michalopoulos, Vasiliki Iordanidou, Giorgos Giannakakis, Konstantina Nikita, Michalis Zervakis

343 - The muscle fiber direction estimation method by the pseudo-unipolar record

Masaki Yoshida, Yuto Konishi, Hideo Nakamura, Takumu Hattori, Hisao Oka, Noriaki Ichihashi

345 - Equivalent Brain Source Localization Exploiting the Proper Orthogonal Decomposition of EEG

Elias Aitides, Panagiotis Bonovas, Heracles Panagiotides, George Kyriacou

355 - Gaze Tracker by Electrooculography (EOG) on a Head-Band

Franco Simini, Andrés Touya, Agustín Senatore, José Pereira

356 - Model-Free Vision-Based Facial Motion Analysis in Epilepsy

Matthew Pediaditis, Manolis Tsiknakis, Valentina Bologna, Pelagia Vorgia

10:30-11:00 **Coffee Break**

11:00-12:00 **Session Fr1.2:** Biosensors and Instrumentation

Chair: Sofia Panteliou, Co-Chair: Masaki Yoshida

304 - Double Solenoid ELF Magnetic Field Exposure System for In-Vitro Studies

Chrysoula Sismanidou, Ad Reniers, Peter Zwamborn

326 - An approach for Robot-Assisted Biosensing: Demonstration with MRI-guided MR Spectroscopy

Ahmet Eren Sonmez , Yousef Hedayati, Andrew Webb, Nikolaos Tsekos

347 - The Experimental Results of Tissue Thickness Estimation with UWB Signals for the Purpose of Detecting Water Accumulations in the Human Body

Niestoruk Lukasz, Perkuhn Oliver, Stork Wilhelm

367 - Modal Damping as Bone Quality Index: Experimentation on Women's Femora

John Sarris, Dionysios Papachristou, Sofia Panteliou

12:00-13:00 **Session Fr1.3:** Computational and System Biology

Chair: John Baras, Co-Chair: Milica Obradovic

337 - Integrating microarray data and gene regulatory networks: Survey and critical considerations

Lefteris Koumakis, Giorge Potamias, Michalis Zervakis, Vassilis Moustakis

346 - Laser excitation of retinal ganglion cells

Nico Heussner, Sven Schnichels, Martin Spitzer, Karl Ulrich Bartz-Schmidt, Wilhelm Stork

357 – Extension of the greenspan model to asymmetric tumour growth

George Dassios, Fotini Kariotou

352 - A systems biology model studying the role of cholesterol in Alzheimer's disease progression

Christina Kyrtsos, John Baras

13:00-14:00 **Closing Remarks**