International Conference

ADVANCEMENTS OF MEDICINE AND HEALTH CARE THROUGH TECHNOLOGY

MEDITECH 2016
PROGRAMME

Hosted by the Romanian National Society for Medical Engineering
and Biological Technology
at
Grand Hotel Napoca
Cluj-Napoca, Romania
12th – 15th October 2016

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Wednesday, 12ᵗʰ October 2016

14.30 – 18.30   **Registration**

14.30 – 16.30   *ANSYS Healthcare Solutions*
Prof. Rod Hose - University of Sheffield, UK.
Irina David - ANSYS, Inc. Romanian Channel Partner, INAS S.A. Craiova.
Razvan Stanca - ANSYS, Inc. Romanian Channel Partner, INAS S.A. Craiova.

16.30 – 17.00   **Coffee break**

17.00 – 18.00   *ANSYS Healthcare Solutions*
Prof. Rod Hose - University of Sheffield, UK.
Irina David - ANSYS, Inc. Romanian Channel Partner, INAS S.A. Craiova.
Razvan Stanca - ANSYS, Inc. Romanian Channel Partner, INAS S.A. Craiova

18.00 – 19.00   *Companies hour*

19.00 – 20.00   *SNIMTB Meeting*

Thursday, 13th October 2016

8.30 – 18.30	**Registration**

9.00 – 9.30	**Opening Ceremony** **Location:** Atena Room
9.30 – 11.00	**PLENARY SESSION 1** **Location:** Atena room
9.30	***Heart, Heart Rate, & Heart Rate Variability with RSA Application*** Prof. Kang-Ping Lin**,** IFMBE Secretary-General, Chung-Yuan Christian University, Taiwan
10.30	***The Report between the Technics and Medical Clinic*** Prof. Mircea Gelu Buta, Babeş-Bolyai University of Cluj-Napoca, Romania

11.00 – 11.30	**Coffee break**

11.30 – 14.00	**PLENARY SESSION 2** **Location:** Atena room
11.30	***Innovations – From Good Ideas to Successful Products on the Market*** Prof. Helmut Hutten, Institute of Medical Engineering, Graz University of Technology, Austria
12.30	***The Discrete Event Simulation for Studying of Organizational Models in Health Care*** Prof. Alessandro Pepino, University of Naples "Federico II", Italy

13.30 – 14.30	*Lunch break*

14.30 – 16.00	**SESSION 1:** *Clinical Engineering Assesment* **Chairmen:** *Prof. Patricia Lawford*, University of Sheffield, UK *Prof. Dan Rafiroiu*, Technical University of Cluj-Napoca, Romania **Location:** Atena Room
1.1	***Impact of Spectralis Optical Coherence Tomography in the Clinical Practice*** S.D. Nicoară

	1.2	**Ambulatory Heart Rate Variability Correlates with High-Sensitivity C - Reactive Protein in Type 2 Diabetes and Control Subjects** D.M. Ciobanu, A.E. Crăciun, I.A. Vereşiu, C. Bala, G. Roman
	1.3	**Laparoscopic repair of Morgagni hernia – transfascial suturing with extracorporeal knotting** F. Graur, E. Moiş, N. Al-Momani, N. Al-Hajjar
	1.4	**Ultrasonographic correlations and challenges in liver hemangiomas** I. Grigorescu, Z. Sparchez, R. Badea, M. Dragoteanu, C.D.Piglesan, D.L. Dumitrascu
	1.5	**Assessment of nerve fibers dysfunction in diabetic peripheral neuropathy** G.V. Inceu, G Roman and I.A. Veresiu
	1.6	**Robotic splenectomy using the DaVinci platform** B. Micu, C. Micu, T-R Pop, N. Constantea
	1.7	**Implantable ports in oncology** B. Micu, C. Micu, T-R Pop, N. Constantea
	1.8	**Heart Rate dynamics study on the impact of "Mirror therapy" in patients with stroke** D. Andriţoi, C. Corciovă, C. Luca, D. Matei and R. Ciorap

14.30 – 16.30		**SESSION 2:** *Biomedical signal and image processing. Education and Training* **Chairmen:** *Prof. Helmut Hutten*, Institute of Medical Engineering, Graz University of Technology, Austria *Assoc.Prof. Simona Vlad*, Technical University of Cluj-Napoca, Romania **Location:** Viena room
	2.1	**Non-Linear Analysis of Heart Rate Variability** Z. German-Sallo
	2.2	**Dependency of Tidal Volume on Mean Airway Pressure in High-Frequency Oscillatory Ventilation** J. Matejka and M. Rozanek
	2.3	**Towards a Trial-based, Time-scale Dynamic Detection of M1 and M2 Components from the EMG Stretch Reflex Response**

		M. Tarata, M.S. Serbanescu, D. Georgescu, D.O. Alexandru and W. Wolf
	2.4	*Discriminate Animal Sounds Using TESPAR Analysis* G.P. Pop
	2.5	*Robust analysis of non-stationary cortical responses: tracing variable frequency gamma oscillations and separating multiple component input modulations* A. Dăbâcan and R.C. Mureşan
	2.6	*Comparison of Classifiers for Brain Tumor Segmentation* L. Lefkovits, Sz. Lefkovits, M. F. Vaida, S. Emerich and R. Măluțan
	2.7	*Abnormalities identification in mammograms* L.D. Chiorean, M.F. Vaida and C. Striletchi
	2.8	*What do job adverts tell Higher Education about the 'shape' of Biomedical Engineering graduates?* A.E. Ward, B. Baruah, A. Gbadebo, and N.J. Jackson

16.30 – 17.00	**Coffee break**

17.00 – 18.30		**SESSION 3:** *Medical Devices, Measurement and Instrumentation I* **Chairmen:** *Prof. Winfried Mayr*, Medical University of Vienna, Austria *Prof. Mihai Munteanu*, Technical University of Cluj-Napoca, Romania **Location:** Atena room
	3.1	*A Single-character Refreshable Braille Display with FPGA Control* M. C. Ignat, P. Faragó, S. Hintea, M. N. Roman and S. Vlad
	3.2	*Modular multi-channel real-time bio-signal acquisition system* C. Kast, M. Krenn, W. Aramphianlert, C. Hofer, O. Aszmann and W. Mayr
	3.3	*An EIT belt reference design with active electrodes and digital output* I.Jivet

	3.4	***Age simulation suits for training, research and development*** H. L. Groza, S. B Sebesi and D. S. Mandru
	3.5	***Low Cost Command and Control System for Automated Infusion Devices*** B. Tebrean, S. Crisan, C. Muresan and T.E. Crisan
	3.6	***Low Cost Prototype for Viewing a Real Time Digital Map of Vascularization*** D. Iudean, R. Munteanu jr., E.M. Bindea, D.F. Muresanu and O. Selejan

17.00 – 18.30		**SESSION 4: *Biosensors. Nanotechnologies. Pharmacokinetics*** **Chairmen :** *Prof. Mircea Leabu*, University of Medicine and Pharmacy "Carol Davila" and "Victor Babes" National Institute of Pathology, Bucharest, Romania *Assoc.Prof. Rodica Holonec*, Technical University of Cluj-Napoca, Romania **Location:** Viena room
	4.1	***Cellular nanostructures and their investigation. History and perspectives*** C. M. Niculiţe, Andreea O. Urs, E. Fertig, C. Florescu, M. Gherghiceanu and M. Leabu
	4.2	***Preparation, characterization and preliminary evaluation of magnetic nanoparticles based on biotinylated N-palmitoyl chitosan*** V. Balan, M. Butnaru and L. Verestiuc
	4.3	***New approach for the electrochemical detection of dopamine*** M. Tertiş, A. Florea, A. Adumitrachioaie, D. Bogdan, C. Cristea and R. Săndulescu
	4.4	***Aptamer-based electrochemical sensor for the detection of ampicillin*** B. Feier, I. Băjan, C. Cristea and R. Săndulescu
	4.5	***Assessing Microcirculation for Predictive Purposes with the Aim of Reducing the Amputation Rate in the Case of Patients with Critical Lower Limb Ischemia*** O. Andercou, B. Stancu, A. Mironiuc and H. Silaghi

19.30   **Welcome Party**
Grand Hotel Napoca

Friday, 14ᵗʰ October 2016

09.00 – 18.30	**Registration**

9.00 – 11.00	**PLENARY SESSION 3** **Location:** Atena room
9.00	***Interfacing neurons and muscles*** Prof. Winfried Mayr, Medical University of Vienna, Austria.
9.50	***Virtual Reality and Augmented Visualization in Medicine and Surgery*** Prof. Lucio Tommaso De Paolis, University of Salento, Italy
10.40	***Medical Device Testing – a Key Issue for Patient Safety*** Prof. Radu George Ciorap, University of Medicine and Pharmacy „Grigore T. Popa", Iaşi, Romania

11.00 – 11.30	**Coffee break**

11.30 – 14.30	**PLENARY SESSION 4** **Location:** Atena room
11.30	***Aspects of Medical Technology in Military Medical System*** Dr.med. Doina Baltaru, "Dr. Constantin Papilian" Emergency Military Hospital of Cluj-Napoca, Romania
12.00	***Online Technologies and Virtual Instrumentation in Sensing - Monitoring – Medicine. "Cloud Instrumentation and IoT*** Prof. Doru Ursuţiu, *"Transilvania" University of Brasov, Romania*
12.30	***Advantages of Frequency Domain Processing, in Monitoring the Neuro-muscular Fatigue*** Prof. Mihai Tărâţă, University of Medicine and Pharmacy of Craiova, Romania
13.00	***Half a Century for Jumping to Live Cell Studies at Nanolevel Resolution*** Prof. Mircea Leabu, University of Medicine and Pharmacy "Carol Davila" and "Victor Babes" National Institute of Pathology, Bucharest, Romania

13.30-14.30	**Lunch break**

14.30-16.30	**SESSION 5:** *Medical Devices, Measurement and Instrumentation II* **Chairmen**: *Prof. Radu Ciupa*, Technical University of Cluj-Napoca, Romania *Lecturer Beriliu Ilie,* „Lucian Blaga" University of Sibiu, Romania **Location:** Atena room
5.1	***How to Describe the Skin's Electrical Nonlinear Response*** N.M. Bîrlea, S.I. Bîrlea and E. Culea
5.2	***Case Study of Static and Dynamic Postural Balance of an Overweight Pregnant Woman*** D. Cotoros, A. Stanciu and I. Serban
5.3	***Multipoint Wireless Network for Complex Patient Monitoring based on Embedded Processors*** T. Sumalan, E. Lupu, R. Arsinte and E. Onaca
5.4	***Automated titration of oxygen fraction in inspiratory mixture in mechanical ventilation of life-size mannequin*** M. Rožánek, P. Kudrna and V. Králová
5.5	***Three element Windkessel model to non-invasively assess response to treatment in PAH patients*** A. Lungu, D.R. Hose, D. Capener, D.G. Kiely, J.M Wild and A.J Swift
5.6	***The influence of an orifice plates as a flow sensors on the removal of carbon dioxide in high frequency oscillatory and jet ventilation*** P. Kudrna and M. Rožánek
5.7	***Analysis of Pulse Wave during Magneto-Therapy Session*** C. Luca, D. Andriţoi, C. Corciovă and R. Ciorap
5.8	***Evaluation of the Electric and Magnetic Field near High Voltage Power Lines Exposure to Electromagnetic Fields*** S.F. Braicu, L. Czumbil, D. Stet and D.D. Micu

14.30-16.30	**SESSION 6:** *Telemedicine and Health Care Information Systems* **Chairmen:** *Prof. Mihai Tărâţă*, University of Medicine and Pharmacy of Craiova, Romania *Assoc.Prof. Marius Muji*, „Petru Maior" University, Târgu-Mureş, Romania **Location:** Viena Room
6.1	*Interconnecting heterogeneous non-smart medical devices using a Wireless Sensor Networks (WSN) infrastructure* B. Iancu, R. Kovacs, V. Dadarlat and A. Peculea
6.2	*Algorithm with heuristics for kidney allocation in Transplant Information System* S. Luscalov, L. Loga, D. Luscalov, A. Lăcătuș, G. Dragomir and L. Dican
6.3	*Development of a complex aquisition and storage system of medical data use in a clinical environment* R. Pop Kun, M. Munteanu, D. Rafiroiu, D. Pop Kun and R. Moga
6.4	*Elderly Fall Risk Prediction System* O. Stan, L. Miclea and A. Sarb
6.5	*Particle Swarm Optimization Based Method for Personalized Menu Recommendations* V.R.Chifu, R. Bonta, E.St. Chifu and I. Salomie
6.6	*Diet Generator for Elders using Cat Swarm Optimization and Wolf Search* D. Moldovan, P. Stefan, C. Vuscan, V.R. Chifu, I. Anghel, T. Cioara and I. Salomie
6.7	*Telemonitoring systems and technologies for independent life of elderly* S.B. Sebesi, H.L. Groza and D. Mândru
6.8	*Automatic Learning of Medical Text Annotation Rules – a Case Study on Endoscopies* R.R. Slavescu, M.N. Oltean, A.P. Torok and K.C. Slavescu

16.30-17.30	**POSTER SESSION** **Chairman:** *Dr.Eng. Ştefan Gergely*, National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania
P1	***Chemical Stability of Vitamin B5*** M. Postaru, L. Kloetzer, A.C. Blaga, D. Cascaval and A.I. Galaction
P2	***Determination of the Electrical Parameters of Some ECG Electrodes*** A.R. Iusan, N.M. Bîrlea, M. Paunescu and A. M. Ciupe
P3	***A study of the effects of geometry on the efficiency of single slot microwave ablation antennas used in hepatic tumor hyperthermia*** V. Neagu
P4	***Prioritization of medical devices for maintenance decisions*** C. Corciovă, D. Andriţoi, C. Luca and R. Ciorap
P5	***The impact of dizziness in life's quality of elderly patients with vestibular disorders and their caregivers*** A. Maniu, G.S. Chiș, O.E. Harabagiu, R. Holonec and A.I. Roman
P6	***Exploring hierarchical medical data stored as multi-trees in a relational database*** P. Olah, I. Movileanu, N. Suciu, M. Muji, M. Marusteri, D. Simionescu and C. Avram
P7	***Classical Chemometrics Methods Applied for Clinical Data Analysis*** R. Bleiziffer, M. Culea, C. Sarbu, P. Podea, S. Suvar, A. Iordache and C. Mesaros
P8	***Ozone and intense electric fields applyance in treating of external wounds become overinfected*** R.E. Suărăşan, I. Suărăşan, S.R. Budu, M.I. Suărăşan, A. Maniu, R. Morar
P9	***Thermal rehabilitation influence upon the comfort in hospitals*** A. Abrudan., T. Rus, R. Mare
P10	***Development of Wireless Biomedical Data Transmission and Real Time Monitoring*** *C.M. Fort, S. Gergely and O.A. Berar*
P11	***Monitoring system for the emotional states*** M. Cenusa, M. Poienar, D.L. Milici and S.D. Pata

	P12	*Comparative analysis of cardiovascular risk profile, cardiac and cervical arterial ultrasound in patients with chronic coronary and peripheral* M.A. Stoia, A.D. Farcaş, F.P. Anton, A.I. Roman and L.A.Vida -Simiti
	P13	*Cardiovascular risk profile, cardiac and cervical artery ultrasound in patients with peripheral artery disease* A.D. Farcaş, M.A. Stoia, F.A. Anton, A.I. Roman and L.A Vida-Simiti
	P14	*Modelling the Passive Behavior of the Nervous Cell. Influence of Electric Parameters Variation* M. Creţu, L. Darabant and A. Răcăşan
	P15	*An ECG Front-End device based on ADS1298 converter* C. M. Fort, A. M. Ciupe and S. Vlad
	P16	*Use of machine learning for improvement of similarity searches of patients* B. Petrovan, B. Orza and A. Vlaicu
	P17	*Simulation of Teeth Movement in the Case of Orthodontic Treatment Procedures* T. Coloşi, N. M. Roman, V. Mureşan and O. Nemeş
	P18	*Wireless Systems with Reduced PAPR Using K-means Modified PTS Implemented for Epilepsy Classification from EEG Signals* S.K. Prabhakar and H. Rajaguru
	P19	*Efficient Wireless System for Telemedicine Application with Reduced PAPR Using QMF Based PTS Technique for Epilepsy Classification from EEG Signals* S.K. Prabhakar and H. Rajaguru

16.30-17.00 **Coffee break**

17.00-18.30		**SESSION 7:** *Reabilitation Engineering and Robotics. Bioinformatics.* **Chairmen:** *Prof. Dan Mândru*, Technical University of Cluj-Napoca, Romania *Lecturer Anca Nicu*, „Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania **Location:** Atena room
	7.1	*Motor Imagery Brain-Computer Interface for the Control of a Shoulder-Elbow Rehabilitation Equipment* A. Ianoşi-Andreeva-Dimitrova, D.S. Mândru, M.O. Tătar and S. Noveanu

	7.2	*Performance and efficiency feedback in rehabilitation program with kinematic analysis system – a case study in rehabilitation after lumbar discectomy* S.A. Moldoveanu, L. Pendefunda , C. Luca and D. P. Sardaru
	7.3	*Assistive Technology product innovation through undergraduate projects* A.Ward, I. Grout , L. Grindei and D. Mândru
	7.4	*Study upon the mechanical properties of most used dental restoration materials* D. Cotoros, A. Stanciu and M.M. Scutariu
	7.5	*Principles to build a stochastic model for a minimal biological cell with built-in feedback reaction capabilities* D. Stoicovici, A. Cotetiu, M. Banica, M. Ungureanu, and I. Craciun
	7.6	*Microarray gene expression analysis using R* I. Petre, C. Buiu

17.00-18.30		**SESSION 8:** *Health Technology Assesment* **Chairmen :** *Prof. Alessandro Pepino*, University of Naples „Federico II", Italy *Prof. Călin Munteanu*, Technical University of Cluj-Napoca, Romania **Location:** Viena room
	8.1	*Baby wearing buying decision-making - A focus group exploratory study* A. Constantinescu-Dobra, M.A. Coțiu
	8.2	*A critical analysis of self-assessment tools for improving workers' health and work performance* S.C. Anca
	8.3	*Promoting a Dental Practice on Facebook* A.I. Iancu and S.D. Cîrstea
	8.4	*Generation Z and online dentistry. An exploratory survey on the Romanian market* A. Constantinescu-Dobra, V. Maier
	8.5	*Patient satisfaction with diabetes care in Romania – An importance-performance analysis* M.A. Coțiu and A. Sabou

	8.6	*Analysis of factors that influence OTC purchasing behavior* S.D. Cîrstea, C. Moldovan Teselios and A.I. Iancu

19.30 **Conference Dinner**
Grand Hotel Napoca

Saturday, 15th October 2016

9.00 – 11.00

WORKSHOP: *Romanian National Society for Medical Engineering and Biological Technology*
Location: "Dr. Constantin Papilian" Emergency Military Hospital of Cluj-Napoca, Romania

11.00 – 11.30

Coffee break

11.30 – 13.30

WORKSHOP: *Romanian National Society for Medical Engineering and Biological Technology*
Location: "Dr. Constantin Papilian" Emergency Military Hospital of Cluj-Napoca, Romania

13.30 – 14.00

Closing Ceremony
Location: "Dr. Constantin Papilian" Emergency Military Hospital of Cluj-Napoca, Romania

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