



Biomedicine and Molecular Biosciences

COST Action BM1309 EMF-MED

Workshop on EMF Interaction with Excitable Tissues

Friday 06/03/2015

Instituto de Salud Carlos III, Madrid, Spain

Aula Magna (pav.14), 09:00 – 17:30

Session Chairs: Istvan Hernadi, Eugenijus Kaniusas, Theo Samaras, Antonio Šarolić

- 09:00** **Welcome**
- 09:00 – 10:00** Thierry Keller (*Tecnalia*, Spain):
Challenges in Functional Electrical Stimulation (invited lecture)
- 10:00 – 10:45** Henri Hannula (*Nexstim*, Finland):
Navigated Transcranial Magnetic Stimulation (invited lecture, by teleconference)
- 10:45 – 11:00** ***A Computational Model for Real-time Guiding of TMS in Clinics***
Micaela Liberti ^{1*}, Alessandra Paffi ¹, Francesca Camera ¹, Filippo Carducci ¹, Gianluigi Rubino ², Paolo Tampieri ², and Francesca Apollonio ¹
¹Sapienza University of Rome, Rome, Italy; ²EMS s.r.l., Bologna, Italy
- 11:00 – 11:30** **Coffee break**
- 11:30 – 11:45** ***Transcranial Electric Current Brain Stimulation Modelling: The Effect of Tissue Conductivities on the Calculated Induced Electric Field***
Zoi Manoli ^{1,2}, Theodoros Samaras ^{2*}
¹THESS S.A., Thessaloniki, Greece; ²Aristotle University, Thessaloniki, Greece
- 11:45 – 12:00** ***Effects Of Transcranial Direct Current Stimulation (TDCS) On Sleep-Dependent Memory Consolidation In Elderly Healthy Subjects***
Torsten Eggert ^{*}, Heidi Danker-Hopfe
¹Competence Centre of Sleep Medicine, Charité – University Medicine, 12203 Berlin, Germany
- 12:00 – 12:15** ***The influence of cathodal HD-tDCS over the right V5 on visual motion perception: a study in humans***
Giuseppe A. Zito ¹, Theresa Senti ¹, René Müri ^{1,2}, Urs P. Mosimann ^{1,3}, and Tobias Nef ^{1,4*}
¹Gerontechnology and Rehabilitation Group, University of Bern, Bern, Switzerland; ²Division of Cognitive and Restorative Neurology, Department of Neurology, Inselspital, University of Bern, Bern, Switzerland; ³University Hospital of Old Age Psychiatry and Psychotherapy, University of Bern, Bern, Switzerland; ⁴ARTORG Center for Biomedical Engineering Research, University of Bern, Switzerland
- 12:15 – 12:30** ***High Frequency Repetitive Transcranial Magnetic Stimulation Can Improve the Quality of Life and Depression in Parkinson's Disease: a Randomized, Double-blind, Placebo-controlled Study***
Norbert Kovács ^{1,2*}, Attila Makkos ¹, Endre Pál ², Zsuzsanna Aschermann ², József Janszky ^{1,2}, Éva Balázs ², Katalin Takács ², Sámuel Komoly ²
¹Department of Neurology, University of Pécs, Pécs, Hungary; ²MTA-PTE PTE Clinical neuroimaging Research Group, Pecs, Hungary
- 12:30 – 12:45** ***Our Experiences with the Use of Cranial Electrical Stimulation and Repetitive Transcranial Magnetic Stimulation as Add-On Treatment***
Nada Pop-Jordanova ^{1*}, Silvana Markovska-Simoska ¹, Stojan Barjaktarov ²
¹Macedonian Academy of Sciences and Arts, ²University Psychiatric Clinic, Skopje, Macedonia
- 12:45 – 13:00** ***Theoretical and experimental studies on cortical neurons cultured on MEA systems and exposed to GSM (note: report of a recently completed Short-Term Scientific Mission)***
Francesca Camera
Sapienza University of Rome, Rome, Italy



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- 13:00 – 14:15** **Lunch break**
- 14:15 – 15:00** J. Patrick Reilly (Metatec Associates, USA):
Open issues in electrostimulation modelling (invited lecture, by teleconference)
- 15:00 – 15:15** ***Study of Stimulus Waveform Effect on Nerve Excitability and SENN model verification in Lumbricus Terrestris as a Convenient Animal Model***
Antonio Šarolić, Zlatko Živković
FESB, University of Split, Croatia
- 15:15 – 15:30** ***A Functionalized Anatomical Model Centered Platform for EM-Neuronal Dynamics Interaction Modeling***
Esra Neufeld^{1*}, Niels Kuster^{1,2}
¹IT²IS Foundation for Research on Information Technologies in Society, Zurich, Switzerland; ²Swiss Federal Institute of Technology (ETHZ), Zurich, Switzerland
- 15:30 – 15:45** ***The mechanism of stimulation of nervous system by low-level modulated microwave radiation***
Hiie Hinrikus*, Maie Bachmann, Jaanus Lass, and Anna Suhhova
Department of Biomedical Engineering, Technomedicum, Tallinn University of Technology, Tallinn, Estonia
- 15:45 – 16:15** **Coffee break**
- 16:15 – 16:30** ***Auricular Vagus Nerve Stimulation – A Potential New Treatment in Diabetic Foot Syndrome***
Stefan Kampusch^{1*}, Eugenijus Kaniusas¹, and Jozsef Constantin Széles²
¹Institute of Electrodynamics, Microwave and Circuit Engineering, Vienna University of Technology, Austria; ²University Clinic for Surgery, Medical University Vienna, Austria
- 16:30 – 16:45** ***Ways to an Effective Treatment for Ischemic Stroke – Optimization of Auricular Vagus Nerve Stimulation in Rats***
Sandra Medrano-García¹, Stefan Kampusch², Eugenijus Kaniusas^{2*}, and Fivos Panetsos^{1**}
¹Neurocomputing and Neurorobotics Research Group, Universidad Complutense de Madrid, Spain; ²Institute of Electrodynamics, Microwave and Circuit Engineering, Vienna University of Technology, Austria
- 16:45 – 17:00** ***Is there a role of Extremely Low Frequency Magnetic Fields in Acute Ischemic Stroke in Humans?***
Stefania Setti^{1*}, Vincenzo Di Lazzaro², Fiore Capone², Alessia Ongaro³ Ruggero Cadossi¹
¹IGEA Clinical Biophysics, Carpi (Mo), Italy; ²Department of Neurology, Campus Bio-Medico University of Rome, Italy; ³Department of Morphology, Surgery and Experimental Medicine, University of Ferrara, Italy
- 17:00 – 17:15** ***Extremely Low Frequency Magnetic Field (ELF-MF) Exposure Sensitizes SH-SY5Y Dopaminergic Cells to the pro-Parkinson's Disease Toxin MPP+***
Benassi Barbara^{*1}, Filomeni Giuseppe^{2,3}, Montagna Costanza^{2,3}, Merla Caterina¹, Lopresto Vanni¹, Pinto Rosanna¹, Marino Carmela¹ and Consales Claudia^{*1}
¹Unit of Radiation Biology and Human Health, ENEA-Casaccia, Rome, Italy; ²Department of Biology, Tor Vergata University, Rome, Italy; ³Danish Cancer Society Research Center, Copenhagen, Denmark