

COST EMF-MED

European network for innovative uses of EMFs
in biomedical applications

Workshops and WG Meetings:

**Workshop: Follow-up on developments in Vagus Nerve
Electrostimulation (VNS)**



Workshop on Pain Treatment by Electrostimulation



Workshop on safety of medical, esthetics and cosmetics EMF devices



Joint WGM: EMF-MED Final Event and future initiatives

Vienna, 26-27 October 2017

Final Program

Meeting Venue:

**Vienna University of Technology, Karlsplatz 13, 1040 Wien
AUSTRIA**

Local Organiser:

Prof Eugenijus Kaniusas
Vienna University of Technology (COST EMF-MED MC Member, Austria)
email: eugenijus.kaniusas@tuwien.ac.at
tel. +43 (0)1 58 80 1 - 351 22

Action Chair and Vice-Chair:

Prof. Dr. Antonio Šarolić and Dr. Mirjana Moser

Opening and Welcome session

Workshop: Follow-up on developments in Vagus Nerve Electrostimulation (VNS)

Thursday 26/10/2017, 13:30 – 18:15

Chair: Eugenijus Kaniusas

13:30 – 14:30 **Get-together and registration**

14:30 – 15:00 **Vienna's music** - musical event, courtesy of the Local Organizer

Welcome session

15:00 – 15:15 **Welcome and Introduction**

Eugenijus Kaniusas (Local Organizer, Vienna University of Technology)

15:15 – 16:00 **Vienna's Biomedical Field of Nerve/Muscle Stimulation**

Winfried Mayr (Invited keynote, Medical University Vienna)

16:00 – 16:30 **Coffee break**

Workshop: Follow-up on developments in Vagus Nerve Electrostimulation (VNS)

16:30 – 16:45 ***Szelestim GmbH – the innovation in pain treatment***

Stefan Kampusch^{1,2}, Josef Constantin Szeles², Sarah Lechner², Eugenijus Kaniusas^{1,2}

¹Institute of Electrodynamics, Microwave and Circuit Engineering, TU Wien; ²SzelesSTIM GmbH

16:45 – 17:00 ***Advanced noninvasive electrical stimulation of nervus vagus for insomnia and depression treatment***

Giedrius Varoneckas¹, Eugenijus Kaniusas², Josef Constantin Szeles³

¹Sleep Medicine Centre, Klaipeda University Hospital, Institute of Behaviour Medicine, Lithuanian University of Health Sciences; ²Institute of Electrodynamics, Microwave and Circuit Engineering, TU Wien; ³Department for Surgery, Medical University Vienna

17:00 – 17:15 ***Higuchi fractal dimension of heart rate variability during percutaneous auricular VNS in healthy and diabetic subjects***

Ryszard Gomolka¹, Stefan Kampusch^{2,3}, Eugenijus Kaniusas², Florian Thürk², Jozsef C. Széles³, Włodzimierz Klonowski¹

¹Nalecz Institute of Biocybernetics and Biomedical Engineering Polish Academy of Sciences; ²Institute of Electrodynamics, Microwave and Circuit Engineering, TU Wien; ³Dept. for Surgery, Medical University Vienna

17:15 – 17:30 ***VNS and high-tech in wound surgery***

Jozsef Constantin Szeles^{1,2}

¹Department for Surgery, Medical University Vienna; ²SzelesSTIM GmbH

17:30 – 17:45 ***Percutaneous Auricular Vagus Nerve Stimulation: Sensitivity Assessment of the Numerical Model***

Amine M. Samoudi¹, Stefan Kampusch², Emmeric Tanghe¹, Jozsef C. Széles³, Luc Martens¹, Eugenijus Kaniusas², Wout Joseph¹

¹INTEC, Ghent University/imec, Ghent, Belgium; ²Biomedical Sensing, Institute of Electrodynamics, Microwave and Circuit Engineering, TU Wien, Vienna; ³University Clinic for Surgery, Medical University Vienna, Austria

17:45 – 18:00 ***Hub and neuronal network of sympathetic and parasympathetic systems in the brainstem following VNS***

Michele Papa¹

¹Laboratory of Neuronal Networks, Dept. of Mental and Physical Health and Preventive Medicine, University of Campania "Luigi Vanvitelli", 80138 Naples, Italy

18:00 – 18:15 ***Possibilities and risks in animal VNS***

Fivos Panetsos^{1,2}

¹Neurocomputing & Neurorobotics Research Group, Complutense Univ of Madrid, Madrid, Spain; ²Health Research Institute, San Carlos Clinical Hospital (IdISSC), Madrid, Spain

19:30: Social Dinner at the traditional vinery – courtesy of Dr. M. Häupl, the Mayor of the City of Vienna

COST EMF-MED Workshop on Pain Treatment by Electrostimulation

Friday 27/10/2017, 09:00 – 13:00

Chairs: Antonio Šarolić and Eugenijus Kaniusas

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| 08:30 – 09:00 | Registration and welcome coffee |
| 09:00 – 09:30 | Introductions to the event |
| 09:30 – 10:15 | <p><i>Nerve Modelling/Conduction block</i>
 Frank Rattay¹ (invited keynote)
 ¹Institute for Analysis and Scientific Computing, TU-Wien</p> |
| 10:15 – 10:30 | <p><i>Pain Treatment by Electrostimulation</i>
 Antonio Šarolić¹
 ¹FESB, University of Split, Croatia</p> |
| 10:30 – 10:45 | <p><i>Electrical stimulation of dorsal root ganglion in the context of pain: systematic reviews of animal and human studies</i>
 Ivana Vuka¹, Tihana Repić¹, Katarina Vučić², Svjetlana Došenović³, Lejla Ferhatović Hamzić¹, Damir Sapunar¹, Livia Puljak^{1, 4}
 ¹Laboratory for Pain Research, University of Split School of Medicine, Croatia; ²Department for Quality, Safety and Efficacy Assessment of Medicinal Products, Agency for medicinal products and medical devices, Zagreb, Croatia; ³Departement of Anesthesiology and Intensive Care, University Hospital Center Split, Split, Croatia; ⁴Department for Development, Research and Health Technology Assessment, Agency for Quality and Accreditation in Health Care and Social Welfare, Zagreb, Croatia</p> |
| 09:30 – 10:15 | <p><i>Development of the implantable and programmable device for electrical stimulation of dorsal root ganglion in rats</i>
 Tihana Repić¹
 ¹Laboratory for Pain Research, University of Split School of Medicine, Croatia</p> |
| 11:00 – 11:30 | Coffee break |
| 11:30 – 11:50 | <p><i>Theory and numerical experiments on nerve blockage</i>
 Eugenijus Kaniusas¹
 ¹Institute of Electrodynamics, Microwave and Circuit Engineering, TU Wien</p> |
| 11:50 – 12:15 | <p><i>Evaluation of spinal cord response during magnetic stimulation of the lumbar area</i>
 Laura Darabant¹, Radu Ciupa¹, Mihaela Cretu¹
 ¹Technical University of Cluj-Napoca</p> |
| 12:15 – 12:30 | <p><i>A Flexible, Neuro-Functionalized Anatomical Model-Centered, Multi-Physics/-Scale Simulation Platform – Vision for the Computational Investigation of Electroceuticals and PNS-Based Organ Physiology Modulation</i>
 Antonino M. Cassara¹
 ¹IT'IS Foundation, Zurich, Switzerland</p> |
| 12:30 – 13:00 | <p><i>Clinical aspects and implants for pain treatment by electrostimulation</i>
 Leonardo Kapural^{1, 2} (invited keynote)
 ¹Carolinas Pain Institute and Center for Clinical Research; ²Wake Forest University, School of Medicine</p> |
| 13:00 – 14:30 | Lunch |

Workshop on safety of medical, esthetics and cosmetics EMF devices

Friday 27/10/2017, 14:30 – 15:50

Chair: Theodoros Samaras

- 14:30 – 14:45** *EMF applications in aesthetic medicine*
Theodoros Samaras¹
¹Aristotle University of Thessaloniki, Greece
- 14:45 – 15:05** *Health risks related to EMFs used in esthetic devices*
Olivier Merckel¹, Rémi Poirier¹
¹Anses – French Agency for Food, Environmental and Occupational Health Safety
- 15:05 – 15:50** *EMC and safety of medical devices*
Almir Badnjević¹, Leandro Pecchia²
¹Genetics and Bioengineering Department at Faculty of Engineering and Information Technologies, International Burch University; ²University of Warwick, UK
- 15:50 – 16:15** **Coffee break**

Joint WG Meeting: EMF-MED Final Event and future initiatives

Friday 27/10/2017, 16:15 – 17:30

Chaired by the COST EMF-MED Steering Group

Sponsors



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www.szelestim.com



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Dr. M. Häupl, the mayor of Vienna city
www.wien.at