

SCIENTIFIC PROGRAM

Sunday, 8 October 2000

- 17:00-20:00 **Registration Desk Open (Festival Hall)**
17:00-20:00 **Poster Mounting (Festival Hall)**
20:00-21:00 **Get-together Party (Festival Hall)**

Monday, 9 October 2000

- 7:00-17:00 **Registration Desk Open**
8:15-8:30 **Opening Remarks**

8:30-9:15 **IL: Invited Lecture: Erwin Neher** **IL-1L**
New perspectives on neurotransmitter release and synaptic short term plasticity (*E. Neher*)
Chairs: *Eberhard Neumann & Damijan Miklavcic*

9:15-10:15 **Official Photography (in front of the Festival Hall) and Toast**

Monday **EP: Electroporation** (platform presentations)
10:15-12:15 Chairs: *Lluis M. Mir & Gregor Sersa*

- 10:15 Electrooptical and conductometrical relaxation techniques and the crossmembrane transport of genetic polyelectrolytes (*Eberhard Neumann*) **EP-1L**
- 10:30 Evaluation of cell membrane electroporation by means of a nonpermeant cytotoxic agent (*Tadej Kotnik, Alenka Macek-Lebar, Damijan Miklavcic, Lluis M. Mir*) **EP-2L**
- 10:45 Tumor blood flow modifying and anti-vascular effect of electrochemotherapy (*Gregor Sersa, Maja Cemazar*) **EP-3L**
- 11:00 Impedance spectrometry for measurement and controlling tissue effects of electric pulse treatment (*Bertil R.R. Persson, Catrin Baureus Koch, Per Engstrom, Leif G. Salford*) **EP-4L**
- 11:15 Electric pulses induced changes in tumor blood flow: dynamic contrast-enhanced MRI study (*Teodora Ivanusa, Katarina Beravs, Franci Demsar, Vladimir Jevtic, Gregor Sersa*) **EP-5L**
- 11:30 Electroporation increases radiosensitizing effect of cisplatin on LPB fibrosarcoma (*Simona Kranjc, Maja Cemazar, Alenka Grosel, Gregor Sersa*) **EP-6L**
- 11:45 Therapeutic perspectives of in vivo cell electroporation: electrochemotherapy and DNA electrotransfer for nonviral gene therapy (*Lluis M. Mir*) **EP-7L**

12:30-14:00 **Lunch (Park Hotel)**

Monday 14:00-16:00	TM: Theory and Models (platform presentations) Chairs: <i>Selma Supek & Tomaž Slivnik</i>	
14:00	Numerical simulation studies on neuromagnetic source discrimination: when, where, and how many (<i>Selma Supek</i>)	TM-1L
14:15	Modelling the electric field and ionic charge distribution in biological tissue through the equivalent electric circuit method (<i>Airton Ramos, Adroaldo Raizer, Jefferson L.B. Marques</i>)	TM-2L
14:30	Thickness of electric double layer. Effect of ion size. (<i>Klemen Bohinc, Veronika Kralj-Iglic, Ales Iglic, Tomaz Slivnik</i>)	TM-3L
14:45	Effective conductivity of cell suspensions (<i>Mojca Pavlin, Tomaz Slivnik, Damijan Miklavcic</i>)	TM-4L
15:00	Usefulness of double plane method for 3D reconstruction (<i>Tomislav Pribanic, Mario Cifrek, Stanko Tonkovic</i>)	TM-5L
15:15	Chaotic response of integral pulse frequency modulation and consideration on the auditory system (<i>Takahide Matsuoka, Tokihiro Sano</i>)	TM-6L
15:30	Modeling of skeletal muscle belly twitch response (<i>Natasa Knez, Vojko Valencic, Ales Belic, Rihard Karba</i>)	TM-7L
15:45	Time-varying and static magnetic field therapeutics: from mechanisms to clinical applications (<i>Arthur A. Pilla, David J. Muehsam</i>)	TM-8L

16:00-17:00 **Coffee Break**

Monday
16:00-17:00 **POSTER VIEWING (part I) for Scientific Sessions:**
EP: Electroporation
TM: Theory and Models

Monday **TM: Theory and Models (posters)****16:00-17:00**

- poster Do realistic head models need to include brain lesions for EEG inverse problem solution? (Paolo Bruno, Ricardo Zangrando, Federica Vatta, Paolo Inchingolo) **TM-9P**
- poster Low resolution surface Laplacian computation for brain computer interface classifiers (Febo Cincotti, Josep Mourino, Giada Pirri, Jose Millan, Luigi Bianchi, Serenella Salinari, Maria Grazia Marciani, Fabio Babiloni) **TM-10P**
- poster Cell models and RF electric field absorption distribution (Jose L. Sebastian, S. Munoz, M. Sancho, J.M. Miranda, B. Ribas Ozonas) **TM-11P**
- poster Pharmacokinetic model of transmembrane transport, due to electropermeabilization (Marko Puc, Tadej Kotnik, Lluís M. Mir, Damijan Miklavcic) **TM-12P**
- poster Conductivity model of human stomach for electrogastrographic studies (Ilmari Konkka, Hannu Eskola, Jari Punkkinen, Vaino Turjanmaa, Pekka Pikkarainen) **TM-13P**
- poster Dependency of the inverse ECG solutions on the number of electrodes - Effects of modelling error and measurement noise (Hanna-Greta Puurtinen, Jari Hyttinen, Paivi Laarne, Juha Nousiainen, Jaakko Malmivuo) **TM-14P**
- poster Localization errors due to noise versus localization errors due to the 3-shell spherical head model (Bart Vanrumste, Gert Van Hoey, Rik Van de Walle, Michael D'Have, Paul Boon) **TM-15P**
- poster Influences of the peripheral resistance and graft diameter on the wall shear stress near arterial anastomoses (Stoyan Stoytchev) **TM-16P**

Monday **TD: Technology and Devices (posters)****16:00-17:00**

- poster VI-EMA2: a device for the simultaneous recordings of eye movements and extraocular muscles electromyography (Agostino Accardo, Pensiero Stefano) **TD-10P**
- poster An object oriented approach to biofeedback applications for disabled people (Luigi Bianchi, Fabio Babiloni, Febo Cincotti, Serenella Salinari, Maria Grazia Marciani) **TD-11P**
- poster A computer-based acupuncture medical instrument (Xiao Wei Sun, Q.M. Zhu) **TD-12P**
- poster On the method and the device for mechanical impedance measuring of human cervix uteri (Sergei Mazitov, Nickolay Minchenya, Sergei Voskresensky, Andrew Savchenko, Andrew Dudinsky) **TD-13P**
- poster The utilization of clustering methods to identify the diagnosis in medical practice (Cristina G. Dascalu, Lucian Boiculese, Gabriela Georgescu) **TD-14P**
- poster Preliminary results of a new method for non-invasive glucose measurement (S. M. Alavi, A. Rouane, M. Nadi) **TD-15P**
- poster Microwave applicators for "BPH" treatment (Jan Vrba, Miroslav Lapes, J. Domes, Ladislav Oppl, G. Saliba) **TD-16P**
- poster Microwave applicators compatible "NMR" (Jan Vrba, I. Zuna, P. Peschke, L. Schad, L. Pousek, Miroslav Lapes, Ladislav Oppl, G. Saliba, P. Novak) **TD-17P**
- poster Technical and clinical activities of microwave thermotherapy in Czech Republic (Jan Vrba, Miroslav Lapes, Ladislav Oppl) **TD-18P**
- poster Development of building materials for protection of human house from electromagnetic smoke (Alexey N. Goltsov, Oleg I. Fisun, Yuriy K. Alexandrov) **TD-19P**
- poster Computerized analysis of erythrocyte concentration in complex microvascular network (Mahadevappa Manjunatha) **TD-20L**

poster Installation for compensation of geomagnetic storms in apartments for prophylaxis and rehabilitation of magnetolabile patients (*Otar Khomeriki, Nikolai Invia, David Tvildjani, Tamar Chlaidze, Levan Tvildjani, Dshavara Ugrechelidze, Lev Gheonjian, Tamar Paatashvili, Galina Jimneleshvili*) TD-21P

Monday **TD: Technology and Devices (part I)** (platform presentations)

17:00-18:00 Chairs: *Arthur Pilla & Franjo Pernuš*

17:00 Testing of medical electrical equipment - ultrasonic therapy equipment (case study) TD-1L
(*Dubravko Kovacic, Bozidar Curkovic, Ratko Magjarevic, Branko Breyer*)

17:15 Immunity of pacemakers at low frequency signals (*A. Hedjiedj, C. Goeuru, M. Nadi*) TD-2L

17:30 Analysis of fundamental limitations of electric-type hyperthermia applicators based on the TLM method (*Hugo Dominguez, Adroaldo Raizer*) TD-3L

17:45 Effects of microwaves exposure (GSM-900; CW 915 MHz) on ODC-activity and polyamine levels in mice nad rats (*Bertil R.R. Persson, Lo Persson, Leif G. Salford*) TD-4L

18:00-19:00 **ISBEM General Meeting (Festival Hall)**

19:00-20:00 **ISBEM Council Meeting (Grand Hotel Toplice, White Lounge)**

Tuesday, 10 October 2000

8:00-16:30 **Registration Desk Open**

8:15-8:30 **Opening Remarks**

Tuesday **BM: Bioelectromagnetic Measurements (part I)** (platform presentations)

8:30-10:00 Chairs: *Jaakko Malmivuo & Marko Munih*

8:30 **Invited lecture: Roberto Merletti** BM-1L
Surface EMG detected with linear electrode arrays: a window on muscle features and force control strategies (*Roberto Merletti, Dario Farina, Marco Gazzoni*)

9:00 The new analysing method for the surface EMG data (*Viiu Tuulik, Rain Ferenets, Jaanus Lass, Mai*)

10:00-11:00 *Coffee Break*

Tuesday **POSTER VIEWING (part II) for Scientific Sessions:**

10:00-11:00

BM: Bioelectromagnetic Measurements

FM: Fundamental Mechanisms of EMF Interactions

ST: Soft Tissue and Bone Healing

Tuesday

10:00-11:00

BM: Bioelectromagnetic Measurements (posters)

- poster Recognition of imagined hand movements by signal space projection and Fisher discriminant linear classifiers (*Fabio Babiloni, Febo Cincotti, Luigi Bianchi, Giada Pirri, Jose Millan, Josep Mourino, Serenella Salinari, Maria Grazia Marciani*) **BM-11P**
- poster Localization of dual preexcitation sites using electrocardiographic inverse solution (*Vojko Jazbinsek, Rok Hren*) **BM-12P**
- poster Difference in single dipole localization of visual evoked potentials using two skull resistivity models (*Paivi Laarne, Mirja Tenhunen-Eskelinen, Jari Hyttinen, Hannu Eskola*) **BM-13P**
- poster An effective method to measure evoked potential (*Bor-Shyh Lin, Bor-Shing Lin, Jiann-Ling Liu, Fok-Ching Chong*) **BM-14P**
- poster Impedance characteristics of the vocal tract soft tissues (*Vojtech Misun, Anna Ryndova*) **BM-15P**
- poster Sensitivity of EEG source localisation to brain lesion conductivity as a method to improve source estimate position (*Federica Vatta, Paolo Bruno, Paolo Inchingolo*) **BM-16P**
- poster The measure of dimensional complexity in the EEG of schizophrenic patients (*Ying-Jie Lee, Yi-Sheng Zhu, Min-Fen Shen, Jia-Yi Chen, Hong-Xuan Zhang*) **BM-17P**

Tuesday

10:00-11:00

FM: Fundamental Mechanisms of EMF Interactions (posters)

- poster Effect of 50 Hz magnetic fields on lipid peroxidation of the rat kidney (*Henri M. Brugere, Francoise Pupin, Jacques Lambrozo*) **FM-7P**
- poster The studies on the influence of intestinal myoelectrical activity-related electromagnetic field (EMF) on bacterial growth and protein profiles in *Escherichia coli* cells (*Daniel Laubitz, Anna Wojcik, Elzbieta Grzesiuk, Stefan G. Pierzynowski*) **FM-8P**
- poster The intestinal myoelectrical activity-related electromagnetic field exposure of bacteria induces protection against subsequent UV254nm (UVC) irradiation (*Anna Wojcik, Daniel Laubitz, Stefan G. Pierzynowski, Elzbieta Grzesiuk*) **FM-9P**
- poster Influence of modulated uncharged-particle beams on the spontaneous brain activity (*Kiril G. Markov, A. I. Enikova, D. Chavdarov, P. Zubov*) **FM-10P**
- poster MMW pretreatment initiate protective effect in thylakoid membranes after adding of electron flow inhibitors (*Lubomir Traikov, V. Goltsev, V. Dolchinkova, Marko S. Markov*) **FM-11P**

Tuesday

10:00-11:00

ST: Soft Tissue and Bone Healing (posters)

- poster A new type of very low-power modulated laser device: soft-tissues changes induced in osteoarthritic patients revealed by sonographic examination (*L. Baratto, R. Capra, M. Farinelli, P. Monteforte, Pietro Morasso, G. Rovetta*) **ST-6P**
- poster Accelerated healing of electrically stimulated chronic wounds (*David Cukjati, Rajmond Savrin, Helika Benko, Stanislav Rebersek, Damijan Miklavcic*) **ST-7P**
- poster Therapeutic electromagnetic field effects on angiogenesis during tumor growth (*C. D. Williams, Marko S. Markov*) **ST-8P**

- poster Electrically conductive and ferromagnetic nerve guide hinders regeneration of rat's sensory axons. Preliminary report. (*Martin Tomsic, Fajko Bajrovic*) ST-9P
- poster Treatment of in-stent restenosis by RF heating (*Igor Sersa, Matjaz Sinkovec*) ST-10P
- poster Frequency-dependend alteration of skin wound healing pulsed extremely low frequency electromagnetic fields (*Fathollah Bouzarjomehri, Sohrab Hajizadeh, Ali Akbar Sharafi, Siid Mohammad Firoozabadi*) ST-11P
- poster Possible implication of reactive oxygen species, immune system and pH in electrochemical treatment (*Luis Bergues, Hector Camue, Rodolfo Perez, Magalys Suarez, Richard Hinojosa, Liban Montes de Oca, Miriam Farina, Odalis de la Guardia*) ST-12P
- poster Effects of direct electric current in tumors treatment (*Luis Bergues, Hector Camue, Rodolfo Perez, Magalys Suarez, Richard Hinojosa, Liban Montes de Oca, Miriam Farina, Odalis de la Guardia*) ST-13P

Tuesday 11:00-12:15 **BM: Bioelectromagnetic Measurements (part II)** (platform presentations)
Chairs: *Hannu Eskola & Vojko Valenèiè*

- 11:00 Method for measuring resistivities for intracranial tissues in vivo (*Juha Latikka, Timo Kuurne, Jaakko Malmivuo, Hannu Eskola*) BM-6L
- 11:15 An evaluation of the reciprocal approach for computing scalp EEG potentials (*Stefan Finke, Ramesh M. Gulrajani*) BM-7L
- 11:30 Multimodal integration of high resolution EEG and functional magnetic resonance (*Fabio Babiloni, Febo Cincotti, Filippo Carducci, Leonardo Angelone, Cosimo Del Gratta, Gian Luca Romani, Paolo Rossini, Claudio Babiloni*) BM-8L
- 11:45 Waveform of EOG is dependent on the direction of movement (*Hannu Eskola, H. Aalto, I. Rimpilainen, V. Jantti, V. Hakkinen*) BM-9L
- 12:00 Retrieval of brain temperatures from radiometric brightness temperature measurements using 3-D EM and thermal modelling (*Gerard M.J. Van Leeuwen, Jeff W. Hand, Shizuo Mizushina, Jeroen B. Van de Kamer, David A. Edwards*) BM-10L

12:30-14:00 **Lunch (Park Hotel)**

Tuesday 14:00-15:30 **FM: Fundamental Mechanisms of EMF Interactions** (platform presentations)
Chairs: *Marko S. Markov & Igor Jerman*

- 14:00 Combined magnetic fields reverse osteopenia and restore strength in a rodent model of osteoporosis (*James T. Ryaby, Ellen Jurischk, David L. Haupt, John H. Kinney*) FM-1L
- 14:15 New evidence for existence of biological windows (*Marko S. Markov*) FM-2L
- 14:30 Effects of 50-Hz magnetic fields on Ca²⁺ oscillations in mouse pancreatic islets (*F. Madec, B. Billaudel, P. Sartor, Bernard Veyret*) FM-3L
- 14:45 Non-thermal effects of microwave fields on cell proliferation and heat-shock proteins (*Sianette Kwee, Svetlozar Velizarov*) FM-4L
- 15:00 Electromagnetic fields accelerate electron transfer reactions (*Martin Blank, Lily Soo*) FM-5L
- 15:15 Biologically based safety standards for cell phones: discriminating between heat and magnetic fields (*Reba M. Goodman, Martin Blank*) FM-6L

15:30-16:30 **Coffee Break**

Tuesday **POSTER VIEWING (part III) for Scientific Sessions:**

15:30-16:30 EM: Electric and Magnetic Stimulation

HR: EMF Health Risk Effects and Dosimetry

Tuesday **EM: Electric and Magnetic Stimulation** (posters)

15:30-16:30

poster The comparison of the H-reflex parameters in electrical stimulations of vertebral column and peripheral (*F. Ebrahimi, Siid Mohammad Firoozabadi, G. Torkaman*) EM-8P

poster The effects of tripolar precutaneous lumbar stimulation on the H-reflex recruitment curve (*N. Saeedi, S. M.P. Firoozabadi, G. Torkaman, A. Kazemnejad*) EM-9P

Tuesday **HR: EMF Health Risk Effects and Dosimetry** (posters)

15:30-16:30

poster Effects of 50 Hz, 14 mTrms circularly polarized magnetic field exposures on cytokine production of mouse macrophage (*Hiromi Kubota, Izumi Nishimura*) HR-7P

poster Development of spontaneous leukemia in AKR mice exposed to 50 Hz, 350 microTrms, circularly polarized magnetic field for 6 to 30 weeks (*Izumi Nishimura, Hiromi Kubota*) HR-8P

poster GSM phones and nervous system in rats: quantification and localisation of neurotransmitters with immunohistochemistry and image analysis (*A. L. Mausset, Rene de Seze, L. Miro, A. Privat*) HR-9P

poster Studies of pulsed 900/1800 MHz RF-fields on the permeability of the blood-brain barrier in rats (*Bertil R.R. Persson, Lars Malmgren, Arne Brun, Leif G Salford*) HR-10P

poster Is the macrophage multinucleation consequence of microwave irradiation (*Ivancica Trosic, Mirjana Matausic-Pisl, Zeljko Radalj, Ivana Busljeta*) HR-11P

poster The effect of extremely-high-frequency electromagnetic radiation on immunological indices in healthy mice under different exposure regimens (*Konstantin V. Lushnikov, Andrew B. Gapeyev, Vladimir B. Sadovnikov, Nikolay K Chemeris*) HR-12P

poster Late ventricular potentials in workers exposed to VHF electromagnetic fields (EMF) (*Alicja Bortkiewicz, Elzbieta Gadzicka, Marek Zmyslony, Wieslaw Szymczak*) HR-13P

poster Late ventricular potentials in workers exposed to electromagnetic fields at frequencies 0.738 to 1.503 MHz (*Elzbieta Gadzicka, Alicja Bortkiewicz, Marek Zmyslony, Wieslaw Szymczak*) HR-14P

poster Comparison between SAR values induced in the head by cellular phones and hands-free kits (*Rosanna Pinto, S. Mancini, D. Asta, G. A. Lovisolo*) HR-15P

Tuesday **ST: Soft Tissue and Bone Healing** (platform presentations)

16:30-17:45 Chairs: *Ruggero Cadossi & Martin Štefanè*

16:30 Physiological DC electric fields in developing embryos and healing wounds (*Richard Nuccitelli, Rivkah R. Iseroff, Erik V. Mukerjee, Scott D. Collins, Rosemary L. Smith*) ST-1L

16:45 Spinal cord explants in vitro: effects of static magnetic fields (SMF) and ara-C on neurite growth. (*Betty F. Sissen, Roy Trumbo, Andrew Twehues*) ST-2L

17:00 Effects of various EMF on nerve regeneration in vitro (*Ewa Herbst, Philip Resig, Scott Ranney, Betty F. Sissen*) ST-3L

17:15 Combined magnetic fields accelerate primary spine fusion: a prospective, double blind, randomized, placebo controlled clinical study. (*James T. Ryaby, Raymond J. Linovitz, Frank P. Magee, Joel S. Faden, Regina Ponder, Larry R. Muenz*) ST-4L

17:30 Clinical experience with capacitively-coupled electric fields (*Myron K. MacDonald, M. J.H. Bonneau*) ST-5L

17:45-18:30 **Poster Dismounting**

19:30-22:00 **Cocktail & Conference Banquet (Grand Hotel Toplice)**

Wednesday, 11 October 2000

9:00 Departure of buses from in front of Grand Hotel Toplice

10:30-... **Excursion to the Institute of Republic of Slovenia for Rehabilitation in Ljubljana**
Lunch

16:00-... **Visit to Postojna Caves**

19:30 Return to Bled

Thursday, 12 October 2000

8:00-16:00 **Registration Desk Open**

8:15-8:30 **Opening Remarks**

Thursday **EM: Electric and Magnetic Stimulation** (platform presentations)
8:30-10:15 Chairs: *Shoogo Ueno & Milan Gregoriè*

8:30 Recent advances in brain magnetics and tissue engineering (*Shoogo Ueno*) EM-1L

8:45 Influence of hip extensors and ankle plantar flexors stimulation on paraplegic person's standing-up (*Jernej Kuzelicki, Tadej Bajd, Roman Kamnik, Pavla Obreza, Helika Benko, Martin Stefancic*) EM-2L

9:00 Proprioceptive neuromuscular facilitation with electrical stimulation (*Pavla Obreza, Marko Munih, Helika Benko*) EM-3L

9:15 Long-term effects of electrical stimulation on parameters of postocclusive reactive

Thursday **TD: Technology and Devices (part II)** (platform presentations)

10:45-12:00 Chairs: *Ratko Magjarević & Marjan Mihelin*

- 10:45 Correlation between results of different methods for measurement of blood perfusion and oxygenation changes in tumors after electrochemotherapy (*Tomaz Jarm, Fritz Steinberg, Maja Cemazar, Christian Streffer, Gregor Sersa, Damijan Miklavcic*) TD-5L
- 11:00 Impact of different anisotropic conductivity conditions on cardiac magnetic fields and electric potentials (*Olaf Kosch, P. Meindl, U. Steinhoff, V. Jazbinsek, Z. Trontelj, L. Trahms*) TD-6L
- 11:15 Evaluation of an automated system for cell colony counting (*Rok Bernard, Masa Kanduser, Franjo Pernus*) TD-7L
- 11:30 Acoustical evaluation of ultrasonic horns for an endoscopic contact ultrasonic probe (*Alan Stimac, Bojan Ivancevic, Kristian Jambrosic*) TD-8P
- 11:45 Novel macromolecular contrast agents for dynamic contrast enhanced MRI (*Katarina Beravs, Teodora Ivanusa, Franci Demsar, Vladimir Jevtic, Igor Sersa, Gregor Sersa*) TD-9L

12:30-14:00 **Lunch (Park Hotel)**

Thursday **HR: EMF Health Risk Effects and Dosimetry** (platform presentations)

14:00-15:30 Chairs: *John de Lorge & Peter Gaš ek*

- 14:00 Project NEMESIS: double-blind study on effects of 50Hz EMF on physiological parameters during sleep in people suffering from electrical hypersensitivity (*Christopher H. Mueller, Helmut Krueger, Christoph Schierz*) HR-1L
- 14:15 Parametric dependence of Specific Absorption Rate (SAR) on permittivity of different biological tissues (*Peter Gajsek, Patrick A. Mason, J. M. Zirix, W. D. Hurt, T. J. Walters*) HR-2L
- 14:30 An inverse scattering approach for the electric field prediction in biological bodies (*Emanuela Bermani, Salvatore Caorsi, Andrea Massa*) HR-3L
- 14:45 Temporal skin warming during exposure to cellular telephones (*G. Pina, P. Malzac, Rene de Seze*) HR-4L
- 15:00 An attempt to replicate microwave effects on calcium efflux from chick brain (*James H. Meritt, Patrick A. Mason*) HR-5L
- 15:15 Modulated 900 MHz exposure condition characterization for the study on immune system of mice and preliminary results (*D. Asta, L. Ardoino, Paolo Galloni, Rosanna Pinto, C. Pioli, C. Marino*) HR-6L

15:30-16:30 **Results of Student Competition**

Conference Closing