

# BIOELECTROMAGNETICS

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### NEWS FROM THE BEMS BOARD— SUMMARY OF MEETING #90

The Bioelectromagnetics Society Board of Directors meeting #90 was held on June 20, 2004 at the Omni Shoreham, Washington, D.C. Following is a summary of some items discussed, edited for length.

After adoption of agenda, welcome and introductions, plus approval of previous minutes, the meeting proceeded to a report from outgoing president Shoogo Ueno. He expressed his sincere appreciation for the support, hard work and contributions of officers and board members to BEMS activities over the past year. He noted that restructuring of the Society's financial assets has been completed, and the Development Committee is actively seeking new sources of grant income. Also in the past year, the Society made a transition to elections carried out mostly by e-mail and using Web-based tools. Abstract submission and review was also conducted mostly online. And, the BEMS 25-year history book project is nearing completion.

#### Technical Program of the 2004 Annual Meeting

President-Elect Bruce McLeod noted the topics of 2004 plenary sessions, and said that several attendees had visa problems, which will leave holes in the technical program. But overall, 277 abstracts (81 from students) were presented in this year's meeting. Student travel was partially supported with a Whitaker grant of \$5,000, McLeod added. The number of applications for student support has increased with awareness of this form of support. Finally, McLeod said that all papers for the technical program were collected online this year with paper submissions entered by Gloria Parsley's staff. The review process was also handled entirely via the BEMS Web site.

#### Ancillary Meeting Policy

The Board discussed its policy on ancillary meetings held in conjunction with BEMS but not sponsored by the Society. The adopted Board statement appeared in Newsletter #179, on page 11.

#### Online Speaker Assistance

An online speaker-ready service was employed this year for those planning presentations at the Annual Meeting. It offered presenters the ability to send slide presentations uploaded in advance, but it was not widely used.

#### Treasurer's Report

The Society's financial books were reviewed and a year-end financial report was presented by Marvin Ziskin. The Society's investments are now placed in an account with Merrill Lynch, managed by Peter Della-Croce. Assets are invested at a long-term risk

level with a 90 percent profit range of +25.7 percent to -7.2 percent. Ziskin reported the following major profit / loss centers:

- Membership +\$30k (roughly constant)
- Journal +\$67k (increasing)
- Conference and grants -\$22k (low even after corrected for unusual expenditures)
- Newsletter -\$10k

There was general consensus of the Board that the Society is facing financial difficulties, and this is part of the reason for some of the cost-cutting measures implemented recently.

#### Awards Committee Report

Chair Marko Markov said he would like to de-emphasize the competition aspect of student participation in the Society. It was suggested that Markov, as chair of the awards committee, collaborate with his EBEA counterparts to propose an alternative to competitive student participation, if possible, for next year's meeting.

#### Development Committee

A weak economic climate in the US continues to constrain fundraising for the Society, according to committee chair Richard Nuccitelli. As of June 1 a total of \$127,000 had been raised, compared to \$143,084 at the same time last year. Nuccitelli listed lost sources and reduced grants, but was pleased to announce a new grant from Nikken Corp., \$10,000 annually for five years. There was discussion of potential new grant sources, including companies or agencies involved in electroporation and bioimaging, diagnostic applications of EMF, control of bacterial growth in

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## ISLE OF KOS, GREECE—THIRD INTERNATIONAL WORKSHOP ON EMF BIOEFFECTS IS A SUCCESS

The Third International Meeting on EMFs in Kos, Greece, was organized by the Greek National Research Center, Demokritos and University Ioannina and was co-sponsored by BEMS, WHO, NATO, IFMBE and several Greek institutions. Dr. Panos Kostarakis, Physics Department Electronics - Telecom Lab University of Ioannina Greece was Program Chair and Prof. Betty Sisken of the University of Kentucky, USA, was International Advisory Chair. Dr. Shoogo Ueno of the University of Tokyo, Japan, was Technical Committee Chair, and Dr. Marko Markov, USA, and Dr. Yvan Touitou of France were two of several co-chairs who played major organizational roles.



Panelists Marko Markov, Shoogo Ueno, Betty Sisken, Panos Kostarakis and Yvan Touitou at the recent International Workshop on EMF in Kos.

Committee members represented most of the 44 countries represented by more than 175 participants who gave 150 platform presentations and 88 posters.

Kety Apostolou, the conference secretary, and her organizing committee did a splendid job running the conference proceedings throughout. The Conference Committee met on Tuesday evening and set October 2006, in Crete, Greece, as the site for the Fourth International Workshop on Biological Effects of EMFs. The great doctor Hippocrates who wrote the Hippocratic oath and practiced medicine internationally was born in 360 BC on Kos Island.

The Greeks are famous for teaching through discussion. In keeping with this great Greek tradition, the conference board members are considering adding more discussion time to accompany sessions, to offer an opportunity for discourse leaders drawn from the presenters of the sessions to teach through discussion. One possibility is for the discussions to be run during poster time.

Some twenty Australian EMF scientists were active presenters of a well-defined research effort underway headed by Dr. Vitas Anderson, Chair of the EMF Research Centre of Excellence Program.

The EMF-Net project funded EU participants who presented a round table discussion on exposure to EMFs in the work environment and basic measurement problems in European Countries. Support also came from WHO EMF Project and three operators in Greece, and the Greek Government. Many students and representatives from the poorer countries were given financial assistance to attend.

Dr. Dariusz Leszczynski presented a review of High Throughput Screening Techniques that elicited a discussion. He is considering plans to host a conference at the STUK Institute around Feb 20–22, 2005, on proteomics, possibly co-sponsored with the WHO EMF Project and others.



Conference organizers extraordinaire at Kos, Panos Kostarakis, left, and Kety Apostolou, right.

Plenary sessions in Kos began with a dedication to Dr. Ross Adey by Dr. Marko Markov. The plenaries covered medical applications, possible EMF mechanisms of action, the WHO EMF Project (1996–2007) and the EMF-NET Project of the European Union Framework 6, 2004–2008.

More information on the Third International Workshop at Kos is available on the Internet at [www.who.int/peh-emf/meetings/greece\\_oct2004/en/](http://www.who.int/peh-emf/meetings/greece_oct2004/en/)

– Photos and text by Betty Sisken and Sheila Johnston

**Note: See an OPINION Letter to the Editor about the Kos Meeting, page 5.**

## BEMS JOURNAL ISI IMPACT FACTORS

The 2002 ratio shows the average number of citations, in any journal, of articles from the 2000 or 2001 issues of *Bioelectromagnetics*, according to Editor in Chief, Ben Greenebaum.

### BEMS:

2002	1.205	47 <sup>th</sup> of 65	“Biophysics Journals”
2001	1.309	44 <sup>th</sup> of 63	
2000	1.947	35 <sup>th</sup> of 66	
1999	1.919	27 <sup>th</sup> of 55	
1998	1.625	26 <sup>th</sup> of 57	
1997	1.193	29 <sup>th</sup> of 45	
1996	1.605	18 <sup>th</sup> of 39	

### Bioelectrochem. (Bioelectrochem & Bioenerget.)

2002	1.463	41 <sup>st</sup> of 65	“Biophysics Journals”
2001	1.096	48 <sup>th</sup> of 63	
2000	1.052	48 <sup>th</sup> of 66	
1999	1.085	36 <sup>th</sup> of 55	
1998	1.363	33 <sup>rd</sup> of 57	
1997	1.049	30 <sup>th</sup> of 45	
1996	1.069	164 <sup>th</sup> of 227	

### Electromag. Biol. & Med. (Electro- & Magneto- Biology)

2002	0.317	59 <sup>th</sup> of 65	“Biophysics Journals”
2001	0.333	59 <sup>th</sup> of 63	
2000	0.400	60 <sup>th</sup> of 66	
1999	0.387	49 <sup>th</sup> of 55	
1998	0.373	48 <sup>th</sup> of 57	
1997	0.729	37 <sup>th</sup> of 45	
1996	0.960	26 <sup>th</sup> of 39	

## BOARD RECOGNIZES EWA CZERSKA FOR HER DEDICATION TO WINTER WORKSHOPS IN D.C.



*At the BEMS Annual Meeting in Washington, D.C., outgoing President Shoogo Ueno, right, presented Ewa Czerna with a gift basket of flowers and wine on behalf of the Board of Directors, and thanked her for years of planning the winter workshop in conjunction with the winter Board Meeting and especially for her hospitality in hosting an annual dinner for the board of directors at her home. The winter workshop and Board of Director's meeting will be held in Phoenix, Arizona, on February 4-5, 2005.*

## WILEY-IEEE BOOK HONORED

*The Worldwide History of Telecom*, a book from IEEE Press and John Wiley & Sons, publishers of *Bioelectromagnetics*, won an award from *Publisher's Weekly* magazine in July. The 652-page volume by Anton A. Huurdeman traces the many creative methods of communicating across a distance, "from smoke signals to satellites," according to the publishers.

It is billed as the "first comprehensive history of the Information Age—How we got there and where we are going," covering telecommunications which benefitted from many inventors, discoverers, physicists and engineers over more than two centuries. It touches on such topics as optical telegraphy, telephony and switching, radio transmission technologies, coaxial and optical fiber networks, telex and fax. It will be of interest to professionals as well as the merely curious, the publishers believe.

Cost is US\$125. For more information, see [www.wiley.com/WileyCDA/WileyTitle/productCd-0471205052.html](http://www.wiley.com/WileyCDA/WileyTitle/productCd-0471205052.html)

## HARMONIZING STANDARDS TO BE DISCUSSED AT SLOVENIA MEETING

At the International Conference on EMF—From Bioeffects to Legislation, planned for Ljubljana, Slovenia, on November 8–9, a panel of international experts will present the state of EMF science to promote understanding and discussion of the scientific background of exposure guidelines. They will discuss the different models for EMF standards in new European Union member states, possible harmonization and universal model legislation. Sponsored by the World Health Organization's International EMF Project and the Institute of Non-ionizing Radiation (INIS), Slovenia, the conference is designed to answer a common question: "Do current EU recommendations and directives provide sufficient protection against EMF exposure?"

Globalization and the growth of mobile telecommunications have focused attention on the large differences between EMF exposure standards, organizers point out. Some differences in limit values are over two orders of magnitude. This has raised concerns about the lack of uniformity, and public concern and distrust about EMF exposure in the living and working environment.

Appropriate application of the Precautionary Principle also will be discussed. As the organizers note, standards are based on theoretical estimates, extrapolations and judgment about what experimental data imply for human exposure. This can lead to some disagreement among scientists, plus understandable but unfounded demands for absolute assurance and proof of safety from workers and the public. See the Calendar entry on page 11 for meeting details, or visit [www.albatros-bled.com/emf-ljubljana/](http://www.albatros-bled.com/emf-ljubljana/)

The Bioelectromagnetics Society newsletter is published and distributed to all members of the Society. Institutions and libraries may subscribe to the newsletter at an annual cost of \$58.50 (\$67.50 for overseas subscriptions). The newsletter serves the membership and subscribers in part as a forum of ideas and issues related to bioelectromagnetics research. All submission to the newsletter must be signed. It is understood that they reflect the views of individual authors and not those of the Society or the institutions with which the author may be affiliated. The editors welcome contributions to the newsletter from members and others in the scientific and engineering communities. News items as well as short research notes and book reviews are appreciated. Advertisements inserted or distributed with the newsletter are not to be considered endorsements.

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## OPINION

*The views expressed in letters to this column are those of the contributors and do not necessarily reflect the opinions of the editorial staff or the organizations served by this newsletter. We encourage contributions which will further a discussion of important issues to the Society and assist in scientific progress in our area of interest. Your response to opinions expressed here are welcome. Letters on other matters are also encouraged.*

### Hermann Berg Letter to the Editor—Milestones of Bioelectromagnetics: Monographs and Proceedings

I would like to compile the situation today regarding the reproducibility of bioelectromagnetics experiments and the general validity of models. I believe the list of books in English may be useful to show a) what has been done up to now and, b) the beginner where to find special topics.

Since the eighties bioelectromagnetic research has increased markedly and a series of pioneering books have been published in English (1–32). Three have been published since 2002 discussing biological effects and mechanistic models from ELF through the RF spectrum (with the exception of the THz frequency!)(33, 34, 35). In the monograph by Binhi (33), 650 references of experimental findings are reviewed to evaluate current physical models such as those on chemical kinetics (F. Kaiser), “electroconformational coupling” (D. Astumian), “stochastic resonance” (H. Dertinger, S. Bezrukov and I. Vodyanow), “coherent dipole excitation” (H. Fröhlich), “cyclotron resonance” (A. Liboff), “parametric resonance” (A. Chiabrera, V. Lednev, J. Blanchard), free radicals (U. Steiner and T. Ulrich) and the “interference of bound ions” (V. Binhi, see 33, now: “quantum interference”). The approach proposes a solution to the “KT-problem,” that is, its relation to field energy, and explains the results of several experiments.

Moreover, a collection (34) of papers with again selected models, hypotheses and speculations were compiled by A. Pilla (“cell array tissue”), A. Liboff “cyclotron resonance,” (containing eight tables of results), and P. Gajsek et al. (mathematical models of specific absorption rates (SAR)). T. Samaras, P. Trakades and others evaluated SAR for exposure to mobile systems, transmission lines and magnetic railways. The above papers in (34) as well as all of the papers in (35) present a large number of effected biological endpoints: signal transduction, stress response (HSP production), immune modulation, transcription and translation, cancer necrosis and apoptosis, enzyme activity, proliferation, *Drosophila* reproduction, embryo changes, blood parameters, Ca transport, osteoporosis, pain relief, nerve diseases, wound healing, migraine elimination, microcirculation depression and macular degeneration.

Reproduction of these results by different laboratories is not always successful (compare 25 and Bioelectrochem, Bioenerg. 48(1999):355–60)) because of possible thermal influence on membranes or too big differences in exposure parameters. In spite of two dozen more or less speculative hypotheses, only a few of the experimental findings can be analysed theoretically. This may be due to several biochemical parallel reactions being influenced by EMF- treatment simultaneously.

Current physical models are based on elementary interactions of fields and matter, but there is still a “black box” in between the electromagnetic interaction and the final biological observation. For instance, what mechanism triggers the translation of the heat shock proteins (HSP)?

This situation is characterized by V. Binhi (33) concerning his model: “It is quite likely that the theory of the interference of angular molecular states (quantum interference) will only be a small step in the right direction.”

—Hermann Berg,  
Jena, GERMANY

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*see Berg References continued, p5*

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## OPINION CONTINUED

### Markov Says BEMS Can Learn from Kos Success

In an October 15 letter to the BEMS Newsletter and Board of Directors, Board Member Marko Markov wrote:

Dear Editors: The Third International Workshop 'Biological Effects of Electromagnetic Fields' took place at the historical island of Kos, Greece, known as the birthplace of Hippocrates. The meeting was organized by the Greek National Research Center "Demokritos" and University of Ioannina, and was co-sponsored by BEMS, WHO, NATO, IFMBE and several Greek institutions.

From 4 to 8 of October more than 200 scientists, business people and policy makers of 44 countries from Europe, North and South America, Asia, and Australia had the excellent opportunity to discuss various aspects of the EMF technologies, interactions, as well as policy for reducing the unfavorable effects of exposure to some EMF. The meeting took place at Kipriotis Resort, which provided wonderful accommodation, conference rooms and relaxation and of course, an enormous variety of Greek meals. The buffet breakfast and dinner gave participants the opportunity to taste a large variety of Greek specialties.

Scientific programs included 254 submitted papers: 166 platform presentations and 88 posters. They were assigned to 32 technical sessions, three plenary sessions and one round-table discussion.

Organizers agreed that the very first plenary session would be a Ross Adey Memorial Lecture on Biological Windows, presented by Marko Markov. Other plenary speakers included Shoogo Ueno, Yvan Touitou, Michael Repacholi, Paolo Ravazzani, Moshe Netzer, Asher Sheppard, Rich Nuticelli, Ruggero Cadossi and Betty Sisken.

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### Berg References, continued

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The Program was constructed in three parallel lines:

- A. Dosimetry, Measurements, Cellular communications, Policy, Exposure and Risk Assessment
- B. Biological laboratory studies, ELF exposure, Genomics and Proteomics, EMF and central nervous system, Epidemiology
- C. Medical applications, Electric current perception, Tumor growth

A quick look on participants list indicates that four former BEMS presidents (including K. Hansson Mild) and more than 10 former and present BEMS officers attended the meeting. Participation also included more than 30 BEMS members.

As was true at this year BEMS annual meeting, where we had 278 papers included into the program and about 20 percent of them were not presented, the Kos Workshop saw the same percentage of missing presenters. But unlike BEMS, at this Workshop missing platform presentations were more distracting to the program. Also unlike BEMS, there were no empty poster boards—this does not mean that all posters were presented, but Kety Apostolou, Secretary of the meeting, effectively rearranged the area after being notified that a poster would not be presented.

It should be pointed out that due to the efforts of the Organizing Committee and Iolanta Karpowitz on behalf of the EMF-NET program, a very effective presentation was made—that is, a plenary lecture by Paolo Ravazzani about EMF-NET, and a round-table discussion which gave participants the opportunity to see the future of this 31 million Euro program sponsored by the European Union. This added significant value to the Workshop.

At the same time, presentations from Egypt, Australia and Scotland were impressive. Interestingly enough, organizers noted a lot of female participants from Egypt, Turkey, Greece, Iran and Israel, and these women participated very actively in discussions. Most impressive for me were two papers presented by Greek

*See Letters to the Editor Continued, p7*

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## BEMS NEWSLETTER UNDER INVESTIGATION FOR BIAS

A subcommittee chaired by Dr. Dariusz Leszczynski has been formed to gather data and develop a report on the issue of complaints about the possible biased reporting in the BEMS Newsletter. Dr. Leszczynski, who is the chair of the BEMS Publications Committee, agreed to take on this task at the request of President Bruce McLeod.

The subcommittee has been charged with gathering data about the number, variety and content of newsletter reports about EMF-related meetings. It is anticipated that the BEMS Board of Directors will receive the report at the annual board meeting in June 2005. The subcommittee consists of the following BEMS members: Om P. Gandhi, Michael Kundi, Dariusz Leszczynski, John C. Male, Michael McLean, Lee A. Rosen, Myrtil Simkó, and Shoogo Ueno.

*— In the meantime, the editors invite readers of the BEMS Newsletter to express their opinions on all sides of this issue in Letters to the Editor.*

## ELECTROMED 2003 SPECIAL ISSUE ON BIOELECTRICS NOW IN PRINT

The journal *IEEE Transactions on Plasma Science* recently published a special issue, "Nonthermal Medical/Biological Treatments Using Ionized Gases and Electromagnetic Fields," based on the Third International Symposium ElectroMed 2003 held in San Antonio in June 2003, and devoted to biological effects of short pulses, cold plasmas and related topics.

The IEEE *TPS* Special Issue, which contains 22 technical papers plus a commentary by the Guest Editors, might be of interest to many BEMS members. However, because *TPS* is not covered in biological data bases and thus biologists who depend on PubMed searches, for example, might well miss these papers, the Guest Editors Ravi Joshi, Andrei Pakhomov and Walt Rogers wanted to advise BEMS members about the IEEE *TPS* Special Issue.



Walter Rogers

Papers in the Special Issue are listed below in order of their appearance in the journal:

Mechanisms of Bacterial Spore Deactivation Using Ambient Pressure Nonthermal Discharges, by Joseph Birmingham.

Bacterial Inactivation Using Low Energy Pulsed Electron Beam, by Priya L. Chalise, Mohammad S. Rahman, Hamid Ghomi, Yasushi Hayashi, Masato Watanabe, Akitoshi Okino, Takashi Ano, Makoto Shoda and Eiki Hotta.

Plasma Treatment of Dental Caries: a Feasibility Study, by Raymond E.J. Sladek, Eva Stoffels, Rick Walraven, Paul J. A. Tielbeek, and Ruben A. Koolhoven.

The Effects of UV Irradiation and Gas Plasma Treatment on Living Mammalian Cells and Bacteria: a Comparative Approach, by Edward A. Sosnin, Eva Stoffels, Michael V. Erofeev, Ingrid E. Kieft and Sergey E. Kunts.

Generation of Pulsed Electric Fields for Processing Microbes, by Tsai-Fu Wu, Sheng-Yu Tseng and Jin-Chyuan Hung.

Millimeter Wave Induced Hypoalgesia in Mice: Dependence on Type of Experimental Pain, by Alexander A. Radziewsky, Oleg R. Gordienko, A. Cowan, Stanislav I. Alekseev, and Marvin C. Ziskin.

Destruction of Cutaneous Melanoma with Millimeter Wave Hyperthermia in Mice, by Imre Szabo, Stanislav I. Alekseev, Geza Acs, Alexander A. Radziewsky, Mahendra K. Logani, Vera R. Makar, Oleg R. Gordienko, and Marvin C. Ziskin.

Complex Therapeutical Effect of Ionized Air: Stimulation of Immune System and Decrease of Excessive Serotonin. Hydrogen Peroxide Formation as the Link Between the Two Counterparts, by Vladimir P. Tikhonov, Andrei A. Temnov, Vladimir A. Kushnir, Tatyana V. Sirota, Elena G. Litvinova, Marina V. Zakharchenko, and Marie N. Kondrashova.

Rat Electrocardiogram During Acute Exposure to Synchronized Bursts of Ultra-Wideband Pulses, by Ronald L. Seaman and James R. Jauchem.

Submicrosecond Intense Pulsed Electric Field Effects on Intracellular Free Calcium: Mechanisms and Effects, by Stephen Buescher, Rachel R. Smith, and Karl H. Schoenbach.

Non-thermal GSM Microwaves Affect Chromatin Conformation in Human Lymphocytes Similar to Heat Shock, by Ruslan Sarimov, Lars Malmgren, Eva Markova, Bertil Persson, and Igor Y. Belyaev.

Mode- and Cell Type-dependent Calcium Responses Induced by Electrical Stimulus, by Igor Titushkin, Vidya Rao, and Michael Cho.

Strength-Duration Curve for an Electrically Excitable Tissue Extended Down to near 1 Nanosecond, by Walter R. Rogers, James H. Merritt, James A.

Comeaux, Jr., Charles T. Kuhnel, Daniel F. Moreland, David G. Teltschik, Jeffrey H. Lucas, and Michael R. Murphy.

Localized Damage of Tissues Induced by Focused Shock Waves, by Pavel Sunka, Vaclav Babicky, Martin Clupek, Jir- Benes and Pavla Pouckovù.

Effect of Pulsed, High-Power Radiofrequency Radiation on Electroporation of Mammalian Cells, by David W Jordan, Ronald M Gilgenbach, Michael D Uhler, Linda H Gates, and Y. Y Lau.

Nanosecond Electroperturbation — Mammalian Cell Sensitivity and Bacterial Spore Resistance, by P. Thomas Vernier, Mya Thu, Laura Marcu, Cheryl Craft and Martin A. Gundersen.

Characterization of the Cytotoxic Effect of High-Intensity, 10-ns Duration Electrical Pulses, by Andrei G. Pakhomov, Amy Phinney, John Ashmore, Kerfoot Walker III, Juergen Kolb, Susumu Kono, Karl H. Schoenbach and Michael R. Murphy.

Experimental Studies on Killing and Inhibiting Effects of Steep Pulsed Electric Field (SPEF) to Target Cancer Cell and Solid Tumor, by Chenguo Yao, Caixin Sun, Yan Mi, Lan Xiong, and Shibin Wang.

A Novel Waveguide-Based Radiofrequency/Microwave Exposure System for Studying Non-Thermal Effects on Neurotransmitter Release: Finite-Difference Time-Domain Modeling, by Todd Hagan, Indira Chatterjee, Dana McPherson and Gale L. Craviso.

Modeling Studies of Cell Response to Ultrashort, High-intensity Electric Fields - Implications for Intracellular Manipulation, by Ravi P. Joshi, Qin Hu, and Karl H. Schoenbach.

Transport Lattice Approach to Describing Cell Electroporation: Use of a Local Asymptotic Model, by Donald A. Stewart, T. R. Gowrishankar, and James C. Weaver.

Modeling Electrode-Based Stimulation of Muscle and Nerve by Ultrashort Electric Pulses, by Ravi P. Joshi, F. Chen, and Walter R. Rogers.

Guest Editorial, by Ravi P. Joshi, Andrei G. Pakhomov and Walter R. Rogers.

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## BIOLOGY FACULTY POSITION

The Biological Sciences Department, University of Wisconsin-Parkside, invites applications for an assistant professor. Candidates must have post-doctoral experience with expertise in cellular or genetic processes related to aging.

Teaching includes undergraduate courses in genetics, and/or cell biology, and an upper-level course in area of specialty. Research should involve aging in humans or a relevant model system and be appropriate for M.S. and undergraduate student research. The successful candidate will contribute to pre-health programs. The Department offers B.S. degrees in Biological Sciences, Molecular Biology and Bioinformatics, and an M.S. in Applied Molecular Biology.

For more information and application instructions see our website: <http://www.uwp.edu/> keyword "jobs". *UW-Parkside is an AA/EEO employer D/M/V/W*

## NORDIC EXPERTS WEIGH IN ON MOBILE PHONES AND HEALTH

“The view of the Nordic Authorities is that there is no scientific evidence for any adverse health effects from mobile telecommunications, neither from the base stations nor from the handsets, below the basic restrictions and reference values recommended by the International Commission on Non-Ionizing Radiation Protection (ICNIRP),” according to a press release on Sept. 21 from Lars Mjönes of the Swedish Radiation Protection Authority, Statens strålskyddsinstitut (SSI), on behalf of the five nation expert panel.

Representatives of radiation protection agencies from the five nations signing the report are Sigurour M. Magnússon of the Icelandic Radiation Protection Institute, Geislavarnir Ríkisins; Jens Kr. Gøtrik of the Danish National Board of Health, Sundhedsstyrelsen; Jukka Laaksonen of the Radiation and Nuclear Safety Authority of Finland, Säteilyturvakeskus; Ole Harbitz of the Norwegian Radiation Protection Authority, Statens Strålevern, and Lars-Erik Holm of the Swedish National Radiological Protection Agency (SSI).

“In the last years expert groups have reported extensive risk assessments for electromagnetic fields. In short their conclusions are the same as those by the Stewart Commission in the UK in the year 2000: ‘The balance of evidence to date suggests that exposures to radiofrequency radiation below the ICNIRP guidelines do not cause adverse health effects to the general population.’”

“There are, however, reports suggesting that biological effects may occur at exposure levels below the ICNIRP guidelines. These studies need to be reproduced and the scientific progress in these fields of research should be followed carefully. It is important to note that biological effects do not necessarily mean human health hazards,” the panelists said.

“The development of mobile telephony has been fast and today 80–90 percent of the population in the Nordic countries use mobile phones. Due to this widespread use of mobile phones even a very small risk could have consequences for public health.”

“A well-known principle in risk management practice is to reduce or avoid the exposure if this can be achieved in simple ways and even if the scientific suspicion of a health risk is weak or uncertain. In this context the Nordic authorities find it is wise to use, for instance, a hands-free kit that reduces the exposure to the head significantly. This information should be addressed both to adults, young people and children. It is important that parents inform young people and children about the different ways to reduce the exposure from mobile phones.”

In an interview with Agence France Press, Lars Mjoenes of SSI said, “There are a number of groups here in Sweden and in other countries that think we’ve been lying when we say there is no scientific proof of risks, so we thought it would be a good idea to show that all the Nordic countries have reached the same conclusion.”

A two-page pdf file, “The Common View by the Nordic Countries on Mobile Telephony and Health,” is available on the Internet at [www.ssi.se/english/english\\_news.html](http://www.ssi.se/english/english_news.html) in the “News” section of the SSI Web site.

—from the SSI press release and Agence France Presse

## OPINION continued—Markov Letter

students, as well as the vigorous participation of two other Greek young scientists in the round-table discussion. On Monday afternoon, two Greek students, E. Nanou and Maria Cristopoulou made very good presentations. Cristopoulos presented a computer model for soft-tissue imaging with knowledge and accuracy. I was surprised; this was not even her paper but she worked to understand the problem and to present it appropriately. This is another reason to be pleased with the meeting, in addition to meeting old friends and making new ones. Also, an excellent paper was presented by a young French physician, Martine Souques, on studying EMF effects on pacemakers.

Even with limited funding, Dr. Panos Kostarakis, the chief organizer, succeeded to provide support for scientists from countries with low monthly income, mainly from East and South-East Europe, by sponsoring their accommodation and providing participation at a reduced registration fee.

You may hear some other opinions, like “Do we need one more meeting on EMF?” This is nothing new—we have heard that as a reason for discussing the idea for BEMS to join with EBEA. I heard this in Kos from some Western colleagues. They may be correct for themselves. But, on one hand, nobody force you to go to Greek meeting. On the other hand, you need to be living and working in such country to understand how hard the problem can be, to go to a BEMS meeting. It is not the main rationale, but it is the main success of the Workshop: To provide a platform for people who cannot go to major meetings as BEMS, EBEA or BES for one of the following reasons—money, inconvenient time, lack of courage (how will I be accepted).

I feel that we have a mission to spread knowledge and understanding; to help people be educated. Well, at the middle of Washington we had 278 paper submitted, here I worked on the program with 254 papers. The absentee numbers were the same. Even Americans complained that the Washington meeting was too expensive.

Going back to the presentations of Greek young scientists I saw enormous interest in their eyes: “My paper was accepted,” and happiness when they hear that this was good work. The same I saw in the last several years while working with BEMS on the student awards committee. We, due to our age and experience, our ability to travel and communicate, may forget people from the rest of world and young people. Even with the good policy at BEMS, we underestimate the value of recognition.

This is what the Greek Workshop provides. There are several other things I can’t fail to mention. Dr. Kostarakis and Ms. Kety Apostolou volunteered their time to assure that every detail in the organization is correct—from wonderfully designed poster for the meeting done more than a year in advance to the 1200-page Proceedings with an ISBN number. This includes welcome drink, banquet evening with a lot of food, wine and dances and a one-day excursion. Everything was done so that participants would feel happy, that their stay was useful, that new contacts and friendships were established. I was pleased to be for five

See *OPINION continued, More Letters to the Editor, p9*

## **BEMS Board Meeting #90, Continued**

biofilms, dental tissue and gut, and infrared laser applications. Nuccitelli has since applied to the U.S. National Institutes of Health for a grant which would benefit the Society.

### **Journal Editor's Report**

Receipts and distribution of papers are holding steady, with a small increase in contributions from outside North America, according to Editor in Chief Ben Greenebaum. An increase is noted in RF and high-voltage articles. Total receipts are holding fairly steady. The ISI impact factor has increased slightly to 1.5 (see figures in chart on p8 of this newsletter). Approximately 60 percent of papers are accepted for publication, Greenebaum reported.

Collette Bean, an editor at Wiley & Sons for *Bioelectromagnetics*, described some new features coming to the journal. For example, a new online service called EarlyView will offer subscribers advance electronic publication by two to four months. This will also cut the time to indexing. Online manuscript submission and review will also be available at cost but not until 2005 at the earliest, Bean said.

The Board approved a motion to add 32 pages to the base number for the journal starting in 2005, and approved level subscription prices for Bioelectromagnetics at US\$85 for North American members, US\$105 for international, US\$75 for electronic-only individual subscriptions in the coming year. However, the price for institutional subscriptions will be raised to US\$1085 (or \$1095 if an online review system is to be pursued).

### **History Committee Report**

The Board thanked Carl Blackman, chair, and members of the History Committee for presenting a final document of the BEMS History Book at the June 20 Board meeting. Written by William Beck of Indianapolis, it includes contributions by local authors who helped with regional details, and it was fact-checked by Asher Sheppard and Blackman. Pen-and-ink drawings from the BEMS Newsletter were used for illustrations, Blackman said, and the credit page and cover are drafted. The booklet will be available on CD, on the BEMS Web site, and as a print-on-demand document. The Board also learned that a substantial number of digital photos were collected for the 2003 25th Annual Meeting, and it was suggested that they be presented for members to enjoy on an appropriate web site.

### **Election Committee Report**

Ben Greenebaum, reporting for committee chair Leeka Kheifets who was unable to attend, said that approximately 50 percent of members cast a ballot in this year's election. Some work remains on ratification and record of the election. Most ballots were cast by the Web interface. Paper ballots were entered to the web site. Stefan Engström mentioned that next year's election should activate the option to create an e-mail "paper-trail" for the cast ballots to allow double verification of the results without requiring special requests to the company hosting the election software. Board members were pleased to hear that response to the on-line process was largely positive.

## **Long-Range Planning Committee Report**

The base of the Society is being broadened and the committee suggests that the Society should remain aware of the balance between hazards research vis-à-vis therapeutic and diagnostic applications when planning the Annual Meeting. It was noted that meeting coordination with other societies requires tentative meeting planning further out than two years.

### **Management Committee Report**

Committee members Frank Prato, Bruce McLeod and Shoogo Ueno's task was to evaluate Gloria Parsley's firm, ASI's work for the Society. There were concerns about awards committee continuity, but this was not considered to be due to any negligence on ASI's part. Gloria Parsley expressed how difficult it has been for her to work on the BEMS 2005 Annual Meeting while busy with 2004, but after the 2004 meeting is over she will be better able to devote attention to 2005 meeting. The management committee recognized that ASI's fee represents a significant portion of BEMS' budget but that the services rendered are very well carried out.

### **Meeting Quality Committee**

Niels Kuster protested an earlier decision that PowerPoint would be the only presentation option for speakers at the BEMS Annual Meetings. There was general agreement that exceptions to the rule must be made in special circumstances, however, and no action was deemed necessary.

### **Publications Committee Report**

Questions about the functions of the committee prompted the following outline of its function.

I. The journal committee is a forum for interaction between other societies that use the Bioelectromagnetics journal as their official forum. No new business.

II. Mays Swicord reported that the BEMS Newsletter continues to draw praise and criticism, which he considered to be a good thing. There are some problems with the transition to a paperless format as not all members are able to read PDF files. Alternative solutions are being investigated.

III. Stefan Engström suggested the possibility of posting science news, invited by the Web editor, possibly based on documents provided by the article authors. Various concerns were raised about how to select material as well as how to produce it.

### **BEMS Annual Meeting 2005**

A draft budget prepared by the planning committee was presented and discussed. Details of how to share loss and profit should be clearly detailed in the minutes of the planning committee that discussed this issue. The planning committee roster (with joint committees) was presented.

### **More Detail Available**

In some cases, additional information is available about items mentioned in this summary of the Board minutes. Society members with further questions are encouraged to contact the committee chair mentioned, or BEMS Executive Director Gloria Parsley, who can refer inquiries on to the appropriate committee.



## OPINION Continued, Markov Letter

days part of this community.

I am looking forward for the Fourth Workshop planned to take place in Crete in early October 2006. I hope that BEMS again will be sponsor of the event and I will be lobbying for this even when my term as a BEMS officer expires.

—Marko Markov

### Vanderstraeten Letter: Would DNA Scale Be Relevant for SAR Quantification?

Based on existing data of dielectric properties of cells and molecules, we recently evaluated the relative SAR value between the frequencies of 300 MHz and 3 GHz in the immediate vicinity of nucleic acid (NA) molecules, at the nanoscale (Vanderstraeten and Vander Vorst, 2004, *Bioelectromagnetics* 25: 380-389). With the exception of areas where proteins are bound to NA, the SAR value has been estimated to be one order magnitude (up to 20 times) above its value in tissues as a whole when those are considered at the millimeter scale. This means that under common circumstances of microwave (MW) exposure, the SAR value around DNA may locally be up to nearly two orders of magnitude above its averaged value over 10 gr tissue (Van Leeuwen *et al*, 1999, *Phys Med Biol* 44: 2367-2379).

If confirmed, could this observation have any biological relevance? The answer is no if the only parameter considered is the temperature distribution, this last staying uniform throughout tissues whatever the SAR non-uniformities at the micro-scale. Could the answer be different if one considers the local process of intermolecular thermal energy transfer? This indeed seems to be worth while, in view of the following aspects: the immediate proximity of the areas of maximal MW absorption to the DNA side chains, a possible local effect of relative energy confinement due to the shape of this area around DNA, and the still debated possibility of a coupling between the absorbing solvent and reacting solute which is put forward in “MW-assisted” chemistry (Kalhori *et al*, 2002, *J Phys Chem A* 106: 8516-8524)?

These considerations might not be vain if we compare them with the currently debated concept of “athermal” gene activation, where thermo-activated genetic processes have been reported to be activated for lower temperature thresholds under MW exposure than under conventional heating. Firstly, and from a general point of view, the question of the DNA dynamics could be addressed because of their presumable role in DNA recognition and reactivity. Here, for example, the rotational dynamics of exocyclic amino-group of the DNA base appear as a good candidate for testing under MW exposure, because of their elementary nature and their well described temperature dependence (Michalczyk and Russu, 1999, *Biophys J* 76: 2679-2686). Secondly, looking specifically at the activation of the heat shock protein (HSP) system and upstream of the highly regulated se-

*See OPINION, Vanderstraeten Letter continued, p11*

## IEEE JOURNAL CALLS FOR 4G WIRELESS AND POWER LINE COMMUNICATIONS PAPERS

The IEEE Journal on Selected Areas in Communications has issued a call for papers covering 4G wireless systems, economics for communication networks and power line communications. The journal spans the entire field of communications and networking and each issue is devoted to a specific technical topic. For submission deadlines and information on this and other IEEE Communications Society journals calls for papers. See [www.comsoc.org/e-news/2004/jul/index.html#JOURNAL\\_CFPS](http://www.comsoc.org/e-news/2004/jul/index.html#JOURNAL_CFPS)

## SYMPOSIUM HELD IN LONDON ON EMF HYPERSENSITIVITY

About 35 people attended a one-day symposium at the Royal Society of Medicine in London on Sept. 11, “Electrosensitivity (ES)

in Human Subjects,” organized by Roger Coghill of Coghill Research Laboratories, Lower Race, Pontypool, Gwent, Wales. In anticipation of the World Health Organization’s International Workshop on Electrical Hypersensitivity held in Prague the last week of October, the smaller London symposium featured nearly a dozen speakers who addressed varied aspects of the electrical hypersensitivity syndrome.



*Roger Coghill*

Coghill opened by offering some possible historical references to phenomenon now known as electrical hypersensitivity, including dowsing and illness outbreaks near major underground watercourses beneath London. He recalled some early research and noted that few studies have been done to accurately establish the prevalence of electrical hypersensitivity.

ES campaigner Anne Silk spoke about EMF as a biostressor and discussed medically unexplained physical symptoms (MUPS). She noted that there are 15 variant types of migraine headache now identified by a medical community, where once far fewer were recognized. She pointed out that if some people are hypersensitive to EMF, they are being “force fed” signals in modern society.

An honored guest at the London symposium was Swedish dermatology researcher Olle Johansson of the Karolinska Institute, Stockholm, who has conducted EMF hypersensitivity research. Johansson said science and society had failed for years to listen to people who say they are hypersensitive to EMF. In double-blind research he conducted among people who used video displays and computers in the 1980s, he observed elevated mast cell levels in the facial skin of both ES and normal subjects after two hours of exposure to a computer screen. Johansson said he now believes that people with EMF hypersensitivity are simply more sensitive than others, or they react sooner to EMF exposure, on a continuum.

*See EMF Hypersensitivity Symposium continued, p10*

## EMF Hypersensitivity Symposium, Continued

Johansson noted that ES research can be harmful to one's scientific career—he said he has received no funding for several years for ES work despite the fact that some useful research questions remain. Future investigation could explore why symptoms reported most often in Sweden are different from those reported in the U.K., for example, he said.

Magda Havas of Trent University, Peterborough, Ontario, Canada, introduced a device developed by David Stetzer of Wisconsin, USA, which she said filters “dirty electricity” as it enters a home or building. She tested the device in a blinded study in a Toronto-area school and said teachers reported improved health and well-being for themselves and among students with the device in operation.

Another guest of honor at the London symposium was Cyril Smith, author of “Electromagnetic Man” and other books on human-bioelectromagnetic interactions. He briefly recapped some of his findings from more than 20 years of research on bioelectromagnetic interactions with homeopathic remedies and acupuncture meridians—in his words, the synergy between the chemical and electrical systems of the body. He received warm applause from the audience for his years of study of EMF and health.

Also in London, Jean Philips discussed how people with ES can lighten the psychological burden of chronic illness. She said passivity and pessimism can make ES worse, and she urged people with ES to constantly stretch their comfort zones to remain active and engaged in the world, and to avoid becoming housebound.

Next, physician Trent Nichols, Jr., of Advanced Magnetic Research Institute, Hanover, Penn., USA, reported how his clinic uses magnetic resonance to attempt to improve symptoms of people with metabolic and neurodegenerative disorders.

Others who spoke at the meeting included Don Maisch, EMFacts Consultancy, Tasmania, Australia, maintainer of [www.emfacts.com](http://www.emfacts.com), and Grahame Blackwell of Starweave.com.

Near the end of the day, Jill Meara, a physician / epidemiologist at the U.K. National Radiological Protection Board (NRPB), said NRPB is now taking a new, public health-based approach to electrical hypersensitivity. She acknowledged that a lack of evidence from well conducted studies has stopped government and health agencies from recognizing the ES syndrome. But because the public health approach allows researchers to include the sufferer's perspective and to include gray literature and anecdotes as well as peer-reviewed reports, it will help to bring ES sufferers more into the mainstream. NRPB will continue to use systematic, validated public health questionnaires and good research methods to define and gather data on the problem, she added. NRPB is now conducting a thorough literature review for ES, and will in the future evaluate possible treatment and protective options as part of its overall look at the syndrome, said Meara.

Proceedings will be available on CD ROM for £20 including postage for those unable to attend, Coghill said. Contact him at [roger@congresslab.co.uk](mailto:roger@congresslab.co.uk) or See <http://www.cogreslab.co.uk>

— reported by Janet Lathrop



INTERNATIONAL  
COMMITTEE on  
ELECTROMAGNETIC  
SAFETY

IEEE International Committee on Electromagnetic Safety will present a one-day Short Course on Understanding and Applying Human Exposure Safety Levels in Electric and Magnetic Fields (0 to 3 kHz) on December 1, 2004. Course materials are based on the IEEE Standard C95.6–2002, “Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0 - 3 kHz.” The course will be held in conjunction with the IEEE/ICES meetings on Dec. 2–5, at the Doubletree Hotel at San Antonio Airport, Texas.

Hotel reservations must be made no later than **12 November** 2004. Presenters will be J. Patrick Reilly, principal author of the IEEE C95.6 Standard, of Metatec Associates, Silver Spring, Md., and The Johns Hopkins University, Applied Physics Laboratory, Laurel, Md., with Kent Jaffa, Principal Engineer, PacifiCorp, Salt Lake City, Utah, and chair of ICES/Subcommittee 3 in 1998–2003 during the development of C95.6–2002.

The course is designed for environmental, health & safety and Industrial Hygiene professionals, bioelectromagnetic researchers, engineers, planners, designers and operators from electric utilities and electrical manufacturers, Armed Forces personnel, local and federal regulatory staff and those concerned with human safety and exposure to electric and magnetic fields.

Topics to be covered will include:

- Standard development process including biological mechanisms
- Scientific rationale and how exposure limits are developed in the IEEE C95.6 Standard (0-3 kHz)
- Basic Restrictions and Maximum Permissible Exposure (MPE) values for electric and magnetic fields and currents
- Applications to controlled/uncontrolled environments, non-sinusoidal and transient waveforms and realistic cases.
- Comparison of IEEE/ICES Standard and ICNIRP Guidelines.

Cost is US\$395. Contact Arthur G. Varanelli, Raytheon Company, 47 Foundry Avenue, Waltham, MA 02453 USA. Tel: +1 (781) 642 2410; Fax: +1 (781) 642 2422.

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## NEW JOURNAL LAUNCHED IN EUROPE

Roger Coghill of Coghill Research Laboratories, Gwent, Wales, announced: “Our lab is acting as administration for a new, fully peer-reviewed journal, *European Biology and Bioelectromagnetics*, in January.” The bimonthly on-line journal is intended as a fast-track, high quality alternative publication venue for the many scientists, especially from the Eastern bloc, who face a long wait in the two other journals featuring bioelectromagnetics as a core topic, Coghill said. It will have a prestigious editorial board, he added. Annual subscription is 300 Euro. Author guidelines are available at [www.ebab.eu.net](http://www.ebab.eu.net) starting on 30 November; details are also available at [www.cogreslab.co.uk](http://www.cogreslab.co.uk)

## OPINION Continued, Vanderstraeten Letter

quence of events that leads to its activation, the basic process to be investigated should be the conformational change of the thermal sensing part of the heat shock factor 1 (HSF1). Indeed, this last process occurs notably throughout the nucleus, and so, also among the condensed DNA where moreover the active HSF binds with it (Jolly *et al*, 2002, *J Cell Biol* 156: 775-781).

Finally, whatever the choice of the type of measurement and the endpoint, the experiment would, if possible, be performed with use of the following: Whole cell or nucleus in order to preserve the nuclear architecture and so, the MW absorption pattern that exists *in vivo*; various kinds of cell and nucleus size in order to evaluate the influence of DNA concentration; various patterns of MW exposure, in term of intensity and frequency, and also in term of modulation (continuous or pulsed waves) in order to take the thermal relaxation time of the investigated process into account, this last parameter probably representing the main limitation to the present hypothesis.

– Jacques Vanderstraeten, MD  
Université Catholique de Louvain  
Brussels, BELGIUM  
e-mail: vdstraeten.j@skynet.be

## SWEDISH STUDY: INCREASED ACOUSTIC NEUROMA RISK WITH >10 YEARS NMT USE

At a press conference on Oct. 13, Maria Feychting, Stefan Lönn and colleagues at the Karolinska Institute, Stockholm, released results of their study of acoustic neuroma risk with mobile telephone use. They observed an increased risk in a group of Swedes who used the older Nordic Mobile Telephony (NMT) for more than 10 years, confined to the side of the head where the phone was usually held. No increased risk for less than 10 years of mobile phone use was found. This is the first report from the Swedish part of the collaborative INTERPHONE Study sponsored by the International Agency for Research on Cancer (IARC).

## ABSTRACTS IN BIOENGINEERING ETHICS SOUGHT FOR CONFERENCE

The Third International Conference on Ethical Issues in Biomedical Engineering will be held on June 4–6, 2005, at Alfred University in Alfred, New York. Suggested paper topics include animal testing for medical devices, Code of Ethics for Bioengineers, ethics of implant use and marketing, ethical issues in bioengineering research, and ethical issues in clinical engineering. Abstract deadline is Jan. 31, 2005 for an electronic plus hard copy 200-word abstract. Selected papers from the conference will be published in a special issue of the *Journal of Medical Engineering and Physics*. Registration is US\$120 or US\$60 for students and \$80 for single day. Contact: Dr. Subrata Saha, Biomedical Materials Engineering Science Program, Alfred University, 2 Pine St., Alfred, NY 14802-1296. Tel.: (607) 871-2601; FAX: (607) 871-2392. E-mail: sahas@alfred.edu or see [www.nyscc.alfred.edu/conferences](http://www.nyscc.alfred.edu/conferences)

## CALENDAR

**Nov. 8–9, 2004. International Conference on EMF—From Bioeffects to Legislation.** Ljubljana, Slovenia. See article page 3. Contact: Peter Gajsek, The Institute of Non-ionizing Radiation (INIS), Slovenceva 95, 1000 Ljubljana, SLOVENIA. Tel: +386 1 5603 743; Fax: +386 4 5780 355. E-Mail: [info@inis.si](mailto:info@inis.si) or [info@albatros-bled.si](mailto:info@albatros-bled.si) See: [www.albatros-bled.com/emf-ljubljana/](http://www.albatros-bled.com/emf-ljubljana/)

**December 1, 2004. IEEE International Committee on Electromagnetic Safety Short Course** on Understanding and Applying Human Exposure Safety Levels in Electric and Magnetic Fields (0 to 3 kHz) on December 1, 2004. Course materials are based on the IEEE Standard C95.6–2002, “Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0 - 3 kHz.” Doubletree Hotel at San Antonio Airport, Texas. Lodging must be arranged by November 12. See course details on p10.

**December 2–5, 2004. IEEE International Committee on Electromagnetic Safety Meetings.** Doubletree Hotel at San Antonio Airport, Texas. Lodging must be arranged by November 12. Cost is US\$395 payable to IEEE. See article page 10. Contact Arthur G. Varanelli, Raytheon Company, 47 Foundry Avenue, Waltham, MA 02453 USA. Tel: +1 (781) 642 2410; Fax: +1 (781) 642 2422.

**December 15, 2004. Société Française de Radioprotection (SFRP) NonIonizing Radiation Section. Workshop on Complying with and Applying the European Directive on Occupational Exposure to EMF 0–300 GHz.** Union Internationale des Chemins de Fer, 16 rue Jean Rey – 75015 Paris, FRANCE. A workshop in French for occupational and industrial hygienists, physicians, public health workers and others who must understand and implement the new European directive on EMF in the workplace. Fee is 160 € for SFRP members, 190 € for non-members, 80 € for students. Contact: Martine Souques, Service des Etudes Médicales, EDF / Gaz de France, 22-28 rue Joubert, 75009 Paris. Tél.:01.55.31.46.06. Fax:01.55.31.46.20. E-mail : [martine.souques@edfgdf.fr](mailto:martine.souques@edfgdf.fr)

**January 12–14, 2005. The Society for Physical Regulation in Biology and Medicine 23rd Scientific Conference.** Embassy Suites Resort, Lake Tahoe, CA. Contact: Christopher Jacobs, Program Chair, E-mail: [chris.jacobs@stanford.edu](mailto:chris.jacobs@stanford.edu) Tel: (650) 736-0802 or Gloria Parsley, Executive Director, E-mail: [gloriaparsley@aol.com](mailto:gloriaparsley@aol.com) Tel: 301-663-4556.

**February 4–5, 2005. The Bioelectromagnetics Society Winter workshop and Board Meeting.** Phoenix, Arizona. Contact: BEMS Executive Director Gloria Parsley, 2412 Cobblestone Way, Frederick, MD 21702-2626 USA. Tel. +1 (301) 663-4252; FAX: +1 (301) 694-4948. E-mail: [bemsoffice@aol.com](mailto:bemsoffice@aol.com) See: [www.bioelectromagnetics.org](http://www.bioelectromagnetics.org)

*Calendar continued on p12*

**February 14–18, 2005. The 16th International Zurich Symposium on Electromagnetic Compatibility (EMC), the Technical Exhibition on EMC and RF/Microwave Measurements & Instrumentation.** Zürich, SWITZERLAND. Contact: Gregor Dürrenberger, the Swiss Federal Institute of Technology (ETH), Zürich. Tel. +41 1632 2815; Mobile: +41 78 721 7488, Fax: +41 1632 1198. E-mail: gregor@mobile-research.ethz.ch See: www.emc-zurich.ch

**February 17–18, 2005. COST281 Workshop.** Zürich, Switzerland. Watch www.cost281.org for details.

**March 1–5, 2005. UNESCO Seminar and Practical Workshop on Molecular and Cellular Mechanisms of Biological Effects of EMF.** Yerevan, ARMENIA. Sponsored by WHO and European Office of Aerospace Research and Development (EOARD). Contact: Organizing Committee: Tel: (3741) 62 4170, Fax: (3741) 61 2461. E-mail: life@arminco.com See: www.bioelectromagnetics.org/calendar.php?show=story&id=82#news82

**May 16–18, 2005. ElectroMed 2005.** Fourth International Symposium on Nonthermal Medical/Biological Treatments Using Electromagnetic Fields and Ionized Gases. Portland, Oregon, USA. Watch www.electromed2005.com for more information. Contact: info@electromed2005.com for details.

**June 19–24, 2005. Bioelectromagnetics BioEM2005. Joint Meeting of the European BioElectromagnetics Association (EBEA) and BEMS.** University College Dublin, IRELAND. Technical Program Co-chairs are Stefan Engström and Kjell Hansson Mild. Contact: BEMS Executive Director Gloria Parsley, 2412 Cobblestone Way, Frederick, MD 21702-2626 USA. Tel. +1 (301) 663-4252; FAX: +1 (301) 694-4948. E-mail: BioEM2005@aol.com See: www.Bioelectromagnetics2005.org

**June 19–25, 2005. The XVIII International Symposium on Bioelectrochemistry and Bioenergetics.** Coimbra, PORTUGAL. Abstract deadline is Jan. 31, 2005. Early registration with reduced fee deadline will be May 31, 2005. For more information see: www.bes-ise-2005.uc.pt/

**July 1–4, 2005. CEFBIOS 2005—Coherence and Electromagnetic Fields in Biological Systems.** Prague, Czech Republic. Highlights of the symposium organized by the Institute of Radio Engineering and Electronics, the Academy of Sciences of the Czech Republic and others are expected to include biophysical principles of coherence, role of endogenous EMF in the organization of biological systems, biophysical mechanisms of interaction of biological systems with EMF and more. Contact: Jiri Pokorny, Institute of Radio Engineering and Electronics, Academy of Sciences, Chaberska 57, CZ 182 51 Praha 8, CZECH REPUBLIC. Tel.: 00420 266773432; Fax: 00420 284680222. E-mail: pokorny@ure.cas.cz See: www.ure.cas.cz/events/cefbios2005/

## THE BIOELECTROMAGNETICS SOCIETY

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