TECHNICAL PROGRAM

MONDAY, JUNE 12

OPENING SESSION
8:00-8:15am, Salón Del Prado & Picasso Ballrooms
Welcome: Stefan Engström, BEMS President
Program Highlights: Bruce McLeod, Technical Program Chair
General Announcements: Gloria Parsley, Executive Director

D’ARSONVAL AWARD LECTURE: C.K. CHOU
Chief EME Scientist, Director of Corporate EME Research Laboratory, Motorola Labs.
THIRTY-FIVE YEARS IN BIOELECTROMAGNETICS RESEARCH
8:15am-9:00 am, Salón Del Prado & Picasso Ballrooms

PLENARY SESSION I: DAVID GOLAN
Professor of Biological Chemistry and Molecular Pharmacology, Professor of Medicine, Harvard Medical School.
MEMBRANE DYNAMICS OF IMMUNE RECEPTORS IN CELL ADHESION AND COMPLEMENT REGULATION
9:00am-9:45am, Salón Del Prado & Picasso Ballrooms
Chair: Bruce McLeod

Plenary Poster Session Introduction
9:45am – 10:15am, Salón Del Prado & Picasso Ballrooms
Chair: Carl Blackman
Coffee Break in Poster Session

Poster Session A
10:15am – 12:15pm, Greco/Dalí/Goya Ballrooms
Authors of A posters need to be present at their poster
Box lunch included in paid registration: 12:15pm – 1:15pm

SESSION 1: RF IN-VIVO EFFECTS
Chairs: Mays Swicord & Carl Blackman
1:15pm-3:15pm, Salón Del Prado Ballroom

1-1
LIGHT INTENSITY AND WAVELENGTH ALTERS NOCICEPTIVE EFFECTS OF MAGNETIC FIELD SHIELDING. F.S. Prato¹, D. Desjardins², L.D. Keenliside², and A.W. Thomas¹. ¹Dept of Medical Biophysics, Univ of Western Ontario; Imaging and Nuclear Medicine, and Bioelectromagnetics, Lawson Hlth Res Inst, St. Joseph’s Hlth Care, London, Ontario, Canada; ²Bioelectromagnetics, Lawson Hlth Res Inst, St. Joseph’s Hlth Care, London, Ontario, Canada.

1-2
A CIRCULAR POLARIZED IN VIVO EXPOSURE SYSTEM FOR BIO-EFFECT TESTING OF EM FIELDS RADIATED FROM MOBILE PHONE BASE STATIONS. J. Wang¹, M. Fujita¹, O. Fujiwara¹, K. Wake², and S. Watanabe². ¹Nagoya Inst of Tech, Nagoya, Japan; ²Nat’l Inst of Information and Comm Tech, Tokyo, Japan.

SESSION 2: DOSIMETRY I
Chairs: Richard Nuccitelli & Frank Hart
1:15pm-3:15pm, Picasso Ballroom

2-1
USING SAR CALCULATIONS AND MEASUREMENTS FOR COMPLIANCE ZONE ASSESSMENT AROUND BASE STATION ANTENNAS. F.J.C. Meyer and V. Kellerman. EMSS Consulting, Stellenbosch, South Africa.

2-2
SESSION 1: RF IN-VIVO EFFECTS (continued)
Chairs: Mays Swicord & Carl Blackman
1:15pm-3:15pm, Salón Del Prado Ballroom

1-3
LACK OF EFFECTS OF EXPOSURE OF PATCHED1 HETEROZYGOUS KNOCKOUT MICE TO GSM, 900 MHZ. A. Saran, S. Pazzaglia, M.T. Mancuso, S. Rebessi, V. Di Majo, G.A. Lovisolo, and C. Marino. Toxicology and Biomedical Sciences Unit, RF In-Vivo Effects Enea Casaccia, Rome, Italy.

1-4

1-5

1-6
SHORT-TERM EXPOSURE TO 1439-MHZ TDMA SIGNAL DOES NOT MODULATE THE ESTROGENIC ACTIVITY IN FEMALE RATS. H. Yamashita, K. Hata, H. Yamaguchi, G. Tsurita, K. Wake, S. Watanabe, M. Taki, S. Ueno, and H. Nagawa. 1Dept of Surgical Oncology, The Univ of Tokyo, Tokyo, Japan; 2Biomedical EMC Group, EMC Center, Wireless Comm Dept, Nat'l Inst of Information and Comm Tech, Tokyo, Japan; 3Dept of Electrical Engineering, Graduate School of Engineering, Tokyo Metropolitan Univ, Tokyo, Japan; 4Dept of Biomedical Engineering, Graduate School of Medicine, The Univ of Tokyo, Tokyo, Japan.

1-7

1-8

SESSION 2: DOSIMETRY I (continued)
Chairs: Richard Nuccitelli & Frank Hart
1:15pm-3:15pm, Picasso Ballroom

2-3
SAR CORRECTION FOR DEVIATIONS IN COMPLEX PERMITTIVITY OF TISSUE EQUIVALENT LIQUIDS. M.G. Douglas and C-K. Chou. Motorola, Inc., Ft. Lauderdale, FL, USA.

2-4
THE INTERNATIONAL INTERCOMPARISON OF SAR MEASUREMENTS ON CELLULAR TELEPHONES. Q. Balzano and C.C. Davis. Univ of Maryland, College Park, Maryland, USA.

2-5
STUDENT

2-6
BANDWIDTH, EFFICIENCY AND SAR OF CANONICAL ANTENNAS. A.T.M. Sayem, M. Ali, G. Schmid, and N. Haas. 1Dept of Electrical Engineering, Univ of South Carolina, Columbia, SC, USA; 2ARC Seibersdorf Research GmbH, Seibersdorf, Austria.

2-7

2-8
RAPID SAR ESTIMATION USING RADIATED POWER MEASUREMENTS. V. Monebhurrun, J-C. Bolomey, L. Duchesne, M. LeGoff, and P. Garreau. 1Dept Electromagnetisme, Dept de Recherche en Electromagnetisme, Supelec, Gif-sur-Yvette, Cedex, France; 2Satimo, Z.A. Courtaboeuf, Courtaboeuf, France.
SESSION 3: EMF EXPOSURE & STANDARDS

Chairs: Joe Bowman & Joachim Schüz
3:45pm-5:45pm, Salón Del Prado Ballroom

3-1
THE EFFECT OF GSM MOBILE PHONE EMISSIONS ON ALPHA POWER IN HUMANS. D. L. Hamblin1, R. J. Croft1, A. W. Wood1, J. Spong2, C. Stough3, R. M. McKenzie3. 1Australian Centre for Radiofrequency Bioeffects Research, 2Swinburne University, Melbourne, VIC, Australia. Swinburne University, Melbourne, VIC, Australia. 3Australian Centre for Radiofrequency Bioeffects Research; RMIT, Melbourne, VIC, Australia.

3-2

3-3
SHOULD FUTURE INTERNATIONAL RF SAFETY STANDARDS INCLUDE TEMPERATURE AS A BASIC RESTRICTION? M.L. Swicord. Motorola Labs, Fort Lauderdale, Florida, USA.

3-4
SETTING STANDARDS IN THE PRESENCE OF DEVELOPING SCIENTIFIC UNDERSTANDING. F.S. Barnes. Univ of Colorado, Boulder, Colorado, USA.

3-5
ASSESSMENT OF SAR AND THERMAL CHANGES NEAR A COCHLEAR IMPLANT SYSTEM FOR MOBILE PHONE TYPE EXPOSURES. R.L. McIntosh1, S. Iskra1, R.J. McKenzie1, J. Chambers2, B. Metzenthen2, and V. Anderson4. 1Telstra Res Labs, Clayton, Victoria, Australia; 2Cochlear Ltd, Lane Cove, NSW, Australia; 3Cochlear Ltd, East Melbourne, Victoria, Australia; 4THL Australia Pty Ltd, Frankston, Victoria, Australia.

3-6
APPLICATION OF STATISTICS IN BIOELECTROMAGNETICS AND ITS IMPACT ON RESEARCH QUALITY. O. Petrowicz1, J. Wiart2, and G. Friedrich2. 1Univ of Tech Munich, Munich, Germany; 2France Telecom, Issy-Lez-Moulineaux, France; 3Forschungsgemeinschaft Funk e.V., Bonn, Germany.

SESSION 4: ELECTROMED SESSION I: EFFECTS OF NANO SECOND PULSED HIGH VOLTAGE

Chairs: Martin Meltz & Juergen Kolb
3:45pm-5:45pm, Picasso Ballroom

4-1
EFFECT OF NANOSECOND PULSED ELECTRIC FIELDS: EARLY RESPONSE GENES FOR DNA DAMAGE REPAIR AND CELL CYCLE ARREST. Z.-M. Wang1, A. Bassili1, M. Khalid1, C.Q. Zhou1, H.L. Gerber1, X. Ge2, S.M. Wang2, and K.H. Schoenbach3. 1Purdue Univ Calumet, Hammond, IN, USA; 2Northwestern Univ, Evanston, IL, USA; 3Old Dominion Univ, Norfolk, VA, USA.

4-2
SINGLE NANOSECOND ELECTRIC PULSE ELEVATES INTRACELLULAR CALCIUM IN BOVINE ADRENALE CHROMAFFIN CELLS. G.L. Craviso1, Y. Sun1, M.-T. Chen2, M.A. Gundersen3, and P.T. Vernier3. 1Dept of Pharmacology, Univ of Nevada School of Medicine, Reno, NV, USA; 2Dept of Materials Science, Univ of Southern California, Los Angeles, CA, USA; 3Dept of Electrical Engineering, Univ of Southern California, Los Angeles, CA, USA.

4-3
STUDENT STUDIES OF PERSISTENT PORATION DYNAMICS OF CELL MEMBRANES INDUCED BY ELECTRIC PULSES. Z.H. Ji1, S.M. Kennedy1, J.B. Booske1, and S. Hagness1. 1Univ of Wisconsin - Madison, Madison, WI, USA.

4-4
IN SILICO BIOELECTROMAGNETICS: FROM MOLECULES AND MEMBRANES TO MAN. A.T. Esser1, T.R. Gowerishankar1, K.C. Smith1, W. Kainz2, S.J. Seidman2, and J.C. Weaver1. 1Harvard-MIT Div of Health Sciences and Tech, Massachusetts Inst of Tech, Cambridge, MA, USA; 2Center for Devices and Radiological Health (CDRH), US Food and Drug Administration (FDA), Rockville, MD, USA.

4-5
PLASMA MEMBRANE VOLTAGE CHANGES DURING NANO-SECOND PULSED ELECTRIC FIELD EXPOSURE. J.F. Kolb1, W. Frey2, J.A. White1, R.P. Joshi1, S.J. Beebe3, K.L. Nuccioni4, and K.H. Schoenbach4. 1Frank Reidy Research Center for Bioelectrics, Norfolk, VA, USA; 2Forschungszentrum Karlsruhe, Karlsruhe, Germany.

4-6
SIMULATIONS OF CELL RESPONSE TO HIGH INTENSITY, ULTRASHORT ELECTRICAL PULSES. S. Viswanadham1, Q. Hu1, A. Nguyen1, K. Schoenbach2, and R. Joshi3. 1Dept of Electrical & Comp Eng, Old Dominion Univ, Norfolk, VA, USA; 2Center for Bioelectric and Dept of Electrical & Comp. Engineering, Old Dominion Univ, Norfolk, VA, USA.
SESSION 3: EMF EXPOSURE & STANDARDS (continued)

Chairs: Joe Bowman & Joachim Schüz
3:45pm-5:45pm, Salón Del Prado Ballroom


3-8 THE POSSIBLE EFFECTIVENESS OF PRECAUTIONARY REDUCTIONS TO OCCUPATIONAL ELF MAGNETIC FIELDS IN PREVENTING CANCER. J.D. Bowman, T. Ray, and R.M. Park. Nat’l Inst for Occupational Safety and Health (NIOSH), Cincinnati, Ohio, USA.

SESSION 4: ELECTROMED SESSION I: EFFECTS OF NANO SECOND PULSED HIGH VOLTAGE (continued)

Chairs: Martin Meltz & Juergen Kolb
3:45pm-5:45pm, Picasso Ballroom

4-7 ACTIVATION OF APOPTOTIC AND ANTI-APOPTOTIC SIGNALING PATHWAYS IN HUMAN LYMPHOBLASTOID CELLS BY NANOSECOND PULSED ELECTRIC FIELD EXPOSURES. B.K. Nayak¹, M.L. Meltz², C.A. Galindo¹, K.W. Hakala³, M. Natarajan¹, S.T. Weintraub¹, and K.H. Schoenbach³. ¹Dept of Radiation Oncology, The Univ of Texas Health Science Center at San Antonio, San Antonio, Texas, USA; ²Dept of Biochemistry, The Univ of Texas Health Science Center at San Antonio, San Antonio, Texas, USA; ³Center for Bioelectronics, Old Dominion Univ, Norfolk, Virginia, USA.

PLENARY SESSION II: RICHARD NUCCITELLI
Frank Reidy Research Center for Bioelectronics, Old Dominion University

ELECTROMED SESSION: NANOSECOND PULSED ELECTRIC FIELDS CAUSE MELANOMA TUMORS TO SELF-DESTRUCT.

8:00am-9:00am, Salón Del Prado & Picasso Ballrooms
Chair: Bruce McLeod

PLENARY SESSION III: MICHAEL REPACHOLI
Coordinator, Radiation and Environmental Health Unit, World Health Organization, Geneve, Switzerland

RESULTS FROM 10 YEARS OF WHO’S INTERNATIONAL EMF PROJECT

9:00am-9:45am, Salón Del Prado & Picasso Ballrooms
Chair: Bruce McLeod

Plenary Poster Session Introduction
9:45am – 10:15am, Salón Del Prado & Picasso Ballrooms
Chair: Jim Weaver

Coffee Break in Poster Session

Poster Session B
10:15am – 12:15pm, Greco/Dali/Goya Ballrooms

Authors of B Posters need to be present at their poster

Box lunch included in paid registration: 12:15pm – 1:15pm
SESSION 5: EXPOSURE STUDIES  
Chairs: Greg Lotz & Peter Valberg  
1:15pm-3:15pm, Salón Del Prado Ballroom

5-1 DOSEMETRY EVALUATION OF RATS EXPOSED TO GSM-900 SIGNALS IN SALFORD-USED TEM CELL. J. Wang¹, O. Fujiwara¹, T. Hikage², T. Nojima², H. Masuda¹, A. Ushiyama³, C. Okubo⁴. ¹Nagoya Institute of Technology, Nagoya, Japan; ²Hokkaido University, Sapporo, Japan; ³National Institute of Public Health, Wako, Japan; ⁴WHO, Geneva 1211, Switzerland.

5-2 CELLULAR PHONES, CORDLESS PHONES AND THE RISK OF BRAIN TUMORS, INTERPHONE, GERMANY. J. Schüz¹, E. Böhler², B. Schlehofer³, G. Berg⁴, K. Schlafeler⁵, I. Hettinger⁵, J. Wahrenrod⁶, K. Kunna-Grass⁷, and M. Blettner⁸. ¹Inst of Cancer Epidemiology, Danish Cancer Society, Copenhagen, Denmark; ²Inst of Med Biostatistics, Epidemiology and Informatics (IMBEI), Univ of Mainz, Mainz, Germany; ³Dept of Env Epidemiology, German Cancer Res Center, Heidelberg, Germany; ⁴Dept of Epidemiology and International Public Health, Univ of Bielefeld, Bielefeld, Germany.

5-3 ASSESSMENT OF CELLULAR TELEPHONE USE IN EPIDEMIOLOGIC STUDIES, A COMPARISON BETWEEN A CASE-CONTROL STUDY AND A RETROSPECTIVE COHORT STUDY IN DENMARK. J. Schüz and C. Johansen. Inst of Cancer Epidemiology, Danish Cancer Society, Copenhagen, Denmark.

5-4 MAGNETIC FIELD EXPOSURE AND SURVIVAL AMONG CHILDREN WITH LEUKEMIA. D.E. Foliart¹, B.H. Pollock¹, G. Mezei¹, R. Iriye², J.M. Silva², K.L. Ebi³, L. Kherfet³, M.P. Link³, and R. Kavet³. ¹Public Health Inst, Oakland, CA, USA; ²Univ of Texas, San Antonio, TX, USA; ³EPRI, Palo Alto, CA, USA; ⁴Enertech Consultants, Campbell, CA, USA; ⁵Exponent Health Sciences, Alexandria, VA, USA; ⁶Univ of California, Los Angeles, CA, USA; ⁷Stanford Univ, Stanford, CA, USA.

SESSION 6: MEDICAL I: HEALING  
Chairs: Arthur Pilla & Walter Chang  
1:15pm-3:15pm, Picasso Ballroom

6-1 PEMF DOSIMETRY IN AN ION BINDING PATHWAY: APPLICATION TO TENDON REPAIR IN A RAT MODEL. A.A. Pilla¹, D.J. Muehsam¹, M. Patel², and B. Strauch³. ¹Columbia Univ, New York, NY, USA; ²Albert Einstein College of Medicine, Bronx, NY, USA.

6-2 BIOLOGICAL EFFECTS OF PULSED ELECTROMAGNETIC FIELDS STIMULATION ON BONE CELLS. W.H. Chang. Center for Nano Bioengineering, Chung Yuan Christian University, Chung Li, Taoyuan, Taiwan.

6-3 PEMF STIMULATES BMP PRODUCTION IN A PRIMARY OSTEOBLAST CULTURE: DEPENDENCE UPON SIGNAL CONFIGURATION AND EXPOSURE DURATION. T.M. Ganey¹, J. Li², J.W. Kronberg³, J.A. Naftel³, S.L. Gordon³, and W.C. Hutton³. ¹Atlanta Medical Center, Atlanta, GA, USA; ²Emory Univ, Dept of Orthopaedics, Decatur, Georgia, USA; ³Healthonics, Inc, Aiken, SC, USA.

6-4 EFFECTS OF ELF MAGNETIC FIELDS ON DIFFERENTIATION OF CULTURED OSTEOBLAST-LIKE CELLS. H. Yamaguchi¹, K. Hosokawa², H. Shichijo³, M. Kitamura³, A. Soda³, T. Ikehara³, Y. Kinouchi³, K. Yoshizaki³, H. Miyamoto³, and K. Aizawa³. ¹Dept Environ Physiol, Fac Human Life Sci, Tokushima Bunri Univ, Tokushima, Japan; ²Dept Physiol, Inst Health Biosci, Univ of Tokushima, Tokushima, Japan; ³Dept Electric & Electronic Eng, Fac, Engr, Univ of Tokushima, Tokushima, Japan; ⁴Fac Sci & Engr, Waseda Univ, Tokyo, Japan.


6-6 PEMF HAVE NEUROTROPHIC EFFECTS ON CULTURED DOPAMINERGIC NEURONS: MECHANISTIC STUDIES. D. Casper¹, E. Taub¹, L. Alammar¹, A. Pidel¹, and A.A. Pilla². ¹Neurosurgery Lab, Montefiore Medical Center and the Albert Einstein College of Medicine, Bronx, NY, USA; ²Dept of Biomedical Eng, Columbia Univ, New York, NY, USA.
5-7 BLOOD-CEREBROSPINAL BARRIER IN RATS IS NOT AFFECTED BY 1.5 GHz RF-EMF EXPOSURE AT NON-THERMAL LEVEL. A. Ushiyama1, H. Masuda1, S. Hirota1, M. Takahashi1, H. Kawai2, S. Tanaka2, K. Wake2, S. Watanabe2, Y. Suzuki2, M. Taki2, and C. Ohkubo2. 1Dept of Environmental Health, National Inst of Public Health, Wako, Saitama, Japan; 2Wireless Communications Dept, Nat’l Inst of Info and Comm Tech, Koganei, Tokyo, Japan; 3Dept of Electrical and Electronic Eng, Tokyo Metropolitan Univ, Hachioji, Tokyo, Japan; 4RAD, World Health Org, Geneva, Switzerland.

5-8 CANCER RISK ASSESSMENT FOR POWER-LINE MAGNETIC FIELDS (MF): USING LIFETIME LABORATORY-ANIMAL RESULTS TO IDENTIFY A SCREENING GUIDELINE. P.A. Valberg. Gradient Corporation, Cambridge, MA, USA.

3:15pm – 3:45pm Coffee Break

SESSION 7: ELECTROMED SESSION II: PULSED ELECTRIC & MAGNETIC FIELDS
Chairs: Bruce McLeod & Suleyman Dasdag
3:45pm-5:45pm, Salón Del Prado Ballroom

7-1 SUMMARY OF IN VITRO EXPLORATORY RESEARCH OF HIGH-PEAK POWER MICROWAVE BIOEFFECTS AT BROOKS AFB, TX: THE KNOWNS AND UNKNOWNS. A. Pakhomov1, B.E. Stuck2, and M.R. Murphy3. 1Frank Reidy Research Center for Bioelectrics, Old Dominion Univ, Norfolk, VA, USA; 2US Army Medical Research Detachment, Brooks City-Base, San Antonio, TX, USA; 3Directed Energy Bioeffects Division, Human Effectiveness Directorate, Air Force Research Laboratory, Brooks City Base, San Antonio, TX, USA.

7-2 DNA-BINDING FLUOROCHROME PHOTOLUMINESCENCE IN NANOELECTROPULSED LIVING CELLS. P.T. Vernier1, Y. Sun2, M-T. Chen3, S.Y.C. Chong3, and M.A. Gundersen4. 1Dept of Electrical Eng, Viterbi School of Eng, Univ of Southern California, Los Angeles, CA, USA; 2MOSIS, Information Sciences Inst, Viterbi School of Eng, Univ of Southern California, Marina del Rey, CA, USA; 3Dept of Materials Science, Viterbi School of Eng, Univ of Southern California, Los Angeles, CA, USA; 4Dept of Biological Sciences, Univ of Southern California, Los Angeles, CA, USA.

7-3 STUDENT DESIGN AND FINITE-DIFFERENCE TIME-DOMAIN CHARACTERIZATION OF A NOVEL IN VITRO EXPOSURE DEVICE FOR REAL-TIME MONITORING OF CHANGES IN INTRACELLULAR CALCIUM DUE TO PULSED RF/MICROWAVE ELECTRIC FIELDS. T. Hagan1, I. Chatterjee1, D. McPherson1, and G.L. Craviso2. 1Dept of Electrical Eng, Univ of Nevada, Reno, Reno, NV, USA; 2Dept of Pharmacology, Univ of Nevada, Reno, Reno, NV, USA.

SESSION 8: MECHANISMS & ANALYSIS
Chairs: Martin Blank & James Weaver
3:45pm-5:45pm, Picasso Ballroom

8-1 ANALYSIS OF THE INTERNAL FIELDS DISTRIBUTION AND SAR EVALUATION IN A MODEL OF IMPLANTED COCHLEA EXPOSED TO 900 MHZ. C. Franzoni, M. Parazzini, G. Tognola, P. Ravazzani. Istituto di Ingegneria Biomedica del Consiglio Nazionale delle Ricerche, Milan, Italy.

8-2 PAIN AND DISCOMFORT IN THE HEAD ATTRIBUTED TO MOBILE PHONES. A DOUBLE BLIND PROVOCATION STUDY OF A HIGHLY SELECTED GROUP OF USERS. A. Straume1, G. Oftedal2, L.J. Stovner3, and A. Johnsson1. 1Norwegian Univ of Science and Technology (NTNU), Dept of Physics, Trondheim, Norway; 2Sr-Trndelag Univ College (HiST), Trondheim, Norway; 3St. Olavs Hospital, Norwegian National Headache Centre, Dept of Neurology and Clinical Neuropysiology; and Norwegian Univ of Science and Tech (NTNU), Inst of Neuroscience, Trondheim, Norway.

8-3 STUDENT ACTIVE OPTICAL SENSOR FOR FIELD MEASUREMENT IN TIME AND FREQUENCY DOMAIN. P. Müller1, U. Lott2, F. Bomholt3, A. Kramer1, and N. Kuster1. 1ETH Zurich, Integrated Systems Laboratory (IIS), Zurich, Zurich, Switzerland; 2ITIS, Foundation for Research on Information Technologies in Society, Zurich, Zurich, Switzerland; 3SPEAG, Schmid & Partner Engineering AG, Zurich, Zurich, Switzerland.
7-4 HEART RATE VARIABILITY IN RATS EXPOSED TO ULTRA-WIDEBAND PULSES. R.L. Seaman1 and J.R. Jauchem2. 1Advanced Information Eng Services, A General Dynamics Company, Brooks City-Base, Texas, USA; 2Air Force Research Laboratory, Directed Energy Bioeffects Division, Radio Frequency Radiation Branch, Brooks City-Base, Texas, USA.

7-5 HIGH-FIELD MRI MICROWAVE PULSES INDUCE SOUND PRESSURE WAVES IN HUMAN HEADS. J.C. Lin1 and Z. Wang1. 1Univ of Illinois at Chicago, Chicago, IL, USA; 2Pennsylvania State Univ, Hersey, PA, USA.

7-6 ANALGESIC EFFECTS OF A COMPLEX NEUROELECTROMAGNETIC PULSE (CNP) ON TRANSFORMING MIGRAINE PATIENTS. K. Baker1, S.L. Dubois2, P. Cooper3, G.B. Rollman3, F.S. Prato1, and A.W. Thomas1. 1Dept of Medical Biophysics, Schulich School of Medicine and Dentistry, Univ of Western Ontario; Bioelectromagnetics, Lawson Health Research Inst, St. Joseph’s Health Care, London, Ontario, Canada; 2Regional Mental Health Care (Highbury), St. Joseph’s Health Care, London, Ontario, Canada; 3John H. Kreeft Headache Clinic, London Health Sciences Center, London, Ontario, Canada; 4Dept of Psychology, Faculty of Social Sciences, Univ of Western Ontario, London, Ontario, Canada.


7-8 PROTEOMIC ASSESSMENT AFTER 10 NANOSECOND (ULTRAWIDEBAND) PULSED ELECTROMAGNETIC FIELD EXPOSURE OF HUMAN 244B HUMAN LYMPHOBLASTOID CELLS. M.L. Meltz1, B.K. Nayak1, C.A. Galindo1, K.W. Hakala2, M. Natarajan1, S. Weintraub2, and K.H. Schoenbach3. 1Dept of Radiation Oncology, San Antonio, TX, USA; 2Dept of Biochemistry, San Antonio, TX, USA; 3Center for Bioelectrics, Old Dominion Univ, Norfolk, VA, USA.

8-4 STUDENT FAST DOSIMETRIC ASSESSMENT SYSTEM FOR PRE-COMPLIANCE, RAPID PROTOTYPING AND PRODUCTION LINE TESTING. S. Kühn1, T. Schmid1, D. Schmid2, and N. Kuster1. 1IT’IS Foundation for Research on Information Technologies in Society / ETH Zurich, Zurich, Zurich, Switzerland; 2SPEAG, Zurich, Zurich, Switzerland.

8-5 NEW MEASUREMENT SYSTEM FOR ASSESSMENT OF EMF EXPOSURE IN ARC AND RESISTANCE WELDING APPLICATIONS. W. Giezi1, G. Neubauer1, I. Ruiz2, T. Lindner1, T. Aumeyer4, K. Lamedschwandner4, G. Rabitsch2, and H. Mollad-Jafar1. 1ARC Seibersdorf research GmbH, Seibersdorf, Austria; 2Austrian Workers Compensation Board, Vienna, Austria.

8-6 SOUND PROCEDURES FOR COMPLIANCE TESTING OF ACTIVE IMPLANTABLE MEDICAL DEVICES WITH SAFETY LIMITS FOR RF EXPOSURE. A. Christ1, S. Kühn1, M. Oberle1, A. Klingenberg1, W. Kainz2, and N. Kuster1. 1Foundation for Research on Information Technologies in Society (IT’IS) and ETH Zürich, Zürich, Switzerland; 2US Food and Drug Administration (FDA), Center for Devices and Radiological Health (CDRH), Rockville, MD, USA.

8-7 STUDENT NEW MODEL TO SIMULATE EM INDUCED TEMPERATURE DISTRIBUTIONS AND THE INFLUENCE OF BLOOD FLOW. E.Z. Neufeld1, T. Samaras2, N. Chavannes3, and N. Kuster1. 1IT’IS Foundation for Research on Information Technologies in Society / ETH Zurich, Zurich, Switzerland; 2Dept of Physics, Aristotle University of Thessaloniki, Thessaloniki, Greece.

8-8 INCORPORATING WHOLE-BODY THERMO-REGULATION EFFECTS INTO SIMULATION OF PARTIAL-BODY RF HEATING. A.R. Curran1, E.A. Marttila1, D.A. Nelson2, and J.M. Ziriax3. 1ThermoAnalytics, Inc., Calumet, Michigan, USA; 2Michigan Technological Univ, Houghton, Michigan, USA; 3Naval Health Research Center Detachment, Brooks City Base, Texas, USA.
PLENARY SESSION IV: HOWARD PETTY
Professor of Ophthalmology and Visual Sciences, Professor of Microbiology and Immunology, University of Michigan, Kellogg Eye Center

ION CHANNEL CLUSTERING & MYELOPEROXIDASE PARTICIPATE IN NEUTROPHIL RESPONSES TO WEAK ELECTRIC FIELDS
8:00am-9:00am, Salón Del Prado & Picasso Ballrooms
Chair: Bruce McLeod

PLENARY OPEN DISCUSSION
9:00am-9:30am, Salón Del Prado & Picasso Ballrooms
Chair: Arthur Pilla and Jim Lin

9:30am – 10:00am Coffee Break

SESSION 9: RF THRESHOLD RESPONSES
Chairs: Michael Murphy & Raphael Lee
10:00am-12:00pm, Salón Del Prado Ballroom

9-1 STUDENT
EFFECTS OF 872 MHz RADIOFREQUENCY RADIATION ON CELLULAR OXIDATIVE STRESS AND CELL DEATH. J. Luukkonen, J. Juutilainen, and J. Naarala. Univ of Kuopio, Dept of Environmental Sciences, Kuopio, Finland.

9-2
INDUCTION OF ANEUPLOIDY FOLLOWING 800MHZ CW RADIATION FOR 72 AND 24 HOURS. R. Korenstein, R. Mazor, A. Barbul, Y. Eshet, E. Jerbi, and A. Korenstein-Ilan. 1Dept of Physiology and Pharmacology, Sackler School of Med, Tel-Aviv Univ, Israel; 2Dept of Electrical Engineering - Physical Electronics, Faculty of Engineering, Tel-Aviv Univ, Israel.

SESSION 10: ELECTRO MANIPULATION
Chairs: Ben Greenebaum & Larry Anderson
10:00am-12:00pm, Picasso Ballroom

10-1
THE EFFECTS OF LONG-TERM EXPOSURE TO EXTREMELY LOW FREQUENCY MAGNETIC FIELDS ON INSULIN SECRETING CELLS. T. Sakurai, M. Yoshimoto, S. Koyama, Y. Komatsubar, and J. Miyakoshi. 1Dept of Radiological Tech, School of Health Sciences, Faculty of Medicine, Hiroaki Univ, Hiroaki, Aomori, Japan; 2Dept of Biophysics, Schulich School of Med and Dentistry, Univ of Western Ontario; Bioelectromagnetics, Imaging Program, Lawson Hlth Res Inst, St. Josephs Health Care, London, Ontario, Canada; 3Dept of Medical Biophysics, Schulich School of Medicine & Dentistry, Univ of Western Ontario, London, Ontario, Canada; 4Dept of Medical Biophysics, Schulich School of Med & Dentistry, Univ of Western Ontario; Imaging & Nuclear Med, & Bioelectromagnetics, Lawson Hlth Res Inst, St. Josephs Health Care, London, Ontario, Canada.

10-2 STUDENT

10-3
GENE EXPRESSION CHANGES IN LIVER AND LUNG OF RATS EXPOSED TO SUSTAINED 35-GHZ MILLIMETER WAVE ENERGY. N.J. Millenbaugh, R. Sypniewska, C.C. Roth, V. Chan, C.Z. Cerna, B.J. Broth, J.L. Kiel, R.V. Blystone, and P.A. Mason. 1Advanced Info Eng Services, San Antonio, TX, USA; 2Alien Sci and Tech, Wright-Patterson Air Force Base, OH, USA; 3Conceptual MindWorks, Inc., San Antonio, TX, USA; 4Trinity Univ, San Antonio, TX, USA; 5AFRL, Human Effectiveness Directorate, Directed Energy Bioeffects Div, RadioFreq Rad Branch, Brooks City-Base, TX; 6AFRL, Human Effectiveness Directorate, Biosei and Prot Div, Brooks City-Base, TX, USA.
9-4 EFFECT OF MILLIMETER WAVES ON TUMOR METASTASIS AND NATURAL KILLER CELLS. M.K. Logani, I. Szabo, A. Bhanushali, S. Alekseev, and M.C. Ziskin. Center for Biomed. Physics, Temple Univ School of Medicine, Philadelphia, Pennsylvania, USA.

9-5 MODELING THE EFFECT OF BLOOD FLOW ON LOCAL HEATING OF HUMAN SKIN BY MILLIMETER WAVES. S.I. Alekseev, A.A. Radzievsky, and M.C. Ziskin. Center for Biomedical Physics, Temple Univ Medical School, Philadelphia, PA, USA.


9-7 EFFECTS OF UMTS BASE STATION LIKE EXPOSURE ON WELL BEING AND COGNITIVE PERFORMANCE IN HUMANS. S.J. Regel, S. Negovetic, M. Röösli, V. Berdiñas, J. Schuderer, A. Huss, U. Lott, N. Kuster, and P. Achermann. Inst of Pharmacology and Toxicology, Univ of Zurich, Zurich, Switzerland; Dept of Social and Preventive Medicine, Univ of Bern, Bern, Switzerland; ITIS Foundation, Swiss Federal Inst of Tech, Zurich, Switzerland.

9-8 DOSE-DEPENDENT EFFECTS OF PULSED RF EMF ON SLEEP, THE SLEEP EEG AND COGNITIVE PERFORMANCE. S.J. Regel, G. Tinguely, J. Schuderer, M. Adam, N. Kuster, H-P. Landolt, and P. Achermann. Inst of Pharmacology and Toxicology, Univ of Zurich, Zurich, Switzerland; ITIS Foundation, Swiss Fed Inst of Tech, Zurich, Switzerland.

BEMS ANNUAL BUSINESS MEETING
12:00pm – 1:30pm, Salón Del Prado Ballroom
Box Lunch available with advance purchase only

SESSION 11: IN-VITRO & IN-VIVO RESEARCH
Chairs: Vijayalaxmi & Maria Rosari Scarfi
1:45pm-3:45pm, Salón Del Prado Ballroom


SESSION 12: DOSIMETRY II
Chairs: Jim Lin & Gabi Nindl Waite
1:45pm-3:45pm, Picasso Ballroom

12-1 STUDENT
POSSIBLE NON-COMPLIANCE OF ONE WALK THROUGH METAL DETECTOR FOR PREGNANT WOMEN MODELS AS COMPARED TO ICNIRP GUIDELINES. D. Wu, R. Qiang, J. Chen, S.J. Seidman, and W. Kainz. Univ of Houston, Dept of Elec and Computer Eng, Houston, TX, USA; US Food and Drug Administration (FDA), Center for Devices and Radiological Health (CDRH), Rockville, MD, USA.
11-2 STUDENT

11-3 EFFECTS OF ELF AND STATIC MAGNETIC FIELDS ON THE 5-HT1B SEROTONIN RECEPTOR. B. Veyret1, J. Espnosa1, M. Liberti2, G. Ruffi1, and I. Lagroye1. 1PIOM laboratory, ENSCPB/EHPE, Univ Bordeaux, Pessac, France; 2ICEmB @ Dpt Elettronica, Univ. La Sapienza, Rome, Italy.

11-4 STUDENT
IN VITRO EXPOSURE OF HUMAN SPERMATOZOA TO 900MHZ GSM RADIATION: EFFECT ON APOPTOSIS AND FUNCTIONALITY. N. Falzone1, C. Huysser2, F. le R. Fourie3, D. Franken4, D. Leszczynski5. 1Dept of Biomedical Science, Tshwane Univ of Tech, Pretoria, South Africa; 2Reproductive Biology Laboratory, Dept of Obstetrics and Gynaecology, Univ of Pretoria, Pretoria, South Africa; 3Dept of Res and Dev, Standards South Africa, Pretoria, South Africa; 4Tygerberg Hospital, Dept of Obstetrics and Gynecology, Stellenbosch Univ, Cape Town, South Africa; 5Functional Proteomics Group, Rad Bio Lab, STUK-Rad and Safety Auth, Helsinki, Finland.

11-5 A NOVEL NIOBIUM “SALT” BRIDGE FOR IN VITRO PEMF STUDIES. J.W. Kronberg1, T.M. Ganey2, R.J. Fitzsimmons3. 1Healthonics, Inc, Aiken, SC, USA; 2Atlanta Medical Center Dept of Orthopaedics, Atlanta, GA, USA; 3The Technical Basis LLC, Loma Linda, CA, USA.

11-6 NO INDUCTION OF HSP27 AND p53 PHOSPHORYLATION IN HUMAN CELLS EXPOSED TO 2-GHZ BAND CW OR W-CDMA MODULATED RADIOFREQUENCY FIELDS. M. Sekijima1, H. Hirose2, N. Sakuma1, N. Kaji1, T. Suhara1, K. Nakayama1, T. Nogiba1, and J. Miyakoshi1. 1Mitsubishi Chem Safety Inst Ltd, Kamisu, Ibaraki, Japan; 2Hokkaido Univ, Sapporo, Hokkaido, Japan; 3Hiroshima Univ, Hiroshima, Japan.

11-7 BETAOADRENERGIC RECEPTOR AGONISTS DELAY WHILE ANTAGONISTS ACCELERATE CORNEAL WOUND HEALING: EVIDENCE FOR A NOVEL HORMONAL NETWORK IN THE CORNEA. C.E. Pullar1, B. Song2, J. Pu2, B. Reid2, S. Goghwala2, C. McCaig2, M. Zhao3, and R. Isseroff4. 1Dept of Dermatology, Univ of California, Davis, Davis, CA, USA; 2School of Med Sciences, Univ of Aberdeen, Aberdeen, Aberdeenshire, Scotland; 3Dept of Ophthalmology, Univ of California, Davis, CA, USA.

11-8 ASYMMETRIC ELECTROPORATION AND NON-EQUILIBRIUM MOLECULAR UPTAKE. A.T. Esser1, T.R. Gowrishankar1, and J.C. Weaver1. 1Harvard-MIT Div of Health Sci and Tech, Cambridge, MA, USA.
MINI SYMPOSIUM: EMF RESEARCH AND THE PRECAUTIONARY PRINCIPLE

Organized by: Martin Blank & Michael Kundi
4:15pm-5:45pm, Salón Del Prado Ballroom

SCIENTIFIC PERSPECTIVE ON ELECTROMAGNETIC FIELDS AND THE PRECAUTIONARY PRINCIPLE. Martin Blank, Reba Goodman. Columbia University, New York, NY, USA.

EPIDEMIOLOGY OF ELF AND RF ELECTROMAGNETIC FIELDS IS THERE A CAUSAL INTERPRETATION OF THE ASSOCIATION WITH CANCER? Michael Kundi and Hans-Peter Hutter. Medical University of Vienna, Institute of Environmental Health, Vienna, Austria.

HOW THE PRECAUTIONARY PRINCIPLE HAS BEEN IMPLEMENTED WITH RESPECT TO ELF AND RF/MW EXPOSURE SOURCES IN RECENT YEARS. Cindy Sage. Owner, Sage Associates, Santa Barbara, California, USA.

THURSDAY, JUNE 15

PLENARY SESSION V: MICHAEL CHO
Associate Professor and Interim Head, Dept of Bioengineering, University of Illinois at Chicago

MANIPULATION OF STEM CELL DIFFERENTIATION BY NONINVASIVE ELECTRICAL STIMULUS
8:00am-8:45am, Salón Del Prado & Picasso Ballrooms
Chair: Bruce McLeod

PLENARY OPEN DISCUSSION
9:00am-9:30am, Salón Del Prado & Picasso Ballrooms
Chair: Jim Lin and Arthur Pilla

9:30am – 10:00am Coffee Break

SESSION 13: MEASURED & ESTIMATED THRESHOLDS FOR RESPONSE
Chairs: Quirino Balzano & Frank Prato
10:00am-12:00pm, Salón Del Prado Ballroom

# 1: 13-3
IN-DEPTH EVALUATION OF THE ELECTROMAGNETIC FIELD DISTRIBUTIONS AND INDUCED TEMPERATURE RISE OF EXPOSED AREAS IN SUBJECTS IN NOKIA 6110-BASED EXPOSURE SETUPS. A. Romann, S. Kuhn, N. Nikoloski, A. Christ, N. Kuster, J. Keshvari. IT'IS Foundation, Zurich, Switzerland.

# 2: 13-1
INFLUENCE OF HUMAN BODY SHAPE AND POSING ON EMF EXPOSURE. A. Cortel1, N. Varsier1, V. Dronne1, O. Colas1, M-F. Wong1, E. Nicolas2, F. Jacquín2, and J. Wiart1. 1France Telecom R&D, Issy-Moulineaux, France; 2Telediffusion de France, Paris, France.

SESSION 14: MEDICAL II: HUMAN EXPOSURE RESEARCH
Chairs: Dariusz Leszczynski
10:00am-12:00pm, Picasso Ballroom

# 1: 14-3 STUDENT
THE INFLUENCE OF MOBILE PHONE ELECTROMAGNETIC FIELDS ON THE HUMAN SLEEP EEG OVER AN ENTIRE NIGHT. S.P. Loughran1, A.W. Wood1, R.J. Croft1, J.M. Barton3, B. Thompson1, and C. Stough1. 1Brain Sciences Inst and Australian Centre for Radiofrequency Bioeffects Research (ACRBR), Swinburne Univ of Tech, Hawthorn, Victoria, Australia; 2Allergy, Immunology and Respiratory Medicine, The Alfred Hospital and Monash Univ, Melbourne, Victoria, Australia; 3Brain Sciences Inst, Swinburne Univ of Tech, Hawthorn, Victoria, Australia.

# 2: 14-6 STUDENT
EFFECTIVENESS OF THE INTERSTITIAL MICROWAVE HYPERThERMIA BY USE OF COAXIAL-SLOT ANTENNAS. S. Kikuchi1, K. Saito2, M. Takahashi2, K. Ito2, Y. Aoyagi3, and H. Horita1. 1Grad School of Sci and Tech, Chiba Univ, Chiba-shi, Chiba-ken, Japan; 2Res Center for Frontier Med Eng, Chiba Univ, Chiba-shi, Chiba-ken, Japan; 3Dept of Radiology, Ichikawa General Hospital, Tokyo Dental College, Ichikawashi, Chiba-ken, Japan.
SESSION 14: MEDICAL II: HUMAN EXPOSURE RESEARCH (continued)
Chairs: Dariusz Leszczynski
10:00am-12:00pm, Picasso Ballroom

# 3: 14-1
TEMPERATURE RISE IN EYES OF JAPANESE MALE AND FEMALE MODELS DUE TO FAR-FIELD MICROWAVE EXPOSURES. A. Hirata1, S. Watanabe2, O. Fujiwara1, T. Shiozawa3, M. Kojima4, and K. Sasaki4.
1Nagoya Inst of Tech, Nagoya, Japan; 2Nat’l Inst of Information and Comm Tech, Tokyo, Japan; 3Chubu Univ, Kasugai, Japan; 4Kanazawa Medical Univ, Kanazawa, Japan.

# 4: 14-4
THE SHEFFIELD MOBILE PHONE BLOOD PRESSURE/CARDIOVASCULAR STUDY. A.T. Barker, P.R. Jackson, L.A. Coulton, G.G. Cook, H. Parry. Dep of Medical Physics, Royal Hallamshire Hospital, Sheffield, UK.

# 5: 14-5
EVIDENCE OF A NONLINEAR HUMAN MAGNETIC SENSE. S. Carrubba, A.A. Marino. LSU Health Sciences Ctr, Shreveport, LA, USA.

# 6: 14-2
HEART RATE AND BLOOD PRESSURE IN RELATION TO MOBILE PHONE USE WITH AND WITHOUT HANDS FREE DEVICE. L. Hillert1 and B.B. Arnetz2. 1Karolinska Inst Stockholm, Sweden; 2Uppsala Univ, Uppsala, Sweden.

# 7: 14-7
THE EXTRACELLULAR MATRIX MAY BE THE TRANSDUCTION SITE FOR ELECTRIC FIELD EFFECTS ON CARTILAGE. F.X. Hart. The Univ of the South, Sewanee, TN, USA.

# 8: 14-8

AWARD CEREMONY AND CLOSING REMARKS
W. ROSS ADEY MEMORIAL AWARD
STUDENT AWARDS
12:15pm; Salón Del Prado Ballroom

BEMS BOARD MEETING
1:15pm – 5:00pm