

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. Keenlside², 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

1:15

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.

1:30

2-2
EFFICIENT SAR ESTIMATION METHOD USING SURFACE SCANNED ELECTRIC FIELD. T. Onishi¹, K. Kiminami, and S. Uebayashi. Wireless Laboratories, NTT DoCoMo Inc., Yokosuka, Kanagawa, Japan.

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.

1:45**1-4**

EFFECTS ON THE BRAINS OF WISTAR-HAN RATS EXPOSED HEAD-ONLY TO GSM-1800 OR UMTS SIGNALS: PRELIMINARY RESULTS. B. Billaudel¹, M. Taxile¹, L. Mayeur¹, M. Laclau¹, E. Haro¹, P. Levêque², G. Ruffie¹, F. Poullietier de Gannes¹, I. Lagroye¹, and B. Veyret¹. ¹PIOM/Bioelectromagnetics laboratory, ENSCPB/EPHE, Univ of Bordeaux, Pessac, France; ²IRCOM, Limoges, France.

2:00**1-5**

DO GSM-900 SIGNALS AFFECT BLOOD-BRAIN BARRIER PERMEABILITY AND NEURON VIABILITY? F. Poullietier de Gannes¹, E. Haro¹, M. Taxile¹, E. Ladeveze¹, L. Mayer¹, M. Laclau¹, P. Levêque², G. Ruffie¹, B. Billaudel¹, I. Lagroye¹, and B. Veyret¹. ¹PIOM/Bioelectromagnetics Lab, ENSCPB/EPHE, Pessac, France; ²IRCOM, Limoges, France.

2:15**1-6 STUDENT**

SHORT-TERM EXPOSURE TO 1439-MHZ TDMA SIGNAL DOES NOT MODULATE THE ESTROGENIC ACTIVITY IN FEMALE RATS. H. Yamashita¹, K. Hata¹, H. Yamaguchi¹, G. Tsurita¹, K. Wake², S. Watanabe², M. Taki³, S. Ueno⁴, and H. Nagawa¹. 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.

2:30**1-7**

EFFECT OF GSM-1800 AND UMTS EXPOSURES ON MICROGLIAL ACTIVATION AND HEAT SHOCK PROTEINS INDUCTION IN BRAIN: A COMPARATIVE STUDY OF YOUNG ADULT AND ELDERLY RATS. M. Laclau, B. Billaudel, M. Taxile, E. Haro, G. Ruffié, I. Lagroye, B. Veyret. PIOM/Bioelectromagnetics Lab, ENSCPB/EPHE, Pessac, France.

2:45**1-8**

HYPOALGESIC EFFECT OF LOW POWER MILLIMETER WAVES IN 20 WEEKS OLD MICE. O.V. Gordiienko, A.A. Radzievsky, S.I. Alekseev, and M.C. Ziskin. Temple Univ Med School, Philadelphia, PA, USA.

3:00**3:15pm – 3:45pm Coffee Break****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

SAR ESTIMATION IN IMMATURE RAT-HEADS EXPOSED BY AN 8-SHAPED LOOP ANTENNA. S. Tanaka¹, K. Wake², H. Kawai², S. Watanabe², H. Masuda³, A. Ushiyama³, M. Taki⁴, and T. Uno¹. ¹Tokyo Univ of Agriculture and Tech, Koganei-shi, Tokyo, Japan; ²Nat'l Inst of Information and Comm Tech, Koganei-shi, Tokyo, Japan; ³Nat'l Inst of Public Health, Wako-shi, Saitama, Japan; ⁴Tokyo Metropolitan Univ, Hachioji-shi, Tokyo, Japan.

2-6

BANDWIDTH, EFFICIENCY AND SAR OF CANONICAL ANTENNAS. A.T.M. Sayem¹, M. Ali¹, G. Schmid², and N. Haas². ¹Dept of Electrical Engineering, Univ of South Carolina, Columbia, SC, USA; ²ARC Seibersdorf Research GmbH, Seibersdorf, Austria.

2-7

CHARACTERIZATION OF THE LIQUID AND THE PHANTOM USED FOR THE SAR MEASUREMENTS OF BODY-MOUNTED DEVICES. V. Monebhurrin. Dept Electromagnetisme, Dept de Recherche en Electromagnetisme, Supelec, Gif-sur-Yvette, France.

2-8

RAPID SAR ESTIMATION USING RADIATED POWER MEASUREMENTS. V. Monebhurrin¹, J-C. Bolomey¹, L. Duchesne², M. LeGoff², and P. Garreau². 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. Stough², 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
NEW IEEE C95.1-2005 RF SAFETY STANDARD. C.K. Chou, J.A. D'Andrea, R.A. Tell, J.P. Reilly, E.R. Adair, M.L. Swicord, S. Lang, J.J. DeFrank, and R.C. Petersen. IEEE International Committee on Electromagnetic Safety, Tech Committee 95, Subcommittee 4, New York, NY, USA.

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. Metzenthien³, 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. Friedrich³. ¹Univ of Tech Munich, Munich, Germany; ²France Telecom, Issy-Les-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

3:45
4-1
EFFECT OF NANOSECOND PULSED ELECTRIC FIELDS: EARLY RESPONSE GENES FOR DNA DAMAGE REPAIR AND CELL CYCLE ARREST. Z.-M. Wang¹, A. Bassi¹, M. Khalid¹, C.Q. Zhou¹, H.L. Gerber¹, X. Ge², S.M. Wang², and K.H. Schoenbach³, C.C. Tseng¹. ¹Purdue Univ Calumet, Hammond, IN, USA; ²Northwestern Univ, Evanston, IL, USA; ³Old Dominion Univ, Norfolk, VA, USA.

4:00
4-2
SINGLE NANOSECOND ELECTRIC PULSE ELEVATES INTRACELLULAR CALCIUM IN BOVINE ADRENAL CHROMAFFIN CELLS. G.L. Craviso¹, Y. Sun², 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.

4:15
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.

4:30
4-4 **STUDENT**
IN SILICO BIOELECTROMAGNETICS: FROM MOLECULES AND MEMBRANES TO MAN. A.T. Esser¹, T.R. Gowrishankar¹, 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.

4:45
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. Beebe¹, R.L. Nuccitelli¹, and K.H. Schoenbach¹. ¹Frank Reidy Research Center for Bioelectrics, Norfolk, VA, USA; ²Forschungszentrum Karlsruhe, Karlsruhe, Germany.

5:00
4-6
SIMULATIONS OF CELL RESPONSE TO HIGH INTENSITY, ULTRASHORT ELECTRICAL PULSES. S. Viswanadham¹, Q. Hu¹, A. Nguyen¹, K. Schoenbach², and R. Joshi¹. 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

3-7
IMPLEMENTATION OF THE EU WORKERS DIRECTIVE: THE DUTCH APPROACH. J.F.B. Bolte and M.J.M. Pruppers. Nat'l Inst for Public Health and the Environment (RIVM), Bilthoven, The Netherlands.

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. Meltz¹, C.A. Galindo¹, K.W. Hakala², M. Natarajan¹, S.T. Weintraub², 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 Bioelectrics, Old Dominion Univ, Norfolk, Virginia, USA.

4-8
ESCHERICHIA COLI INDUCES SPECIFIC REPAIR GENES IN RESPONSE TO NSPEF. M.A. Gealt¹, Z-M. Wang², D.S. Johnson², P. Smutko², J. Spyridakis², K. Schoenbach³, and C.C. Tseng². ¹Univ of Arkansas at Little Rock, Little Rock, AR, USA; ²Purdue Univ Calumet, Hammond, IN, USA; ³Old Dominion Univ, Norfolk, VA, USA.

5:15

5:30

TUESDAY, JUNE 13

PLENARY SESSION II: RICHARD NUCCITELLI
Frank Reidy Research Center for Bioelectrics, 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, Geneva, 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/Dalí/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**

DOSIMETRY EVALUATION OF RATS EXPOSED TO GSM-900 SIGNALS IN SALFORD-USED TEM CELL. J. Wang¹, O. Fujiwara¹, T. Hikage², T. Nojima², H. Masuda³, A. Ushiyama³, C. Ohkubo⁴. 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. Schlaefer³, I. Hettlinger³, J. Wahrendorf³, K. Kunna-Grass⁴, and M. Blettner². 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. Foliant¹, B.H. Pollock², G. Mezei³, R. Iriye⁴, J.M. Silva⁴, K.L. Ebi⁵, L. Kheifets⁶, M.P. Link⁷, 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.

5-5 STUDENT

MAGNETIC FIELDS AND HEAT SHOCK PROTEINS. J. Robertson³, Y. Bureau¹², F. Prato¹²³, and A. Thomas¹²³. ¹Bioelectromagnetics, Lawson Health Research Inst, London, Ontario, Canada; ²Imaging & Nuclear Medicine, St. Joseph's Health Care, London, Ontario, Canada; ³Medical Biophysics, Univ of Western Ontario, London, Ontario, Canada.

5-6 STUDENT

THE EFFECT OF STATIC MAGNETIC FIELD ON BRAIN TISSUE HYDRATION AND PAIN THRESHOLD OF RATS. S.D. Ghazaryan, S.N. Ayrapetyan. UNESCO Chair-Life Sciences International Postgraduate Educational Center, Yerevan, Armenia.

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. Strauch². ¹Columbia Univ, New York, NY, USA; ²Albert Einstein College of Medicine, Bronx, NY, USA.

1:15**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.

1:30**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. Hutton². ¹Atlanta Medical Center, Atlanta, GA, USA; ²Emory Univ, Dept of Orthopaedics, Decatur, Georgia, USA; ³Healthonics, Inc, Aiken, SC, USA.

1:45**6-4**

EFFECTS OF ELF MAGNETIC FIELDS ON DIFFERENTIATION OF CULTURED OSTEOBLAST-LIKE CELLS. H. Yamaguchi¹, K. Hosokawa², H. Shichijo³, M. Kitamura², A. Soda², T. Ikehara², Y. Kinouchi³, K. Yoshizaki², H. Miyamoto², and K. Aizawa⁴. 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 Engr, Fac, Engr, Univ of Tokushima, Tokushima, Japan; ⁴Fac Sci & Engr, Waseda Univ, Tokyo, Japan.

2:00**6-5**

A CAPACTIVELY COUPLED PEMF SIGNAL STIMULATES CARTILAGE CELLS THROUGH A MECHANISM THAT MAY INVOLVE NITRIC OXIDE. R.J. Fitzsimmons, J.W. Kronberg, J. Naftel. Healthonics, Inc, Aiken, SC, USA.

2:15**6-6**

PEMF HAVE NEUROTROPHIC EFFECTS ON CULTURED DOPAMINERGIC NEURONS: MECHANISTIC STUDIES. D. Casper¹, E. Taub¹, L. Alammari¹, 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.

2:30

SESSION 5: EXPOSURE STUDIES (continued)*Chairs: Greg Lotz & Peter Valberg***1:15pm-3:15pm, Salón Del Prado Ballroom****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. Suzuki³, M. Taki³, and C. Ohkubo⁴. 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.

2:45**SESSION 6: MEDICAL I: HEALING (continued)***Chairs: Arthur Pilla & Walter Chang***1:15pm-3:15pm, Picasso Ballroom****6-7**

EFFECT OF ELFMF STIMULATION ON REPLICATION AND DIFFERENTIATION OF ADULT INTESTINAL NEURAL STEM CELLS. J. Belkind-Gerson¹, A. Carreón-Rodríguez¹, L. Cañedo², O. García-González³, and L. Verdugo-Díaz³. ¹Instituto Nacional de Salud Pública de México, Centro de Investigación en Salud Poblacional, Cuernavaca, Morelos, Mexico; ²Facultad de Medicina Universidad Autónoma del Estado de Morelos, Cuernavaca, Morelos, Mexico; ³Dept de Fisiología, Facultad de Medicina, UNAM, México, D.F., Mexico.

3:00**6-8**

CONTROL OF IMMUNE CELL MORPHOLOGY AND FUNCTION BY VERY WEAK ULTRA-LOW FREQUENCY PULSED MAGNETIC FIELDS. A.J. Rosenspire¹ and P.H. Wooley¹. ²Wayne State University, Detroit, MI, USA; ²EBI, Parsippany, NJ, 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 KNOWN AND UNKNOWN. 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.

3:45**7-2**

DNA-BINDING FLUOROCHROME PHOTO-LUMINESCENCE IN NANO-ELECTROPULSED LIVING CELLS. P.T. Vernier², Y. Sun³, M-T. Chen³, S.Y.C. Chong⁴, and M.A. Gundersen¹. 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.

4:00**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.

4:15**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 Neurophysiology; 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. Kramer², and N. Kuster². 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.

SESSION 7: ELECTROMED SESSION II: PULSED ELECTRIC & MAGNETIC FIELDS (continued)

Chairs: Bruce McLeod & Suleyman Dasdag
3:45pm-5:45pm, Salón Del Prado Ballroom

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. Rollman⁴, 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.

7-7 **STUDENT**

EM FIELD DISTRIBUTION ON COMPLEX CELLULAR STRUCTURES: A FREQUENCY ANALYSIS FROM ELF TO MW RANGE. C. Merla, L. Buonocore, M. Liberti, F. Apollonio, and G. D'Inzeo. ICEmB at Dept of Electronic Eng, "La Sapienza", Rome, RM, Italy.

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.

SESSION 8: MECHANISMS & ANALYSIS (continued)

Chairs: Martin Blank & James Weaver
3:45pm-5:45pm, Picasso Ballroom

4:30

8-4 **STUDENT**

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

4:45

8-5

NEW MEASUREMENT SYSTEM FOR ASSESSMENT OF EMF EXPOSURE IN ARC AND RESISTANCE WELDING APPLICATIONS. W. Giczi¹, G. Neubauer¹, I. Ruiz¹, T. Lindner¹, T. Aumeyer¹, K. Lamedschwandner¹, G. Rabitsch², and H. Molla-Djafari². ¹ARC Seibersdorf research GmbH, Seibersdorf, Austria; ²Austrian Workers Compensation Board, Vienna, Austria.

5:00

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. Klingeböck¹, 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.

5:15

8-7 **STUDENT**

NEW MODEL TO SIMULATE EM INDUCED TEMPERATURE DISTRIBUTIONS AND THE INFLUENCE OF BLOOD FLOW. E.Z. Neufeld¹, T. Samaras², N. Chavannes¹, 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.

5:30

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. Ziriak³. ¹ThermoAnalytics, Inc., Calumet, Michigan, USA; ²Michigan Technological Univ, Houghton, Michigan, USA; ³Naval Health Research Center Detachment, Brooks City Base, Texas, USA.

6:30PM SOCIAL EVENT

WEDNESDAY, JUNE 14

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.

10:00

9-2

INDUCTION OF ANEUPLOIDY FOLLOWING 800MHZ CW RADIATION FOR 72 AND 24 HOURS. R. Korenstein¹, R. Mazor¹, A. Barbul¹, Y. Eshet², E. Jerbi², and A. Korenstein-Ilan¹. 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.

10:15

9-3 STUDENT

A STUDY ON THE EFFECT OF MICROWAVE EXPOSURE ON HSP70 GENE EXPRESSION. S. Hiromoto¹, T. Sonoda¹, Y. Suzuki¹, K. Wake², S. Watanabe², J. Miyakoshi³, and M. Taki¹. ¹Tokyo Metropolitan Univ, Dept of Electrical Engineering, Hachioji-shi, Tokyo, Japan; ²National Inst of Information and Comm Tech, Koganei-shi, Tokyo, Japan; ³Hirosaki Univ, Faculty of Med, Hirosaki-shi, Aomori, Japan.

10:30

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. Sakurai¹, M. Yoshimoto¹, S. Koyama², Y. Komatsubara¹, and J. Miyakoshi¹. ¹Dept of Radiological Tech, School of Health Sciences, Faculty of Medicine, Hirosaki Univ, Hirosaki, Aomori, Japan; ²Dept of Interdisciplinary Environment, Grad School of Human and Environmental Studies, Kyoto Univ, Kyoto, Kyoto, Japan.

10-2 STUDENT

THE EFFECT OF A SPECIFIC PULSED MAGNETIC FIELD ON MUSCLE MICROVASCULATURE STIMULATED BY A VASODILATOR. J.C. McKay¹, K. Tymi², F.S. Prato³, & A.W. Thomas³. ¹Dept of Med Biophysics, Schulich School of Med & Dentistry, Univ of Western Ontario; Bioelectromagnetics, Imaging Program, Lawson Hlth Res Inst, St. Josephs Health Care, London, Ontario, Canada; ²Dept of Medical Biophysics, Schulich School of Medicine & Dentistry, Univ of Western Ontario, London, Ontario, Canada; ³Dept 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.

10-3

GENE EXPRESSION CHANGES IN LIVER AND LUNG OF RATS EXPOSED TO SUSTAINED 35-GHZ MILLIMETER WAVE ENERGY. N.J. Millenbaugh¹, R. Sypniewska¹, C.C. Roth¹, V. Chan², C.Z. Cerna³, B.J. Brott⁴, J.L. Kiel⁶, R.V. Blystone⁴, and P.A. Mason⁵. ¹Advanced Info Eng Services, San Antonio, TX, USA; ²Alion 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, Biosci and Prot Div, Brooks City-Base, TX, USA.

SESSION 9: RF THRESHOLD RESPONSES (continued)*Chairs: Michael Murphy & Raphael Lee***10:00am-12:00pm, Salón Del Prado Ballroom****9-4****EFFECT OF MILLIMETER WAVES ON TUMOR METASTASIS AND NATURAL KILLER CELLS.** M.K. Logani¹, I. Szabo¹, A. Bhanushali¹, S. Alekseev¹, and M.C. Ziskin¹. ¹Center for Biomed. Physics, Temple Univ School of Medicine, Philadelphia, Pennsylvania, USA.**10:45****9-5****MODELING THE EFFECT OF BLOOD FLOW ON LOCAL HEATING OF HUMAN SKIN BY MILLIMETER WAVES.** S.I. Alexeev¹, A.A. Radzievsky¹, and M.C. Ziskin¹. ¹Center for Biomedical Physics, Temple Univ Medical School, Philadelphia, PA, USA.**11:00****9-6****SPATIAL-DEPENDENCE OF WARMTH SENSATION CAUSED BY MILLIMETER-WAVE EXPOSURE.** S. Watanabe, T. Konno, M. Hanazawa, K. Wake, Y. Suzuki, M. Taki, M. Kouzai, A. Nishikata, H. Shirai. Nat'l Inst of Info and Comm Tech, Tokyo, Japan.**11:15****9-7****EFFECTS OF UMTS BASE STATION LIKE EXPOSURE ON WELL BEING AND COGNITIVE PERFORMANCE IN HUMANS.** S.J. Regel¹, S. Negovetic¹, M. Röösl², V. Berdiñas³, J. Schuderer³, A. Huss², U. Lott³, N. Kuster³, and P. Achermann¹. ¹Inst of Pharmacology and Toxicology, Univ of Zurich, Zurich, Switzerland; ²Dept of Social and Preventive Medicine, Univ of Bern, Bern, Switzerland; ³IT'IS Foundation, Swiss Federal Inst of Tech, Zurich, Switzerland.**11:30****9-8****DOSE-DEPENDENT EFFECTS OF PULSED RF EMF ON SLEEP, THE SLEEP EEG AND COGNITIVE PERFORMANCE.** S.J. Regel¹, G. Tinguely¹, J. Schuderer², M. Adam¹, N. Kuster², H-P. Landolt¹, and P. Achermann¹. ¹Inst of Pharmacology and Toxicology, Univ of Zurich, Zurich, Switzerland; ²ITIS Foundation, Swiss Fed Inst of Tech, Zurich, Switzerland.**11:45**

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****11-1****OVERVIEW OF THE PRESENT STATUS OF TRANSCRIPTOMICS AND PROTEOMICS RESEARCH INTO BIOLOGICAL EFFECTS OF EMF AND THE OUTCOME OF THE 2005 WHO WORKSHOP IN HELSINKI.** D. Leszczynski. Functional Proteomics Group, STUK-Rad and Nuc Safety Auth, Helsinki, Finland.**1:45****SESSION 10: ELECTRO MANIPULATION (continued)***Chairs: Ben Greenebaum & Larry Anderson***10:00am-12:00pm, Picasso Ballroom****10-4****SUBTYPES OF ENDOGENOUS OPIOIDS AND OPIOID RECEPTORS IN THE MILLIMETER WAVE-INDUCED HYPOALGESIA IN MICE.** A.A. Radzievsky, O.V. Gordiienko, S.I. Alekseev, and M.C. Ziskin. Temple Univ Med School, Philadelphia, PA, USA.**10-5****LONG TERM EFFECTS OF MICROWAVES FROM GSM MOBILE PHONES ON THE RAT BRAIN.** J.L. Eberhardt¹, B.R.R. Persson¹, A. Brun², L. Malmgren⁴, G. Grafstrom¹, and L.G. Salford³. ¹Dept of Radiation Physics, Univ Hospital, Lund, Sweden; ²Dept of Neuropathology, Univ of Lund, Lund, Sweden; ³Dept of Neurosurgery, Univ Hospital, Lund, Sweden; ⁴The MAX-lab National Facility, Univ of Lund, Lund, Sweden.**10-6 STUDENT****ELECTROMAGNETIC FIELD EFFECTS ON CALCIUM CHANNELS ACTIVATION CAN AFFECT OUTPUT FIRING IN A REALISTIC NEURON MODEL.** M. Gianni, A. Paffi, M. Liberti, F. Apollonio, G. d'Inzeo, M. Mazzanti. ICEmB, Dept of Electronic Eng, Univ of Rome, Rome, Italy.**10-7****MAGNETIC NANOPARTICLES AS EFFECTIVE ENERGY TRANSDUCERS TO ACTIVATE BIOLOGICAL NANOMACHINES BY MEANS OF RF ELECTROMAGNETIC SIGNALS.** G. Bellizzi¹, E.M. Bucci², O.M. Bucci¹, M.L. Calabrese¹, A. Capozzoli¹, R. Massa¹, A. Messere³, G. Milano³, D. Musumeci², G. Petraglia¹, and G. Roviello². ¹Univ of Naples Federico II - DIET, Naples, Italy; ²CNR - IBB, Naples, Italy; ³SUN - Environm. Sciences Dept, Caserta, Italy.**10-8****REMOTE CONTROL OF BIOMOLECULES BY RADIOFREQUENCY: A TEST STUDY.** E.M. Bucci¹, G. Bellizzi², O.M. Bucci², M.L. Calabrese², A. Capozzoli², A. Messere³, G. Milano³, D. Musumeci¹, G. Petraglia², G. Roviello¹ and R. Massa². ¹CNR - IBB, Naples, Italy; ²Univ. of Naples Federico II - DIET, Naples, Italy; ³SUN - Environm. Sciences Dept, Caserta, Italy.**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. Wu¹, R. Qiang¹, J. Chen¹, S.J. Seidman², and W. Kainz². ¹Univ of Houston, Dept of Elec and Computer Eng, Houston, TX, USA; ²US Food and Drug Administration (FDA), Center for Devices and Radiological Health (CDRH), Rockville, MD, USA.

SESSION 11: IN-VITRO & IN-VIVO RESEARCH (continued)*Chairs: Vijayalaxmi & Maria Rosari Scarfi***1:45pm-3:45pm, Salón Del Prado Ballroom****11-2 STUDENT**

THE DOSE-DEPENDENT EFFECT OF HYDROGEN PEROXIDE ON NEUROMEMBRANE CHEMOSENSITIVITY. S.N. Ayrapetyan, A.S. Hunanyan. UNESCO Chair-Life Sciences International Postgraduate Educational Center, Yerevan, Armenia.

11-3

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

11-4 STUDENT

IN VITRO EXPOSURE OF HUMAN SPERMATOOZOA TO 900MHZ GSM RADIATION: EFFECT ON APOPTOSIS AND FUNCTIONALITY. N. Falzone¹, C. Huyser², 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. Hirose¹, N. Sakuma¹, N. Kaji¹, T. Suhara¹, K. Nakayama¹, T. Nojima², and J. Miyakoshi³. ¹Mitsubishi Chem Safety Inst Ltd., Kamisu, Ibaraki, Japan; ²Hokkaido Univ, Sapporo, Hokkaido, Japan; ³Hirosaki Univ, Hirosaki, Aomori, Japan.

11-7

BETA-ADRENERGIC 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. Goghwal³, C. McCaig², M. Zhao², and R. Isseroff¹. 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.

SESSION 12: DOSIMETRY II (continued)*Chairs: Jim Lin & Gabi Nindl Waite***1:45pm-3:45pm, Picasso Ballroom****12-2****2:00**

AN INVESTIGATION ON THE CONSERVATIVENESS OF REFERENCE LEVELS FOR ADULT AND CHILD-SCALED HUMAN BODY MODELS AT MOBILE COMMUNICATION SYSTEMS FREQUENCIES. P. Bernardi¹, M. Cavagnaro¹, S. Pisa¹, E. Piuze¹, J.C. Lin². ¹Univ of Rome 'La Sapienza', Dept of Electron Eng, Rome, Italy; ²Univ of Illinois At Chicago, Chicago, IL, USA.

12-3**2:15**

DOSIMETRIC EXPOSURE ASSESSMENT FOR RF DIELECTRIC HEATERS. S. Kännälä, L. Puranen, A-P. Sihvonen, and K. Jokela. STUK Radiation and Nuclear Safety Authority, Helsinki, Finland.

12-4**2:30**

EM ABSORPTION MECHANISM OF HUMAN BODY MODEL FOR FAR-FIELD EXPOSURE IN WHOLE-BODY RESONANCE FREQUENCY AND GHZ REGIONS. A. Hirata, S. Kodera, J. Wang, and O. Fujiwara. Nagoya Inst of Tech, Nagoya, Aichi, Japan.

12-5**2:45**

INDIVIDUAL RF EXPOSURE ASSESSMENT - NEW RESULTS OBTAINED IN AUSTRIA BY USING EXPOSIMETERS. G. Neubauer, S. Hörth, M. Bürger, and H. Haider. ARC Seibersdorf research, Seibersdorf, Austria, Lower Austria.

12-6**3:00**

NUMERICAL DETERMINATION OF TEMPERATURE DISTRIBUTION INSIDE FREE-RUNNING RODENTS DUE TO WHOLE-BODY RF-EXPOSURE. T. Reinhardt¹, A. Bitz¹, J. Streckert¹, V. Hansen¹, J. Buschmann², and T. Tillmann². ¹Chair of Electromagnetic Theory, University of Wuppertal, Wuppertal, Germany; ²Fraunhofer Institute of Toxicology and Experimental Medicine, Hannover, Germany.

12-7**3:15**

RF EXPOSURE FROM MULTIPLE MOBILE PHONES IN AN ENCLOSED ENVIRONMENT. M. Siegbahn, H. Gradin, B. Thors, C. Tornevik. Ericsson, Dept ERA/T/UD, Stockholm, Sweden.

12-8**3:30**

WIFI EXPOSURE ASSESSMENT. A.C. Carrasco, A. Gati, M-F. Wong, and J. Wiart. RESA/FACE France Telecom R&D, Issy Les Moulineaux, France.

3:45pm – 4:15pm Coffee Break

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. Jacquin², 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. Thompson², and C. Stough³. 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.

10:00

10:15

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. Horita³. 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 13: MEASURED & ESTIMATED THRESHOLDS FOR RESPONSE (continued)

Chairs: Quirino Balzano & Frank Prato

10:00am-12:00pm, Salón Del Prado Ballroom

3: 13-8 STUDENT

BIOPHYSICAL MODIFICATIONS IN STRUCTURAL STATE OF ARTIFICIAL MEMBRANES UNDER MILLIMETER WAVE EXPOSURE AT 60GHZ. M. Zhadobov¹, R. Sauleau¹, V. Vié², and D. Thouroude¹. ¹Inst of Elec and Telecomm of Rennes (IETR), Univ of Rennes 1 Brittany, France; ²Group of Condensed Matter and Materials (GMCM), Univ of Rennes 1, Brittany, France.

10:30

4: 13-2 STUDENT

A PRECISE ESTIMATION METHOD FOR THE ELECTRO-MAGNETIC FIELD DISTRIBUTION EXCITED BY CELLULAR RADIOS IN ELEVATORS. L. Harris¹, T. Hikage¹, T. Nojima¹, M. Omiya¹, S. Watanabe², and T. Shinozuka². ¹Hokkaido Univ, Sapporo, Hokkaido, Japan; ²Nat'l Inst of Info and Comm Tech, Koganei, Tokyo, Japan.

10:45

5: 13-4

INDUCTION OF TAMOXIFEN RESISTANCE IN BREAST CANCER CELLS BY ELECTROMAGNETIC FIELDS DEPENDS ON ALTERED EXPRESSION OF ESTROGEN RECEPTOR COFACTORS. H.R. Girgert¹, C. Gründker¹, G. Emons¹, and V. Hanf². ¹Dept of Gynecology, Univ of Göttingen, Germany, Göttingen, Germany; ²Dept of Gynecology, Klinikum Fürth, Germany, Fürth, Germany.

11:00

6: 13-5

REGULATION OF BIOPHOTONIC WATER OXIDATION IN T CELLS BY 60 AND 120 HERTZ ELECTROMAGNETIC FIELDS: MECHANISM, MODEL AND CELLULAR IMPACT. G. Nindl Waite¹ and W.X. Balcavage². ¹Cellular and Integrative Physiology, Indiana Univ School of Medicine, Terre Haute, IN, USA; ²Biochemistry and Molecular Biology, Indiana Univ School of Medicine, Terre Haute, IN, USA.

11:15

7: 13-6

MODELLING NEURONAL ACTIVITY UNDER REALISTIC ELECTROMAGNETIC EXPOSURE: EVIDENCE OF FREQUENCY SENSITIVITY. A. Paffi, C. Merla, M. Gianni, M. Liberti, F. Apollonio, G. D'Inzeo. Univ of Rome, Dept of Electronic Engineering, Rome, Italy.

11:30

8: 13-7

HIGH Q DOUBLY RESONANT CAVITY TO DETECT NONLINEAR RF DEMODULATION IN BIOLOGICAL CELLS. Q. Balzano, V. Hodzic, R.W. Gammon, C.C. Davis. Univ of MD, College Park, MD, USA.

11:45

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

FEASIBILITY STUDY FOR DEVELOPMENT OF A DEVICE FOR DETECTING BREAST CANCER. J-L. Kim¹, C-O. Ko¹, J-I. Choi², H-D. Choi², A-K. Lee², S-H. Jang³, J-J. Kim³, and J-K. Pack¹. ¹Dept of Radio Science & Eng, Chungnam Nat'l Univ, Daejeon, Korea; ²Radio Tech Res Group, ETRI(Electronics Telecomm Res Inst), Daejeon, Korea; ³Korea Electric Power Corporation, Seoul, Korea.

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