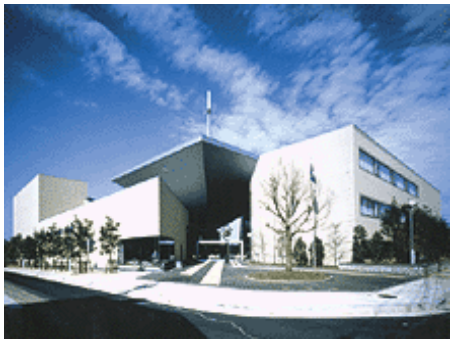
The Bioelectromagnetics Society
29th Annual Meeting

Technical Program & Registration

Kanazawa-shi Bunka Hall
Kanazawa, Japan
June 10 - 15, 2007



THE BIOELECTROMAGNETICS SOCIETY

2007-2008

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FROM THE CHAIR OF THE TECHNICAL PROGRAM COMMITTEE

The Bioelectromagnetics Society's 29th Annual Meeting is being held for the first time in Japan. The meeting promises to be an exciting look at current research in bioelectromagnetics from around the world. The Technical Program Committee extends its welcome to authors, participants, family members and friends, to representatives of government and private agencies and to members of the press. We are confident that each and every attendee at the meeting will enjoy the fifteen outstanding plenary lectures and four workshops as well as the papers that are presented in the fourteen platform sessions and the two poster sessions.

Each morning will feature a plenary session designed to give the audience an inside look at some of the cutting edge research in our field. This year we have chosen to highlight medical applications of EMF in the plenary sessions. Topics such as "Cancer Diagnosis and Treatment" and "Bioelectromagnetic stimulation of wound healing" will be covered in depth by three experts on each topic. We have also added two hands-on workshops that will use video presentations to teach us the nuts and bolts of several experimental techniques.

The committee is also pleased to report that we reviewed 279 abstracts of which 32 were from student members of our society. These numbers are nearly identical to the meeting we held in Cancun last year and they indicate a continuing high interest in bioelectromagnetics research.

Each year after the submission of abstracts, it is possible to get a glimpse of where research in this field is heading. This year, areas such as dosimetry, cell manipulation and medical applications are prime areas as measured by the number of papers submitted. Dosimetry studies far outnumbered all of the other categories with 25% of the papers being in this category. The next largest group of papers was in cellular studies closely followed by papers on human studies.

As chair of the Technical Program Committee I would like to sincerely thank each member of the TPC that helped me with the initial planning for the 28th Annual Meeting. This is the first meeting that was developed under the new Board of Directors guidelines (Two year advanced planning, more Board involvement) and, I believe, the process has worked well. It has also been a pleasure to work with BEMS office staff as we constructed the technical meeting. They make it so much easier for the TPC chairman to keep track of and work out all the details of putting together this international meeting.

Once again, welcome to all those attending the meeting. I am sure this will be a highly informative and enjoyable meeting for all those in attendance.

Richard Nuccitelli
Technical Program Chair

TIME	BEMS 29th ANNUAL MEETING SCHEDULE AT A GLANCE	BUNKA HALL PERFORMANCE THEATER
	SATURDAY, JUNE 9	
9:00 – 5:00	BEMS Board of Directors Meeting	Large Conf Rm, 3rd floor
6:00 – 8:00	BEMS President's Reception *(by invitation only)*	TBD
	SUNDAY, JUNE 10	
8:30 – 12:30	**U.S. AIR FORCE WORKSHOP:** Terahertz Bioeffects and EM Theory	Large Conf Rm, 3rd floor
12:30 – 2:00	BEMS/EBEA 2009 Planning Committee Meeting	Conf Room #2, 2nd floor
2:00 – 5:00	**TASER INTERNATIONAL WORKSHOP:** Neuromuscular Incapacitation by High Voltage Electrical Pulses	Large Conf Rm, 3rd floor
12:00 – 7:00	**Registration & Poster Set-up**	Bunka Hall
3:00 – 5:00	***LOADING TIME FOR MONDAY'S PRESENTATIONS***	Conf Room #2, 2nd floor
5:00 – 7:00	***Welcome Reception***	Bunka Hall – Lobby
	MONDAY, JUNE 11	
8:30 – 4:00	***LOADING TIME FOR TUESDAY'S PRESENTATIONS***	Conf Room #2, 2nd floor
8:30	Opening & Welcome Remarks	Main Hall
8:30 – 10:30	**PLENARY I: *ELECTROMED:* BIOELECTROMAGNETIC APPLICATIONS TO CANCER DIAGNOSIS AND TREATMENT**	Main Hall
10:30 – 12:30	**POSTER SESSION A (Odd numbered posters presented) & Coffee Break**	2nd and 3rd floor foyers
12:30 – 1:30	*Lunch on your own* ***OR*** *buy a ticket for the New Grand Hotel buffet lunch on your early registration form*	Various nearby options ***OR*** New Grand Hotel buffet
1:30 – 3:30	**SESSION 1: CANCER DETECTION, THERAPY & OTHER HUMAN STUDIES** **SESSION 2: DOSIMETRY I**	Main Hall Large Assembly Room
3:30 – 4:00	*Coffee Break*	
4:00 – 6:00	**SESSION 3: EMF EXPOSURE AND STANDARDS I** **SESSION 4: *ELECTROMED:* NANOSECOND PULSED ELECTRIC FIELDS TRIGGER APOPTOSIS & INFLUENCE GENE EXPRESSION**	Main Hall Large Assembly Room
6:00	URSI COMMISSION K meeting	Conf Room #2, 2nd floor
6:30	Editorial Board Dinner	TBD
	TUESDAY, JUNE 12	
8:30 – 4:00	*LOADING TIME FOR WEDNESDAY'S PRESENTATIONS*	Conf Room #2, 2nd floor
8:30 – 10:30	**PLENARY II: *ELECTROMED:* BIOELECTROMAGNETIC STIMULATION OF WOUND HEALING AND REGENERATION**	Main Hall
10:30 – 12:30	**POSTER SESSION B (Even numbered posters presented) Coffee Break included**	2nd and 3rd floor foyers
12:30 – 1:30	*Lunch on your own* ***OR*** *buy a ticket for the New Grand Hotel buffet lunch on your early registration form*	Various nearby options ***OR*** New Grand Hotel buffet
1:30 – 3:30	**SESSION 5: MECHANISMS OF CELL INTERACTIONS WITH EMF I** **SESSION 6: MOBILE PHONE STUDIES**	Main Hall Large Assembly Room
3:30 – 4:00	*Coffee Break*	

	TUESDAY, JUNE 12 (continued)	
4:00 – 6:00	**SESSION 7: MECHANISMS OF CELL INTERACTIONS WITH EMF II** **SESSION 8: MAGNETIC FIELD EFFECTS**	Main Hall Large Assembly Room
6:30	*Social Event and Sponsor Recognition Ceremony*	JAL Hotel @ Train Station

	WEDNESDAY, JUNE 13	
8:30 – 2:00	*LOADING TIME FOR THURSDAY'S PRESENTATIONS*	Conf Room #2, 2nd floor
8:30 – 10:30	**PLENARY III: BIOELECTROMAGNETICS: HUMAN EXPOSURE STANDARDS AND HEALTH CONSIDERATIONS**	Main Hall
10:30 – 11:00	*Coffee Break*	
11:00 – 1:00	**SESSION 9: EMF EXPOSURE AND STANDARDS II** **SESSION 10: EMF EFFECTS ON ANIMAL SYSTEMS**	Main Hall Large Assembly Room
1:00 – 2:30	**BEMS ANNUAL BUSINESS MEETING** *(box lunches are available for advance purchase only)* ***Posters are available for viewing in the afternoon***	Large Assembly Room
	THURSDAY, JUNE 14	
8:30 – 4:00	*LOADING TIME FOR FRIDAY'S PRESENTATIONS*	Conf Room #2, 2nd floor
8:30 – 10:30	**PLENARY IV: *ELECTROMED:* BIOELECTROMAGNETIC EFFECTS ON THE NERVOUS SYSTEM I**	Main Hall
10:30 – 11:00	*Coffee Break*	
11:00 – 1:00	**SESSION 11: EMF EFFECTS ON THE GENOME AND PROTEOMICS** **SESSION 12: DOSIMETRY II**	Main Hall Large Assembly Room
1:00 – 2:00	*Lunch on your own* ***OR*** *buy a ticket for the New Grand Hotel buffet lunch on your early registration form*	Various nearby options ***OR*** New Grand Hotel buffet
2:00 – 6:00	**WORKSHOP 1: BASIC TECHNIQUES IN CYTOGENETICS RESEARCH** **WORKSHOP 2: PRACTICAL IMPLEMENTATION OF ELF & RF GUIDELINES**	Large Assembly Room Large Conf Rm, 3rd floor
	FRIDAY, JUNE 15	
8:30 – 10:30	**PLENARY V: BIOELECTROMAGNETIC EFFECTS ON THE NERVOUS SYSTEM II**	Main Hall
10:30 – 11:00	*Coffee Break*	
11:00 – 12:30	**SESSION 13: DOSIMETRY III** **SESSION 14: IN VITRO STUDIES**	Main Hall Large Assembly Room
12:45	**Award Ceremony and Concluding Remarks** • **C.A. L (Andrew) Bassett Memorial Award** • **Curtis Carl Johnson Memorial Award**	Main Hall
1:30 – 5:30	BEMS Board of Directors Meeting	Large Conf Rm, 3rd floor
1:30 – 7:30	ICES/TC34/SC2/WG2	TBD
	SATURDAY, JUNE 16	
8:30 – 10:30	ICES/TC34/SC2/WG2	TBD
11:00 – 7:00	ICES/TC34/SC2/WG1	TBD
	SUNDAY, JUNE 17	
9:00 – 5:00	IEC/PT62209	TBD

REGISTRATION INFORMATION

THE DEADLINE FOR RECEIPT OF PAYMENT FOR DISCOUNTED EARLY REGISTRATION IS MAY 21, 2007

Payments received after that date will be charged the late registration fee. Paid registration includes the following:

- Admission to all scientific sessions, including lectures and poster sessions;
- Conference documents including program, CD of abstracts and a list of participants;
- Welcome Reception on Sunday evening;
- Daily coffee breaks during the Technical Program;
- Tuesday evening Social Event

Optional lunches available to purchase in advance:

- **Meal Tickets will be sold in advance for a lunch buffet to be served across the street at the New Grand Hotel on Monday, Tuesday and Thursday.**
- **In addition, box lunch tickets will be available to purchase for Wednesday's Annual Business Meeting.**

Participants wishing to include guests at any of the meal functions must purchase additional meals in advance.

29th ANNUAL MEETING REGISTRATION FEES

	Early/Discounted Before May 18, 2007	Late May 18, 2007
Member	US $495	US $595
Non-Member	US $595	US $695
Student/Emeritus Member	US $295	US $395

US Dollars accepted in US Checks drawn on a US bank or for credit card payments.

ALL OTHER REGISTRANTS PAY IN JAPANESE YEN VIA BANK TRANSFER

Member	60,000¥	72,000¥
Non-Member	72,000¥	84,000¥
Student/Emeritus Member	36,000¥	48,000¥

BANK TRANSFER INFORMATION

The Bank of Tokyo-Mitsubishi UFJ, Ltd.
Kashiwa-Chuo Branch
2-5, Kashiwa 1-chome, Kashiwa-shi, Chiba, 277-0005, Japan
Telephone number: +-81-04-716-1101
SWIFT: BOTKJPJT
Bank Account number: 2579370
Name on Bank Account: BEMS2007

REGISTRATION CANCELLATION POLICY:
Refunds are offered only for medical emergencies. There are no refunds for no shows.

GENERAL INFORMATION

MEETING LOCATION

Kanazawa is one of Japan's foremost castle towns on the west coast north of Kyoto. The city boasts many places of historic and aesthetic interest, such as splendid Kenrokuen, known as one of the three most beautiful gardens in Japan, and Ishikawa-mon, the commanding gate to the old castle grounds. Since Maeda Toshiis's entrance into Kanazawa in 1583, the city has been completely untouched by war and thus retains much of its historic beauty. While preserving its precious heritage, Kanazawa has developed into a thoroughly charming modern city in the western Chubu Region.

TRAVEL INFORMATION

AIRLINE INFORMATION:
The best way to fly to Kanazawa is to book your flight to go to Tokyo's Narita Airport and then connect to Komatsu. From Tokyo there are two airports that connect to Kumatsu: Narita International airport and the other is Haneda, the domestic airport.

KOMATSU AIRPORT TO KANAZAWA STATION:
There is an airport shuttle from Komatsu airport to the Kanazawa train station. It takes approximately an hour and costs 1100¥ (about 10USD) With English speaking ticket sales, the bus is clean, comfortable and easy. Once you arrive in Kanazawa station you are in the transportation hub of the city. Taxis and buses are available only a few steps from the airport shuttle.

HOTEL INFORMATION:
Nippon Travel Agency (NTA) is the hotel reservation company for the Kanazawa meeting. The BEMS group rate quoted for each hotel includes breakfast and is available for the nights of June 7th through June 18th, 2007. A map showing the location of Bunka Hall and the various hotels is available online at: https://apollon.nta.co.jp/2007bems/. This link will take you to the reservation sign-in page where you enter your email address and a password. You can access the Accommodations link and scroll down to review the various hotels, rates and locations on the map. Enter a check next to each date that you would like to book your reservation for. These dates must be within the approved group room block dates. You can confirm your reservation on line, but it is not guaranteed until you send payment in full.

INSURANCE

Neither the Society nor Association Services International, Inc. is liable for personal injuries, loss or damage to private property for participants, students, accompanying persons either during or indirectly arising from BEMS 2007. Participants should make their own arrangements with respect to health, accident and travel insurance.

MEALS

Registrants will receive complimentary:
- Welcome Reception on Sunday evening;
- Coffee breaks Monday through Friday;
- Tuesday evening Social Event

Optional meal tickets for sale in advance:
- Tickets will be sold for a buffet lunch Monday, Tuesday and Thursday in the New Grand hotel (across the street from Bunka Hall). A mix of Japanese and Western foods will be served.
- Box Lunches for Wednesday's Annual Business Meeting will be available for advance purchase only.

AWARDS

The following Awards will be presented:
- C.A.L. (Andrew) Basset Memorial Award
- The Curtis Carl Johnson Memorial Award for the Best Platform presentation given by a student
- The Curtis Carl Johnson Memorial Award for the Best Poster presentation given by a student
- Second and Third place student awards will be given for both platform and poster presentations

ABSTRACT COLLECTION

The Twenty-Ninth Annual Meeting Abstract Collection will be available on the BEMS website two weeks prior to the Annual Meeting. Attendees may wish to download the Abstract Book and print out abstracts prior to attending the meeting. Registrants will receive a CD with the Abstract Collection at registration. The BEMS website will offer a link to purchase a print copy of the Abstract Collection online (printing plus shipping & handling).

POSTER SESSIONS

Poster setup is in Bunka Hall on Sunday, June 10th from 1:00pm to 7:00pm.

Poster board dimensions: 210 cm tall x 120 cm wide

The boards will be numbered to correspond with the numbers assigned in the Program and student posters will be clearly identified. Authors are asked to be present at their poster on the day and time scheduled in the Program.

- Poster Session A: Odd numbered posters will be presented on Monday from 10:30am to 12:30pm.
- Poster Session b: Even numbered posters will be presented on Monday from 10:30am to 12:30pm.

AUTHORS MUST REMOVE THEIR POSTERS BY THURSDAY, JUNE 14 BY 6:00pm.

PLATFORM (ORAL) SESSIONS

Simultaneous sessions will be held in Bunka Hall at the times indicated in the Program schedule.

The total presentation time for each platform paper will be 10 minutes with 5 minutes for questions and discussion unless otherwise noted.

Each session will have an LCD projector for computer presentations using Microsoft PowerPoint. Our meeting procedures require all presentations to be loaded onto the conference computer the day prior to presentation.

Under no circumstances will presenters be allowed to use their own computers for presentation.

Speakers who want to use computer projection must provide the AV technician with their presentation **the day before** their session, on either a CD ROM, USB memory stick or jump drive.

ANCILLARY EVENTS & ACTIVITIES

SATURDAY, JUNE 9

BEMS BOARD OF DIRECTORS MEETING
9:00am – 5:00pm; Bunka Hall Large Conference Room 3rd floor

PRESIDENT'S RECEPTION *(by invitation only)*
6:00pm – 8:00pm; TBD

SUNDAY, JUNE 10

US AIR FORCE LABORATORY WORKSHOP: TERAHERTZ BIOEFFECTS AND EM THEORY
8:30am – 12:30pm; Bunka Hall, Large Conference Room, 3rd Floor

The Air Force Research Laboratory is hosting a special session entitled "Terahertz Bioeffects and Theory" at the Bioelectromagnetics Society Annual Meeting. The session will be held on Sunday June 10, 2007 in Kanazawa, Japan. Confirmed speakers include Dr. Pat Roach, Dr. Bob Thomas and Dr. Jill McQuade of AFRL. The session will also include a panel discussion on terahertz safety standards. If you are interested in presenting work in this area at this session, please contact Ms. Kalyn Yaws at kalyn.yaws@brooks.af.mil or 1-210-536-3178.

BEMS/EBEA 2009 JOINT MEETING PLANNING COMMITTEE MEETING:
12:30pm – 2:00pm; Bunka Hall Conference Room #2, 2nd floor

REGISTRATION & POSTER SETUP
1:00pm – 7:00pm; Bunka Hall Lobby

TASER INTERNATIONAL WORKSHOP: NEUROMUSCULAR INCAPACITATION BY HIGH VOLTAGE ELECTRIC PULSES
2:00pm – 5:00pm; Bunka Hall, Large Conference Room, 3rd Floor

- **James Sweeney, Florida Gulf Coast University**: "Waveform analysis and design for non-lethal human electromuscular incapacitation"
- **Dorin Panescu, St. Jude Medical Corp.** "Numerical and statistical models of TASER electric current effects on the human body"
- **Jeffery Ho**, **University of Minnesota "**Human effects of conducted electrical weapons research-based conclusions"

SPEAKER LOADING TIME FOR MONDAY'S PRESENTATIONS
3:00pm – 5:00pm; Bunka Hall Small Conference Room #2, 2nd floor

WELCOMING RECEPTION
5:00pm – 7:00pm; Bunka Hall Lobby

MONDAY, JUNE 11

ELECTROMED SESSION

SESSION 4: NANOSECOND PULSED ELECTRIC FIELDS TRIGGER APOPTOSIS AND INFLUENCE GENE EXPRESSION
4:00pm – 6:00pm; Bunka Hall Large Assembly Room

URSI COMMISSION K meeting
6:00pm; Bunka Hall Small Conference Room #2, 2nd floor

EDITORIAL BOARD DINNER
6:30pm; TBD

TUESDAY, JUNE 12

SOCIAL EVENT & SPONSOR RECOGNITION CEREMONY
6:30pm; JAL Hotel, Tsuru Room

WEDNESDAY, JUNE 13

BEMS ANNUAL BUSINESS MEETING
1:00pm – 2:30pm; Bunka Hall Large Assembly Room
Box lunches are available for advance purchase only

THURSDAY, JUNE 14

WORKSHOP 1: BASIC TECHNIQUES IN CYTOGENETICS RESEARCH
2:00-6:00 pm Bunka Hall Large Assembly Room
ORGANIZER: Vijayalaxmi

- **Comet Assay**: Dr. Isabelle Lagroye, Laboratoire de bioélectromagnétisme, France
- **Chromosomal Aberrations and SCE**: Guenter Obe, Univ. of Essen, Germany
- **Micronuclei:** Maria Rosaria Scarfi, Naples, Italy
- **Mutations:.** Junji Miyakoshi, Hirosaki Univ., Japan.

WORKSHOP 2: PRACTICAL IMPLEMENTATION OF ELF AND RF GUIDELINES
2:00-6:00 pm Bunka Hall Large Conf Rm, 3rd floor

- **Contact currents, spark discharges and other exposures:** Rob Kavet, USA
- **Clarifying the neurological basis for ELF guidelines:** William H. Bailey, USA
- **Practical implementation of ELF guidelines:** T. Dan Bracken, USA
- **Rationale of Japanese RF Safety Guidelines and Dosimetry for Far-Fleld Exposure:** Osamu Fujiwara, Nagoya, Japan

FRIDAY, JUNE 15

BEMS AWARD CEREMONY
12:30; Bunka Hall Main Hall

BEMS BOARD OF DIRECTORS MEETING
1:30pm – 5:30pm; Bunka Hall Large Conference Room, 3rd Floor

PLENARY SESSIONS

MONDAY, JUNE 11

PLENARY I: *ELECTROMED SESSION:*
BIOELECTROMAGNETIC APPLICATIONS TO CANCER DIAGNOSIS AND TREATMENT
8:30am – 10:30am; Bunka Hall-Main Hall

- **Keith Paulsen,** "Electromagnetic imaging of the breast"
- **Marvin Ziskin,** "Medical applications of millimeter waves"
- **Isamu Nagano, "**Development of a cancer treatment system by induction heating with magnetic fluid (Resovist)"

PLENARY SESSIONS (continued)

TUESDAY, JUNE 12

PLENARY II: *ELECTROMED SESSION:*
BIOELECTROMAGNETIC STIMULATION OF WOUND HEALING AND REGENERATION
8:30am – 10:30am; Bunka Hall-Main Hall

- **Luther Kloth, "**Stimulating human wound healing with electric fields"
- **Min Zhao,** "The molecular genetics of a cell's sense for electric fields during wound healing"
- **Richard Borgens,** "Electrical stimulation of severed spinal cord repair in humans"

WEDNESDAY, JUNE 13

PLENARY III: BIOELECTROMAGNETICS: HUMAN EXPOSURE STANDARDS AND HEALTH CONSIDERATIONS
8:30am – 10:30am; Bunka Hall-Main Hall

- **Maila Hietanen,** "Human exposure standards and health considerations"
- **Naohito Yamaguchi, "**INTERPHONE project results on cell phone use"
- **Martine Vrijheid,** "The Impact of Measurement Error and Selection Bias on INTERPHONE Study Results"

THURSDAY, JUNE 14

PLENARY IV: *ELECTROMED SESSION:*
BIOELECTROMAGNETIC EFFECTS ON THE NERVOUS SYSTEM I
8:30am – 10:30am; Bunka Hall-Main Hall

- **Ann Rajnicek,** "Growth cone guidance by physiological DC electric fields"
- **Andrei Pakhomov,** "Nanosecond pulsed electric field effects on ion channels and membrane permeability"
- **Mark Kroll,** "Neuromuscular incapacitation by high voltage electrical pulses"

FRIDAY, JUNE 15

PLENARY V: BIOELECTROMAGNETIC EFFECTS ON THE NERVOUS SYSTEM II
8:30am – 10:30am; Bunka Hall-Main Hall

- **Andrew Cei Ahn,** "Acupuncture: The Evidence for a Bioelectrical Mechanism"
- **Anthony Barker, "**Magnetic stimulation of the central and peripheral nervous system: Implementation and clinical application"
- **Shoogo Ueno, "**Ultra-high magnetic field effects on the CNS"

TECHNICAL PROGRAM

MONDAY, JUNE 11

OPENING SESSION
8:30–8:45am, Main Hall, Bunka Hall

Welcome: Ben Greenebaum, BEMS President
Program Highlights: Richard Nuccitelli, Technical Program Chair
General Announcements: Gloria Parsley, Executive Director

PLENARY I

8:45–10:45am, Main Hall, Bunka Hall
Chair: Richard Nuccitelli

***ELECTROMED SESSION:* BIOELECTROMAGNETIC APPLICATIONS TO CANCER DIAGNOSIS AND TREATMENT**

- **Keith Paulsen, Dartmouth University** "Electromagnetic Imaging of the Breast"
- **Marvin Ziskin, Temple University** "Medical Applications of Millimeter Waves"
- **Isamu Nagano, Kanazawa University, Japan** "Development of a Cancer Treatment System by Induction Heating with Magnetic Fluid (Resovist)"

Poster Session A: Odd Numbered Posters Presented
10:45–12:30pm, 2nd and 3rd floors
Coffee Break in Poster Session

12:30–1:30pm Lunch on your own or purchase buffet meal ticket in advance

SESSION 1: CANCER DETECTION, THERAPY & OTHER HUMAN STUDIES
Chairs: Isamu Nagano & Boris Pasche
1:30–3:30pm, Main Hall

1-1
THERABIONIC IS A NOVEL TREATMENT OPTION FOR ADVANCED CANCER USING CANCER-SPECIFIC AMPLITUDE-MODULATED RADIOFREQUENCY ELECTROMAGNETIC FIELDS. B. Pasche[1], A. Barbault[1], B. Bottger[2], F. Bomholt[3], N. Kuster[4]. [1]Cabinet Médical Avenue de la gare 6, Lausanne, Switzerland; [2]Radiology Associates, Danbury Hospital, Danbury, CT, USA; [3]SPEAG, Zurich, Switzerland; [4]IT'IS Foundation, Swiss Federal Institute of Technology, Zurich, Switzerland.

1-2
THERABIONIC IS AN EFFECTIVE TREATMENT FOR ADVANCED HEPATOCELLULAR CARCINOMA (HCC): RESULTS FROM A PHASE II STUDY. F.P. Costa[1], A. Cosme de Oliveira[1], R. Meirelles Jr[1], R. Surjan[1], T. Zanesco[1], M.C. Chammas[1], A. Barbault[2], B. Pasche[2]. [1]Disciplina de Transplante e Cirurgia do Fígado, Hospital das Clínicas, São Paulo, Brazil; [2]Cabinet Médical Avenue de la Gare 6, Lausanne, Switzerland.

SESSION 2: DOSIMETRY I

Chairs: Wolfgang Kainz & Masao Taki
1:30–3:30pm, Large Assembly Room

1:30 **2-1 STUDENT**
ASSESSMENT OF ELF ELECTROMAGNETIC EXPOSURE OF THE GENERAL PUBLIC DUE TO DISTRIBUTION SUBSTATIONS. W. Joseph, L. Verloock, L. Martens. Information Technology, Ghent Univ/IBBT, Ghent, Belgium.

2-2
1:45 **THE "VIRTUAL FAMILY" – NOVEL CAD BASED ANATOMICAL MODELS OF TWO ADULTS AND TWO CHILDREN FOR DOSIMETRY AND IMPLANT EVALUATIONS.** W. Kainz[1], A. Christ[2], K. Honegger[2], E. Hahn[3], J. Shen[4], W. Rascher[3], R. Janka[3], W. Bautz[3], B. Kiefer[5], P. Schmitt[5], H.P. Hollenbach[5], J. Chen[4], A. Kam[6], E. Neufeld[2], M. Oberle[2], N. Kuster[2]. [1]Center for Devices and Radiological Health, U.S. Food and Drug Admin, Rockville, MD, USA; [2]Foundation for Research on Information Technologies in Society, Zurich, Switzerland; [3]Universitätsklinikum Erlangen, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany; [4]Electrical and Computer Engineering Dept, Univ of Houston, Houston, TX, USA; [5]Siemens Medical Solutions, Erlangen, Germany; [6]National Inst of Health, Bethesda, MD, USA.

SESSION 1: CANCER DETECTION, THERAPY & OTHER HUMAN STUDIES (continued)
Chairs: Isamu Nagano & Boris Pasche
1:30–3:30pm, Main Hall

1-3
LONG-TERM STUDY OF MICE EXHIBITING COMPLETE REMISSION OF MALIGNANT MELANOMA FOLLOWING NANOSECOND PULSED ELECTRIC FIELD TREATMENT. R. Nuccitelli[1,2], J. Pomicter[1], W. Ren[1], K. Schoenbach[1], [1]Frank Reidy Research Center for Bioelectrics, Old Dominion University, Norfolk, VA, USA; [2]Research and Development, BioElectroMed Corp., Norfolk, VA, USA.

1-4 STUDENT
NEW, COMPREHENSIVE, HIGH RESOLUTION HYPERTHERMIA TREATMENT PLANNING TOOL. E. Neufeld[1,2], N. Chavannes[1], N. Kuster[1], T. Samaras[3]. [1]Computer Vision, ETHZ, Zurich, Switzerland; [2]IT'IS Foundation, Zurich, Switzerland; [3]Physics, Aristotle University Thessaloniki, Greece.

1-5
TREATMENT OF GYNOID LIPODYSTROPHY (CELLULITE) WITH DEEP OSCILLATION®: A PILOT CLINICAL STUDY. L. Korkina[1], J. Reinhold[2], L. Rota[1], G. Primavera[1], D. Raskovic[1]. [1]Istituto Dermopatico dell'Immacolata, Rome, Italy; [2]Physiomed Elektromedizin AG, Schnaittach, Germany.

1-6
THE DERMACORDER: A NEW INSTRUMENT FOR DETECTING MALIGNANT SKIN LESIONS BY THEIR ELECTRIC FIELD. R. Nuccitelli[1], P. Nuccitelli[1], C. Li[1], S. Narsing[1], S. Sheikh[1], T. Novosel[2], C. Torosky[2], A. Hood[2]. [1]Research and Development, BioElectroMed Corp, Norfolk, VA, USA; [2]Dermatology, Eastern Virginia Medical School, Norfolk, VA, USA.

1-7
THE INJURY EFFECTS OF EMP ON HIPPOCAMPUS AND THE EXPRESSION OF INJURY-RELATED GENES IN RATS. D. Wang, Y.H. Li, S.M. Wang, Y.B. Gao, R. Peng. Institute of Radiation Medicine, Academy of Military Medical Science, Beijing, China.

1-8 STUDENT
HUMAN ACUTE EXPOSURE TO A 60 HZ, 1800 MICROTESLA MAGNETIC FIELD: PHYSIOLOGICAL, NEUROPHYSIOLOGICAL AND BEHAVIORAL EFFECTS. A. Legros[1], D. McNamee[1], A. Beuter[2], D. Goulet[3], M. Plante[3], J. Lambrozo[4], F. Prato[1], A.W. Thomas[1]. [1]Imaging program, Lawson Health Research Inst and Univ of Western Ontario, London, ON, Canada; [2]Inst de Cognitique, Université Victor Segalen Bordeaux 2, Bordeaux, France; [3]Hydro-Québec, Montréal, QC, Canada; [4]Service des Etudes Médicales, Electricité de France-Gaz de France, Paris, France.

SESSION 2: DOSIMETRY I (continued)
Chairs: Wolfgang Kainz & Masao Taki
1:30–3:30pm, Large Assembly Room

2:00 2-3
ASSESSMENT OF INDUCED ELECTROMAGNETIC FIELDS IN THE HUMAN BODY IN THE PRESENCE OF HETEROGENEOUS FIELD DISTRIBUTIONS. S. Kühn[1], W. Jennings[2], N. Kuster[1]. [1]IT'IS Foundation, ETH Zurich, Zurich, Switzerland. [2]SPEAG, Zurich, Switzerland.

2:15 2-4
DEVELOPMENT OF HANDY SOFTWARE TO VISUALIZE ELF ELECTRIC FIELD EXPOSED TO HUMAN BODY. K. Shimizu[1], F. Doge[2], K. Ohsaki[2]. [1]Graduate School of Information Science and Technology, Hokkaido University, Sapporo, Japan; [2]R & D Division, Hakuju Institute for Health Science, Tokyo, Japan.

2:30 2-5
CORRELATION BETWEEN LOCALLY AVERAGED SAR DISTRIBUTION AND RELATED TEMPERATURE RISE IN HUMAN BODY EXPOSED TO RF FIELD. G. Bit-Babik[1]; A. Faraone[1]; C.K. Chou[1]; A. Razmadze[2]; R. Zaridze[2]. [1]Corporate EME Research Laboratory, Motorola Labs, Fort Lauderdale, FL, USA. [2]Department of Physics, Tbilisi State University, Tbilisi, Georgia.

2:45 2-6
A FORMULA FOR PREDICTING WHOLE-BODY AVERAGE SAR IN HUMAN MODELS FOR FAR-FIELD EXPOSURE AT GHZ BANDS. A. Hirata[1], Y. Nagaya[1], O. Fujiwara[1], T. Nagaoka[2], S. Watanabe[2]. [1]Nagoya Institute of Technology, Nagoya, Japan; [2]National Institute of Information and Communications Technology, Tokyo, Japan.

3:00 2-7
STATISTICAL DOSIMETRY ANALYSIS FOR FREE-RUNNING RATS IN A CIRCULARLY POLARIZED WHOLE-BODY EXPOSURE SETUP. J. Wang, O. Fujiwara. Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Japan.

3:15 2-8
WORST-CASE SAR ESTIMATION FROM RADIATED POWER MEASUREMENTS: UNCERTAINTY EVALUATION. V. Monebhurrun. Electromagnetism Department, Supelec, Gif-sur-Yvette, France.

3:30–4:00pm Coffee Break

SESSION 3: EMF EXPOSURE AND STANDARDS I

Chairs: Robert Cleveland & Michael Murphy
4:00–6:00pm, Main Hall

3-1
IS THE INTERACTION OF LOW-LEVEL RADIOFREQUENCY ENERGY WITH BIOLOGICAL SYSTEMS A MYSTERY? M. Swicord[1], Q. Balzano[2]. [1]Consultant, Ft. Lauderdale, FL, USA; [2]Univ of Maryland, College Park, MD, USA.

3-2
THE MMF BIOELECTROMAGNETICS RESEARCH PROGRAM. M. Milligan[1], T. Persson[2], S. Lang[3], J. Elder[4]. [1]Mobile Manufacturers Forum, Brussels, Belgium; [2]Ericsson Research, Ericsson AB, Stockholm, Sweden; [3]Nokia Corporation, Espoo, Finland; [4]Motorola Labs, Motorola, Fort Lauderdale, FL, USA.

3-3
LOCAL AND WHOLE-BODY THERMAL EFFECTS OF HUMAN EXPOSURE TO 100 MHZ RADIO FREQUENCY RADIATION: COMPARISON OF STANDING AND SEATED MODELS. D. Nelson[1,2]; A. Curran[2], H. Nyberg[3], E. Marttila[2]. [1]Mechanical Eng, Univ of South Alabama, Mobile, AL; [2]ThermoAnalytics, Inc., Calumet, MI. [3]Biomedical Engineering, Michigan Technological Univ, Houghton, MI, USA.

3-4
EFFECTS OF ELECTROMAGNETIC FIELD EXPOSURE FROM MOBILE PHONE BASE STATIONS: DOES IT DIFFER BETWEEN SUBJECTS WITH MOBILE PHONE RELATED SYMPTOM AND THOSE WITHOUT? – A POPULATION-BASED QUESTIONNAIRE SURVEY AND PROVOCATION STUDY IN JAPAN. Y. Ugawa[1], Y. Terao[1], T. Furubayashi[1], Y. Mizuno[1], K. Shirasawa[1], A. Kageyama[1], T. Okano[1], M. Nishikawa[2], K. Miyawaki[1], A. Yasuda[1], M. Uchiyama[1], H.K. Yamashita[1], A. Ushiyama[3], H. Masuda[3], S. Hirota[3], M. Takahashi[3], S. Sokejima[4], E. Maruyama[5], P. Pongpaibool[6], K. Wake[6], S. Watanabe[6], M. Taki[7], C. Ohkubo[8]. [1]Dept of Neurology, Div of Neuroscience, Univ of Tokyo, Tokyo, Japan; [2]Dept of Education, Kawamura Gakuen Woman's Univ, Chiba, Japan; [3]Dept of Env Health, Nat'l Inst of Public Health, Saitama, Japan; [4]Dept of Public Health Policy, Nat'l Inst of Public Health, Saitama, Japan; [5]School of Law, Kobe Univ, Kobe, Japan; [6]EMC Group, Applied Elecromagnetic Research Ctr, Nat'l Inst of Info and Comm Tech, Tokyo, Japan; [7]Dept of Electrical and Electronic Eng, Tokyo Metropolitan Univ, Tokyo, Japan; [8]RAD, World Health Organization, Geneva, Switzerland.

3-5
THE EMF DOSIMETRY HANDBOOK GUIDELINES FOR THE SAFETY ASSESSMENT OF METALLIC IMPLANTS IN RF EXPOSED WORKERS. V. Anderson[1,2], R. McIntosh[2]. [1]Kordia Pty Ltd, St Leonards, Sydney, NSW, Australia; [2]Australian Centre for Radiofrequency Bioeffects Research, Hawthorn, Melbourne, VIC, Australia.

SESSION 4: *ELECTROMED:* NANOSECOND PULSED ELECTRIC FIELDS TRIGGER APOPTOSIS AND INFLUENCE GENE EXPRESSSION

Chairs: Stephen Beebe & Tom Vernier
4:00–6:00pm, Large Assembly Room

4:00 **4-1**
NANOELECTROPORATION OF PHOSPHOLIPID BILAYERS — ENERGY-MINIMIZED, FIELD-DRIVEN REORGANIZATION OF INTERFACIAL WATER DIPOLES. T. P. Vernier[1,2], M. Ziegler[2,3], P.D. Tieleman[4]. [1]Ming Hsieh Dept of Elec Eng, Univ of Southern California, Los Angeles, CA, USA; [2]MOSIS, Info Sciences Inst, Univ of Southern California, Marina del Rey, CA, USA; [3]Mork Family Dept of Chemical Engineering and Materials Science, Univ of Southern CA, Los Angeles, CA, USA; [4]Dept of Biological Sciences, Univ of Calgary, Calgary, AB, Canada.

4:15 **4-2**
PLASMA MEMBRANE CHARGING OF JURKAT CELLS BY NANOSECOND PULSED ELECTRIC FIELDS. J. Kolb[1], J. White[1], U. Pliquett[1], S. Beebe[2,1], R. Joshi[3,1], R. Nuccitelli[1], K. Schoenbach[1]. [1]Frank Reidy Research Center for Bioelectrics, Old Dominion University, Norfolk, VA, USA; [2]Department of Electrical and Computer Engineering, Old Dominion University, Norfolk, VA, USA; [3]Eastern Virginia Medical School, Norfolk, VA, USA.

4:30 **4-3**
NON-IONIZING RADIATION GENERATED BY NANOSECOND PULSED ELECTRIC FIELDS INDUCE APOPTOSIS BY MULTIPLE MECHANISMS. S. Beebe[1], E. Hall[1], W. Ford[1], S. Anderson[1], P. Blackmore[1], K. Schoenbach[2]. [1]Physiological Sciences, Eastern Virginia Medical School, Norfolk, VA, USA; [2]Frank Reidy Research Center for Bioelectrics, Old Dominion Univ, Norfolk, VA, USA.

4:45 **4-4 STUDENT**
NANOSECOND PULSED ELECTRIC FIELDS (NSPEFS) INHIBIT B16-F10 MELANOMA TUMORS BY ENHANCING APOPTOSIS AND REDUCING ANGIOGENESIS. X. Chen[1,2], J.R. Swanson[2,3], R. Nuccitelli[3]. [1]Dept of Hepatopancreatobiliary Surgery, The 1st Teaching Hospital of Medical School, Zhejiang University, Hangzhou, China; [2]Dept of Biological Sciences, Old Dominion University, Norfolk, VA, USA; [3]Frank Reidy Research Center for Bioelectrics, Old Dominion University, Norfolk, VA, USA.

4-5
5:00 **GENOMIC AND PROTEOMIC ALTERATIONS AFTER EXPOSURE OF HUMAN 244B HUMAN LYMPHOBLASTOID CELLS IN VITRO TO EXTREMELY HIGH PEAK POWER 10 NS PULSED ELECTROMAGNETIC FIELDS.** M. Meltz[1], B. Nayak[1], C. Galindo[1], K. Schoenbach[3], K. Hakala[2], S. Weintraub[2]. [1]Radiation Oncology, Univ. of Texas Health Science Center, San Antonio, TX, USA; [2]Biochemistry, Univeristy of Texas Health Science Center, San Antonio, TX, USA; [3]Center for Bioelectrics, Old Dominion University, Norfolk, VA, USA.

SESSION 3: EMF EXPOSURE AND STANDARDS I (continued)

Chairs: Robert Cleveland & Michael Murphy
4:00–6:00pm, Main Hall

3-6
CHASING THE BASIC RESTRICTIONS - A NEW METHOD SIMPLIFYING EXPOSURE ASSESSMENT. H. Heinrich[1], F. Börner[2]. [1]2h-engineering, Hausen, Germany; [2]BG-Institute for Occupational Safety, Sankt Augustin, Germany.

3-7
5:30 **EXPOSURE OF THE GENERAL PUBLIC TO RF-RADIATION OF GSM MICROCELLS IN SHOPPING STREETS.** G. Decat, L. Deckx, G. Meynen, D. Wilczek. IMS - NIR, VITO, Mol, Belgium.

3-8
5:45 **NIGHT-TIME EXPOSURE TO ELECTROMAGNETIC FIELDS AND CHILDHOOD LEUKEMIA: AN EXTENDED POOLED ANALYSIS.** J. Schüz[1], A.L. Svendsen[1], M. Linet[2], M. McBride[3], E. Roman[4], M. Feychting[5], L. Kheifets[6], T. Lightfoot[4], G. Mezei[7], J. Simpson[4], A. Ahlbom[5]. [1]Inst of Cancer Epidemiology, Copenhagen, Denmark; [2]Div of Cancer Epidemiology and Genetics, National Cancer Inst, Rockville, MD, USA; [3]British Columbia Cancer Research Center, Vancouver, BC, Canada; [4]Epidemiology and Genetics Unit, Univ of York, York, United Kingdom; [5]Inst of Env Medicine, Karolinska Inst, Stockholm, Sweden. [6]Dept of Epidemiology, UCLA School of Public Health, Los Angeles, CA, USA; [7]Electric Power Research Inst, Palo Alto, CA, USA.

SESSION 4: ELECTROMED: NANOSECOND PULSED ELECTRIC FIELDS TRIGGER APOPTOSIS AND INFLUENCE GENE EXPRESSSION (continued)
Chairs: Stephen Beebe & Tom Vernier
4:00–6:00pm, Large Assembly Room

5:15 **4-6**
THE CHACTERISTICS OF NANOSECOND PULSED ELECTRIC FIELD STIMULATION ON PLATELET AGGREGATION IN VITRO. S. Beebe[1], J. Zhang[2], B. Hargrave[2], P. Blackmore[1], S. Xiao[2], K. Schoenbach[2]. [1]Physiological Sciences, Eastern Virginia Medical School, Norfolk, VA, USA; [2]Frank Reidy Research Center for Bioelectrics, Old Dominion University, Norfolk, VA, USA.

4-7
FROM SUBMICROSECOND TO SUBNANOSECOND PULSES - ENTERING A NEW DOMAIN OF ELECTRIC FIELD-CELL INTERACTIONS. J. F. Kolb[1], K. H. Schoenbach[1], T. Heeren[1], T. Camp[1], S. Xiao[1], J. A. White[1], M. Migliaccio[1], A. DeAngelis[1], R. P. Joshi[1], R. Nuccitelli[1], S.J, Beebe[2]. [1]Frank Reidy Research Center for Bioelectrics, Old Dominion University, Norfolk, VA. [2]Eastern Virginia Medical School, Norfolk, VA, USA.

TUESDAY, JUNE 12

PLENARY II

8:30–10:30am, Main Hall, Bunka Hall
Chair: Richard Nuccitelli

ELECTROMED SESSION: **BIOELECTROMAGNETIC STIMULATION OF WOUND HEALING AND REGENERATION**

- **Luther Kloth, Marquette University** "Stimulating Human Wound Healing with Electric Fields"
- **Min Zhao, University of Aberdeen** "The Molecular Genetics of a Cell's Sense for Electric Fields During Wound Healing"
- **Richard Borgens, Purdue University** "The Use of Applied Voltages in Human Spinal Cord Injury"

Poster Session B: Even Numbered Posters Presented

10:30–12:30pm, 2nd and 3rd floors
Coffee Break in Poster Session

12:30–1:30pm Lunch on your own or purchase buffet meal ticket in advance

SESSION 5: MECHANISMS OF CELL INTERACTIONS WITH EMF I
Chairs: Junji Miyakoshi & Christine Pullar
1:30–3:30pm, Main Hall

1:30 5-1
ALTERED CALCIUM DYNAMICS AND CELLULAR MECHANICS MEDIATE ELECTRICALLY ENHANCED STEM CELL DIFFERENTIATION. M. Cho, I. Titushkin, S. Sun. Bioengineering, Univ of IL, Chicago, IL, USA.

1:45 5-2
THE B2-ADRENERGIC RECEPTOR IS A NEGATIVE REGULATOR OF WOUND HEALING IN VIVO. C. Pullar[1], R. Isseroff[2]. [1]Cell Physiology and Pharmacology, Univ of Leicester, Leicester, United Kingdom; [2]Dermatology, Univ of California, Davis, Davis, CA, USA.

2:00 5-3 STUDENT
EXTREMELY LOW FREQUENCY (ELF) MAGNETIC FIELDS ENHANCE CHEMICALLY INDUCED FORMATION OF APURINIC/APYRIMIDINIC (AP) SITES IN A172 CELLS. S. Koyama[1], T. Sakurai[2], T. Nakahara[2], J. Miyakoshi[2]. [1]Dept of Interdisciplinary Environment, Graduate School of Human and Env Studies, Kyoto University, Kyoto, Japan; [2]Dept of Radiological Technology, School of Health Sciences, Faculty of Medicine, Hirosaki University, Hirosaki, Japan.

2:15 5-4 STUDENT
DIFFERENTIATION AND APOPTOSIS IN RAT CHROMAFFIN CELLS EXPOSED TO 60 HZ ELECTROMAGNETIC FIELD. T. Olivares-Bañuelos, O. Arias-Carrion, M. Palomero-Rivero, R. Drucker-Colin. Neurociencias, Instituto de Fisiologia Celular, Univ Nacional Autonoma de Mexico, Mexico City, Mexico.

2:30 5-5
EVALUATION OF MUTAGENICITY BY EXPOSURE TO INTERMEDIATE FREQUENCY MAGNETIC FIELDS IN MOUSE LYMPHOMA ASSAY. M. Ikehata[1], Y. Suzuki[2], S. Yoshie1, K. Wake[3], S. Nakasono[4], M. Taki[2]. [1]Biotechnology Laboratory, Env Eng Div, Railway Technical Research Inst, Kokubunji, Japan; [2]Circuits and Systems Eng Laboratory, Faculty of Electrical & Electronic Eng, Tokyo Metropolitan University, Hachioji, Japan; [3]Electromagnetic Compatibility Group, Applied Electromagnetic Research Center, National Inst of Information and Communication Technology, Koganei, Japan; [4]EMF Env Sector, Env Science Research Laboratory, Central Research Inst of Electric Power Industry, Abiko, Japan.

2:45 5-6
PROTECTION OF DOPAMINERGIC NEURONS FROM INFLAMMATION BY PEMF IN A CULTURE MODEL MAY INVOLVE NITRIC OXIDE. D. Casper[1], L. Alammar[1], E. Taub[1], A. Pilla[2]. [1]Neurosurgery, Montefiore Medical Center, The Bronx, NY, USA; [2]Biomedical Eng, Columbia Univ, New York, NY, USA.

SESSION 6: MOBILE PHONE STUDIES
Chairs: Frank Barnes & Rodney Croft
1:30–3:30pm, Large Assembly Room

1:30 6-1
EFFECTS OF A 900 MHZ GSM EXPOSURE ON SELF REPORTED SYMPTOMS AND BLOOD CHEMISTRY, AN EXPERIMENTAL PROVOCATION STUDY. L. Hillert[1,2], T. Åkerstedt[3], A. Lowden[3], C. Wiholm[4,5], N. Kuster[6], S. Ebert[6], C. Boutry[6], B. Arnetz[4,5]. [1]Dept of Public Health Sciences, Karolinska Inst, Stockholm, Sweden; [2]Dept of Occupational and Env Health, Stockholm Centre for Public Health, Stockholm, Sweden; [3]Inst of Psychosocial Medicine (IPM), Karolinska Inst, Stockholm, Sweden; [4]Dept of Family Medicine and Public Health Sciences, Wayne State Univ, Detroit, MI, USA; [5]Dept of Public Health and Caring Sciences, Uppsala Univ, Uppsala, Sweden. [6]IT'IS Foundation for Research on Information Technologies in Society, Swiss Federal Inst of Technology (ETH), Zürich, Switzerland.

1:45 6-2
DO HIGH FREQUENCY ELECTROMAGNETIC FIELDS OF THE GSM AND/OR THE UMTS STANDARD FOR MOBILE COMMUNICATION AFFECT SLEEP? H. Danker-Hopfe[1], A. Bahr[2], H. Dorn[1]. [1]Dept of Psychiatry and Psychotherapy, Charité - CBF, Berlin, Germany; [2]IMST GmbH, Kamp-Lintfort, Germany.

2:00 6-3
EXPOSURE FROM MOBILE PHONE SYSTEMS IN LARGE CROWDS. Y. Hamnerius[1], R. Mohammad[1], J. Trulsson2, P. Haglind[3], I. Sjoberg[3]. [1]Dept of Signals and Systems, Chalmers Univ of Technology, Goteborg, Sweden; [2]Swedish Radiation Protection Authority, Stockholm, Sweden; [3]Environment Administration, City of Goteborg, Goteborg, Sweden.

2:15 6-4
LONG TERM EFFECTS OF MICROWAVES FROM GSM MOBILE PHONES ON THE RAT BRAIN. J. Eberhardt[1], A. Brun[3], G. Grafström[1], L. Malmgren[4], B. Persson[1], L. Salford[2]. [1]Medical Radiation Physics, Lund Univ, Lund, Sweden; [2]Neurosurgery, Lund Univ, Lund, Sweden; [3]Neuropathology, Lund Univ, Lund, Sweden; [4]MAX-lab, Lund Univ, Lund, Sweden.

2:30 6-5
EFFECTS OF 900 MHZ FIELDS ON THE CHEMOTACTIC RESPONSE OF HUMAN NEUTROPHILS TO GRADIENTS OF C-AMP. F. Barnes. Electrical and Computer Engineering, Univ of Colorado at Boulder, Boulder, CO, USA.

2:45 6-6
"GERMAN MOBILE TELECOMMUNICATION RESEARCH PROGRAMME:" GENE REGULATION AT THE BBB IN VITRO FOLLOWING RF-EMF EXPOSURE. H. Franke[1], V. Hansen[2], A. Bitz[2], V. Hansen[2], P. Young[1]. [1]Dept Neurology, Univ Hospital Münster, Münster, Germany; [2]Chair of Electromagnetic Theory, Univ of Wuppertal, Wuppertal, Germany.

SESSION 5: MECHANISMS OF CELL INTERACTIONS WITH EMF I (continued)
Chairs: Junji Miyakoshi & Christine Pullar
1:30–3:30pm, Main Hall

5-7
DIRECT AFM IMAGING OF SURFACTANT SEALING OF PERMEABILIZED CELL MEMBRANES. R. Lee[1], X. Tang[1], F. Despa[1], I. Titushkin[2], M. Cho[2]. [1]Surgery, Medicine and Anatomy, University of Chicago, Chicago, IL, USA; [2]Bioengineering, University of Illinois, Chicago, Chicago, IL, USA.

5-8
PULSED ELECTRIC FIELDS PROMOTE POTATO TUBER CELL WALL CROSS-LINKING. T.P. Vernier[1,2], F. Gómez Galindo[3], P. Dejmek[4], A. Vicente[3], M. Gundersen[2]. [1]MOSIS, Information Sciences Institute, University of Southern California, Marina del Rey, CA, USA; [2]Department of Electrical Engineering, University of Southern California, Los Angeles, CA, USA; [3]Institute for Biotechnology and Bioengineering, Universidade do Minho, Braga, Portugal; [4]Department of Food Technology, Engineering and Nutrition, Lund University, Lund, Sweden.

SESSION 6: MOBILE PHONE STUDIES (continued)
Chairs: Frank Barnes & Rodney Croft
1:30–3:30pm, Large Assembly Room

3:00 **6-7**
MOBILE PHONE AND STRESS BIOMARKERS IN HUMAN VOLUNTEERS. R. de Seze[1], A. Tasteyre[2], C. Derome[3], C. Diack[1], Y. Thomas[2], G. Simoneau[4], V. Ferriole[3], P. Cagnon[5], H. Adhoute[3], J.E. Gilbert[2]. [1]Chronic Risk Division, INERIS, Verneuil-en-Halatte, France; [2]Vigicell, Paris, France; [3]Dermexpert, Paris, France; [4]APHP-LaRiboisière, Paris, France; [5]Certification Division, INERIS, Verneuil-en-Halatte, France.

3:15 **6-8 STUDENT**
LACK OF ACTIVATION OF HSP27- AND HSP70-DEPENDENT STRESS RESPONSE IN HUMAN SPERMATOZOA EXPOSED TO 900MHZ GSM RADIATION. N. Falzone[1], C. Huyser[2], F. Fourie[3], D. Franken[4], D. Leszczynski[5]. [1]Biomedical Sciences, Tshwane Univ of Technology, Pretoria, South Africa; [2]Obstetrics and Gynaecology, Univ of Pretoria, Pretoria, South Africa; [3]Research and Development, Standards South Africa, Pretoria, South Africa; [4]Obstetrics and Gynaecology, Univ of Stellenbosch, Cape Town, South Africa; [5]Radiation and Nuclear Safety Authority, STUK , Helsinki, Finland.

3:30–4:00pm Coffee Break

SESSION 7: MECHANISMS OF CELL INTERACTIONS WITH EMF II
Chairs: Frank Hart & Yosuke Kinouchi
4:00–6:00pm, Main Hall

7-1
CONTROL THE NA/K PUMP MOLECULES BY THE SYNCHRONIZED MODULATION TECHNIQUE. W. Chen, Z. Zhang, R. Dando, F. Huang, L. Wang. Physics, Univ of South Florida, Tampa, FL, USA.

7-2
THE GLYCOCALYX MAY SERVE AS AN ELECTRO-MECHANICAL TRANSDUCER FOR WEAK, LOW-FREQUENCY ELECTRIC FIELDS. F. Hart, Francis. Physics, The Univ of the South, Sewanee, TN, USA.

7-3
PHASE LOCKING OF PEROXIDASE-OXIDASE OSCILLATIONS DURING STIMULATION WITH PULSED LIGHT. J. Carson[1,2], K. Commerford[1], P. Sekhon[1]. [1]Imaging Program, LRHI, London, ON, Canada; [2]Dept of Medical Biophysics, Univ of Western Ontario, London, ON, Canada.

7-4
LARMOR PRECESSION CAN ACCOUNT FOR FREQUENCY AND AMPLITUDE DEPENDENCIES OF BIOEFECTS FOR ANY PARALLEL AND/OR PERPENDICULAR COMBINATION OF WEAK AC AND DC MAGNETIC FIELDS. A. Pilla[1,2], D. Muehsam[1]. [1]Biomedical Engineering, Columbia University, New York, NY, USA; [2]Orthopedics, Mount Sinai School of Medicine, New York, NY, USA.

SESSION 8: MAGNETIC FIELD EFFECTS
Chairs: Stefan Engström & Shoogo Ueno
4:00–6:00pm, Large Assembly Room

4:00 **8-1**
EFFECT OF 100 MT STATIC MAGNETIC FIELD ON CA^{2+}_c RESPONSE TO ATP IN HL-60 CELLS FOLLOWING GSH DEPLETION. M. Belton[1], C. Rozanski[1,2], F. Prato[1,2], J. Carson[1,2]. [1]Imaging Program, LHRI, London, ON, Canada; [2]Dept of Medical Biophysics, Univ of Western Ontario, London, ON, Canada.

4:15 **8-2**
EFFECTS OF A STATIC MAGNETIC FIELD ON SEIZURE THRESHOLD IN BLACK SWISS MICE. Q. Zhang, S. Engström, M. McLean. Neurology, Vanderbilt Univ, Nashville, TN, USA.

4:30 **8-3 STUDENT**
A REVIEW OF SEVERAL EXPERIMENTS IN GEOMAGNETIC SHIELDING AND ANALGESIA IN MICE. J. Robertson[1,2], F. Prato[3,2], D. Desjardins Holmes[1], L. Keenliside[1,3], A. Thomas[1,2]. [1]Bioelectromagnetics, LHRI, London, ON, Canada; [2]Medical Biophysics, Univ of Western Ontario, London, ON, Canada; [3]Imaging, LHRI, London, ON, Canada.

4:45 **8-4**
EFFECTS OF HIGH MAGNETIC FIELDS AND FIELD GRADIENTS IN THE DEVELOPMENT, STRUCTURE AND SIGNALING OF MICE FOETUS NEURONS. O. Céspedes, O. Inomoto, S. Kai, S. Ueno. Applied Quantum Physics, Graduate School of Engineering, Kyushu Univ, Fukuoka, Japan.

SESSION 7: MECHANISMS OF CELL INTERACTIONS WITH EMF II (continued)
Chairs: Frank Hart & Yosuke Kinouchi
4:00–6:00pm, Main Hall

7-5 STUDENT
MICRODOSIMETRY ON CELLS: THE RELEVANCE OF STOCHASTIC DIELECTRIC MODELLING. C. Merla, M. Liberti, F. Apollonio, G. D'Inzeo. Dept of Electronic Engineering, ICEmB at University of Rome "La Sapienza", Rome, Italy.

7-6 STUDENT
MOLECULAR SIMULATIONS FOR STUDYING MICROWAVES FIELD EFFECTS ON LIGAND BINDING PROPERTIES OF MYOGLOBIN. M. Pellegrino[1], M. D'Alessandro[2], M. D'Abramo[3], F. Apollonio[1], M. Liberti[1], A. Amadei[2], M. Aschi[4], A. Di Nola[3], G. D'Inzeo[1]. [1]Dept of Electronic Engineering, ICEmB at Univ of Rome "La Sapienza", Rome, Italy; [2]Dipartimento di Scienze e Tecnologie Chimiche, Univ of Rome "Tor Vergata", Rome, Italy; [3]Dept of Chemistry, Univ of Rome "La Sapienza", Rome, Italy; [4]Dipartimento di Chimica, Ingegneria Chimica e Materiali, Univ of L'Aquila, L'Aquila, Italy.

7-7
EFFECTS OF RADIOFREQUENCY ELECTROMAGNETIC FIELD ON SURVIVAL OF YEAST CELLS UNDER HEAT TREATMENT. S. Yoshie[1], M. Ikehata[1], A. Saitou[2], S. Hiromoto[2], Y. Suzuki[2], T. Hayakawa[1], M. Taki[2]. [1]Biotechnology Laboratory, Environmental Engineering Division, Railway Technical Research Inst, Tokyo, Japan; [2]Circuits and Systems Engineering Laboratory, Faculty of Electrical & Electronic Engineering, Tokyo Metropolitan Univ, Tokyo, Japan.

7-8
ELECTRICAL CONDUCTIVITY OF DNA AT MICROWAVE FREQUENCIES. Q. Balzano[1], V. Hodzic[1], R. Gammon[2], C. Davis[1]. [1]Electrical & Computer Engineering, Univ of Maryland, College Park, MD, USA; [2]Inst for Physical Science & Technology, Univ of Maryland, College Park, MD, USA.

SESSION 8: MAGNETIC FIELD EFFECTS (continued)
Chairs: Stefan Engström & Shoogo Ueno
4:00–6:00pm, Large Assembly Room

5:00 8-5
SPATIAL GRADIENT EFFECTS OF 120 MT STATIC MAGNETIC FIELD ON ENDOTHELIAL TUBULAR FORMATION IN VITRO. H. Okano[1,2], N. Tomita[1], Y. Ikada[3]. [1]International Innovation Center, Kyoto Univ, Kyoto, Japan. [2]Dept of Science, PIP Tokyo Co., Ltd., Tokyo, Japan; [3]Dept of Bioenvironmental Medicine, Nara Medical Univ, Kashihara, Japan.

5:15 8-6
EFFECTS OF MAGNETIC FIELDS ON BIOCHEMICAL REACTIONS. J. Pedersen, M. Hansen, N. Lukzen, A. Doktorov. Physics and Chemistry, Univ of Southern Denmark, Odense M, Denmark.

8-7
5:30 SYSTEM FOR TRANSCRANIAL MAGNETIC STIMULATION WITH PRECISE ESTIMATION OF STIMULATION SITES. O. Hiwaki, T. Inoue. Hiroshima City Univ, Hiroshima, Japan.

8-8
GENE FROM MAGNETOTACTIC BACTERIA PROVIDES NOVEL MAGNETIC RESONANCE IMAGING (MRI) CONTRAST AGENT. F. Prato[1,2], D. Goldhawk[1], C. McCreary[4], R. McGirr[1], S. Dhanvantari[1,2], D. Hill[1], T. Thompson[1,2], **5:45** C. Lemaire[3], A. Thomas[1,2], R. Stodilka[1,2]. [1]Imaging, and Diabetes and Metabolism Programs, Lawson Health Research Inst, St. Joseph's Health Care, London, ON, Canada; [2]Dept of Medical Biophysics, Univ of Western Ontario, London, ON, Canada; [3]Dept of Physics, Univ of Waterloo, Waterloo, ON, Canada; [4]Radiology, Hotchkiss Brain Inst, Univ of Calgary, Calgary, AB, Canada.

6:30pm SOCIAL EVENT & SPONSOR RECOGNITION CEREMONY
JAL Hotel, Tsuru Room

WEDNESDAY, JUNE 13

PLENARY III

8:30–10:30am, Main Hall, Bunka Hall
Chair: Richard Nuccitelli

BIOELECTROMAGNETICS: HUMAN EXPOSURE STANDARDS AND HEALTH CONSIDERATIONS

- **Maila Hietanen, Finnish Institute of Occupational Health, Finland** "Human Exposure Standards and Health Considerations"
- **Naohito Yamaguchi, Tokyo Women's Medical University, Japan** "Epidemiology of Mobile Phone and Health"
- **Martine Vrijheid, International Agency for Research on Cancer, Lyon, France** "The Impact of Measurement Error and Selection Bias on INTERPHONE Study Results"

10:30–11:00am Coffee Break

SESSION 9: EMF EXPOSURE AND STANDARDS II
Chairs: Nam Kim & Tsukasa Shigemitsu
11:00am–1:00pm, Main Hall

9-1

MEASUREMENT OF PHYSIOLOGICAL CHANGES CAUSED BY LOCAL EXPOSURE OF ELF ELECTRIC FIELD. M. Yamashita[1]; K. Ohsaki[2], K. Shimizu[3]. [1]BioMedical Engineering, Hokkaido Inst of Technology, Sapporo, Japan; [2]Research & Development, Hakuju Inst for Health Science Co.Ltd., Tokyo, Japan; [3]Graduate School of Information Science and Technology, Hokkaido Univ, Sapporo, Japan.

9-2

NATURAL KILLER ACTIVITY IN PERIPHERAL BLOOD LYMPHOCYTES OF WORKERS EXPOSED TO DIFFERENT LEVELS OF ELF-MF. F. Gobba[1], A. Bargellini[2], M. Scaringi[1], G. Bravo[1], P. Borella[2]. [1]Chair of Occupational Medicine, Dept of Public Health Sciences, Univ of Modena and Reggio Emilia, Modena (MO), Italy; [2]Chair of Hygiene, Dept of Public Health Sciences, Univ of Modena and Reggio Emilia, Modena (MO), Italy.

9-3 STUDENT

STUDY ON SUBJECTIVE SYMPTOMS AND EMITTING EXPOSURE CHARACTERISTICS OF EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS FOR ELEMENTARY SCHOOL STUDENTS. S. Choi[1], Y. Kim[1], J.H. Song[1], C.M. Lee[1], Y.M. Roh[1], H.J. Park[2], S.C. Hong[2]. [1]Hanyang Univ, Seoul, South Korea; [2]Inje Univ, Kimhae, South Korea.

9-4

REFLECTION UPON COST 281; ITS ACTIVITIES AND ITS RESULTS. G. Friedrich. FGF, Bonn, Germany.

9-5

BORDEAUX-MOSCOW PROJECT: CONFIRMATION STUDIES OF THE RUSSIAN DATA ON IMMUNOLOGICAL EFFECTS OF MICROWAVES. B. Veyret[1,2], B. Billadel[1], S. Duleu[3], M. Geffard[2,3], E. Haro[1], A. Hurtier[1], I. Lagroye[1,2], F. Poulletier de Gannes[1], G. Ruffié[1], M. Taxile[1]. [1]University of Bordeaux 1, IMS Laboratory, ENSCPB, Pessac, France. [2]EPHE Bioelectromagnetics Laboratory, ENSCPB, Pessac, France. [3]GemacBio, Cenon, France.

9-6

IS ELECTROMAGNETIC HYPERSENSITIVITY INCREASING AMONG GENERAL POPULATION - A CROSS SECTIONAL REPRESENTATIVE SURVEY IN AUSTRIA. J. Schroettner, N. Leitgeb. Inst of Clinical Engineering, Univ of Technology Graz, Graz, Austria.

SESSION 10: EMF EFFECTS ON ANIMAL SYSTEMS
Chairs: Indira Chatterjee & Gale Craviso
11:00am–1:00pm, Large Assembly Room

11:00 10-1

EFFECTS ON BRAIN DARK NEURONS OF WISTAR-HAN RATS EXPOSED HEAD-ONLY TO GSM-1800 OR UMTS SIGNALS. B. Billaudel[1], M. Taxile[1], L. Mayeur[1], E. Ladeveze[1], M. Laclau[1], E. Haro[1], P. Leveque[2], G. Ruffie[1], F. Poulletier de Gannes[1], I. Lagroye[1], B. Veyret[1]. [1]ENSCPB, Pessac, France; [2]XLIM, Limoges, France.

11:15 10-2

MORPHOMETRY ON THE INJURY EFFECTS OF THREE KINDS OF BAND ELECTROMAGNETIC RADIATIONS ON HIPPOCAMPUS AND THE EXPRESSION OF INJURY-RELATED PROTEINS IN WISTAR RATS. H. Zuo, D. Wang, R. Peng, S. Wang, J. Chen. Inst of Radiation Medicine, Academy of Military Medical Science, Beijing, China.

11:30 10-3

COMPARATIVE PROTEOME ANALYSIS OF THE HIPPOCAMPUS INJURIED BY ELECTROMAGNETIC RADIATION. H. Zuo[1], D. Wang[1], R. Peng[1], S. Wang[1], Y.B. Gao[1], W. Hu[1], J. Chen[1], K. Wei[2], H. Wang[2], B. Lui[2]. [1]Inst of Radiation Medicine, Academy of Military Medical Science, Beijing, China; [2]National Center of Biomedical Analysis, Beijing, China.

11:45 10-4

EFFECT OF RADIOFREQUENCY FIELDS EXPOSURE ON HEAT SHOCK PROTEIN (HSP) EXPRESSION IN BRAINS OF RATS OF DIFFERENT AGES. I. Lagroye[1,2], M. Laclau[1], G. Ruffie[1], B. Billaudel[1], M. Taxile[1], B. Veyret[1,2], [1]Univ of Bordeaux 1, IMS site ENSCPB, Pessac, France; [2]EPHE bioelectromagnetics laboratory, ENSCPB, Pessac, France.

12:00 10-5

DOES 50 HZ MAGNETIC FIELD EXPOSURE SPEED UP THE PROGRESSION OF AMYOTROPHIC LATERAL SCLEROSIS (ALS) IN MICE? F. Poulletier de Gannes[1], M. Taxile[1], S. Duleu[3], E. Haro[1], G. Ruffié[1], B. Billaudel[1], R. Charlet de Sauvage[1], M. Geffard[1,3], B. Veyret[1,2], I. Lagroye[1,2]. [1]ENSCPB, IMS laboratory, Pessac, France; [2]EPHE Bioelectromagnetics laboratory, Pessac, France; [3]GemacBio, Cenon, France.

12:15 10-6

CONTRACTILE FORCE OF MOUSE FLEXOR DIGITORUM BREVIS AT SUPRAPHYSIOLOGICAL TEMPERATURES. G. Craviso[1], P. Vandenberg[2], S. Baird[1], R. Wiese[1], D. McPherson[2], I. Chatterjee[2]. [1]Electrical Engineering, Univ of Nevada, Reno, Reno, NV, USA; [2]Dept of Pharmacology, Univ of Nevada, Reno, Reno, NV, USA.

SESSION 9: EMF EXPOSURE AND STANDARDS II (continued)
Chairs: Nam Kim & Tsukasa Shigemitsu
11:00am–1:00pm, Main Hall

9-7
STUDYING THE EFFECTS OF DISCRETIZATION IN FDTD ANALYSIS OF HUMAN EXPOSURE TO EM FIELDS. T. Uusitupa[1], S. Ilvonen[1], I. Laakso[1], K. Kärkkäinen[2], K. Nikoskinen[1]. [1]Electromagnetics Lab, Helsinki Univ of Technology, Espoo, Finland; [2]Nokia, Espoo, Finland.

9-8 STUDENT
ANALYTICAL COMPUTATION OF NEAR FIELD EXPOSURE FROM A FINITE DIPOLE ANTENNA IN THIN LAYER DIELECTRICS. T. Kurniawan[1,2], A. Wood[1,2], R. McIntosh[2], S. Iskra[2]. [1]Swinburne Univ of Technology, Melbourne, VIC, Australia; [2]Australian Centre for Radiofrequency Bioeffects Research, Melbourne, VIC, Australia.

SESSION 10: EMF EFFECTS ON ANIMAL SYSTEMS (continued)
Chairs: Indira Chatterjee & Gale Craviso
11:00am–1:00pm, Large Assembly Room

12:30 **10-7 STUDENT**
A CONTINUED INVESTIGATION OF SPECIFIC PULSED MAGNETIC FIELD EFFECTS ON CIRCULATORY AND MICROCIRCULATORY PARAMETERS. J. McKay[1,2], K. Tyml[2], F. Prato[1,2], A. Thomas[1,2]. [1]Bioelectromagnetics, LHRI, St. Joseph's Hospital, London, ON, Canada; [2]Dept of Medical Biophysics, The Univ of Western Ontario, London, ON, Canada.

12:45 **10-8**
ASSESSMENT OF THE IMPACT OF POST-TRAUMATIC STRESS DISORDER ON BRAIN FUNCTION IN ELECTRICALLY INJURED PATIENTS. E. Bodnar[1], A. Ammar[2], J. Fink[1], K. Kelley[2], N. Pliskin[2], R. Lee[1]. [1]Electrical Trauma Program, The Univ of Chicago, Chicago, IL, USA; [2]Psychiatry, Univ of Illinois College of Medicine, Chicago, IL, USA.

1:00–2:30pm BEMS ANNUAL BUSINESS MEETING
Box Lunches available for purchase in advance
Posters Available for Viewing in the Afternoon

THURSDAY, JUNE 14

PLENARY IV

8:30–10:30am, Main Hall, Bunka Hall
Chair: Richard Nuccitelli

ELECTROMED SESSION: **BIOELECTROMAGNETIC EFFECTS ON THE NERVOUS SYSTEM I**

- **Ann Rajnicek, University of Aberdeen** "Growth Cone Guidance by Physiological DC Electric Fields"
- **Andrei Pakhomov, General Dynamics -Advanced Information Systems & Frank Reidy Research Center for Bioelectrics** "Nanosecond Pulsed Electric Field Effects on Ion Channels and Membrane Permeability"
- **Mark Kroll, Taser International** "Designing the Waveform of the Electronic Control Device to Replace the Police Club"

10:30–11:00am Coffee Break

SESSION 11: EMF EFFECTS ON THE GENOME AND PROTEOMICS
Chairs: Dariusz Leszczynski & Martin Meltz
11:00am–1:00pm, Main Hall

11-1
HUMAN LYMPHOBLASTOID CELL EXPOSURE TO EXTREMELY HIGH PEAK POWER 10 NS PULSED EMF SIGNALS IS NOT ASSOCIATES WITH DIRECT DNA STRAND BREAKAGE. M. Meltz[1], C. Galindo[1], B. Nayak[1], S. Weintraub[2], K. Hakala[2], K. Schoenbach[3]. [1]Radiation Oncology, Univ of Texas Health Science Center, San Antonio, TX, USA; [2]Biochemistry, Univ of Texas Health Science Center, San Antonio, TX, USA; [3]Center for Bioelectrics, Old Dominion Univ, Norfolk, VA, USA.

SESSION 12: DOSIMETRY II

Chairs: Osamu Fujiwara & Robert Goldberg
11:00am–1:00pm, Large Assembly Room

11:00 **12-1**
ACCURATE AND FAST ESTIMATION OF VOLUMETRIC SAR FROM PLANAR SCANS FROM 30 MHZ TO 6 GHZ. M. Douglas, C.K. Chou. Corporate EME Research Laboratory, Motorola Labs, Ft. Lauderdale, FL, USA.

SESSION 11: EMF EFFECTS ON THE GENOME AND PROTEOMICS (continued)
Chairs: Dariusz Leszczynski & Martin Meltz
11:00am–1:00pm, Main Hall

SESSION 12: DOSIMETRY II (continued)
Chairs: Osamu Fujiwara & Robert Goldberg
11:00am–1:00pm, Large Assembly Room

11-2

GENE EXPRESSION CHANGES IN RAT SKIN FOLLOWING PROLONGED 35-GHZ MILLIMETER WAVE EXPOSURE. W. Hubert[1], N. Millenbaugh[1], C. Roth[1], R. Sypniewska[1], V. Chan[2], J. Eggers[3], R. Blystone[4], J. Kiel[5], P. Mason[6]. [1]HEDR, AFRL, Brooks City-Base, TX, USA; [2]HEPB, AFRL, Wright-Patterson AFB, OH, USA; [3]HEDV, AFRL, Brooks City-Base, TX, USA; [4]Biology, Trinity Univ, San Antonio, TX, USA; [5]HEPC, AFRL, Brooks City-Base, TX, USA; [6]HE, AFRL, Wright-Patterson AFB, OH, USA.

11-3

GENE REGULATION IN ESCHERICHIA COLI AS A RESPONSE TO NANOSECOND PULSED ELECTRIC FIELDS. M. Gealt[1], Z.M. Wang[2], H. Gerber[3], K. Schoenbach[4], C. Tseng[2]. [1]College of Science & Mathematics, Univ of Arkansas at Little Rock, Little Rock, AR, USA; [2]Biological Sciences, Purdue Univ Calumet, Hammond, IN, USA; [3]Electrical and Computer Engineering, Purdue Univ Calumet, Hammond, IN, USA; [4]Bioelectrics Center, Old Dominion Univ, Norfolk, VA, USA.

11-4

GLOBAL GENE RESPONSE TO EMF IN SACCHAROMYCES CEREVISIAE. Z. Xu, G. Chen, L. Wang, D. Lu, H. Chiang. Zhejiang Univ School of Medicine, Bioelectromagnetics Laboratory, Hangzhou, China.

11-5

GENE EXPRESSION OF CELLS EXPOSED TO 2-GHZ BAND W-CDMA MODULATED RADIOFREQUENCY FIELDS IN TRANSFORMATION ASSAY. H. Hirose[1], K. Inoue[1], T. Suhara[1], K. Nakayama[1], M. Sekijima[1], T. Nojima[2], J. Miyakoshi[3]. [1]Mitsubishi Chem Safety Inst Ltd, Kamisu, Japan; [2]Hokkaido Univ, Sapporo, Japan; [3]Hirosaki Univ, Hirosaki, Japan.

11-6

PREDICTION ALGORITHM FOR EXPOSURE TO RADIOFREQUENCY RADIATION USING GENE EXPRESSION PROFILES. W.Y. Park, J.S. Seo, T.Q. Huang. Seoul National Univ, Seoul, South Korea.

11-7

DOSE-DEPENDENT DNA DAMAGING EFFECTS OF EXPOSURE TO RADIOFREQUENCY ELECTROMAGNETIC FIELDS (UMTS; 1950 MHZ) IN HUMAN FIBROBLASTS IN VITRO. E. Kratochvil[1], C. Schwarz[1], A. Pilger[1], F. Adlkofer[2], N. Kuster[3], H. Rüdiger[1]. [1]Div of Occupational Medicine, Medical Univ of Vienna, Vienna, Austria; [2]Verum, Foundation for Behaviour and Environment, Munich, Germany; [3]IT'IS Foundation, Zurich, Switzerland.

11-8

EFFECT OF MOBILE PHONE RADIATION ON PROTEIN EXPRESSION IN SKIN OF HUMAN VOLUNTEERS: A FEASIBILITY STUDY. D. Leszczynski, A. Karinen. STUK-Radiation and Nuclear Safety Authority, Helsinki, Finland.

11:15 **12-2**

FAST SAR COMPLIANCE ASSESSMENT USING OPTICAL TECHNIQUES. V. Hodzic[1], R. Gammon[2], Q. Balzano[1], C. Davis[1]. [1]Electrical & Computer Engineering, Univ of Maryland, College Park, MD, USA; [2]Inst for Physical Science & Technology, Univ of Maryland, College Park, MD, USA.

11:30 **12-3**

SAR MEASUREMENT VALUE VARIATIONS BY THE TEST POSITIONS OF MOBILE PHONES. Y.M. Gimm[1,2], Y.H. Jang[1], S.B. Lee[2], K.J. Yeo[3], H.T. Oh[3]. [1]School of Electronics and Computer Engineering, Dankook Univ, Hannam-dong, Yongsangu, South Korea; [2]CEO, EMF Safety Inc., Hannam-dong, Yongsangu, South Korea; [3]Radio Research Laboratory, Wonhyoro-3 ga, Youngsangu, South Korea.

12-4

11:45 **RF EXPOSURE ANALYSIS OF MULTI-BAND, MULTI-SYSTEM MOBILE PHONES IN REAL NETWORKS.** S. Kühn[1], V. Keller[1], C. Sulzer[2], D. Spät[1], N. Kuster[1]. [1]IT'IS Foundation, ETH Zurich, Zurich, Switzerland; [2]SPEAG, Zurich, Switzerland.

12:00 **12-5**

FINAL REPORT ON THE INTERNATIONAL INTERCOMPARISON OF SAR MEASUREMENTS ON CELLULAR TELEPHONES. C. Davis, Q. Balzano. Electrical and Computer Engineering, University of Maryland, College Park, MD, USA.

12-6

12:15 **CHARACTERIZATION OF THE ELECTROMAGNETIC ENERGY ABSORPTION OF THE HUMAN BODY EXPOSED TO THE RADIATION OF BASE STATION ANTENNAS.** A. Christ[1], M.C. Gosselin[1], S. Kühn[1,2], W. Jennings[3], N. Kuster[1,2]. [1]IT'IS Foundation, Zurich, Switzerland; [2]Integrated Systems Lab, Swiss Federal Inst of Technology, Zurich, Switzerland; [3]Schmid and Partner Eng AG, Zurich, Switzerland.

12:30 **12-7**

SYSTEMATIC ANALYSIS OF GENERAL PUBLIC EMF EXPOSURE AROUND GSM AND UMTS BASE STATIONS. C. Bornkessel[1], M. Schubert[1], M. Wuschek[2], P. Schmidt[3]. [1]EMC Test Center, IMST GmbH, Kamp-Lintfort, Germany; [2]Deggendorf University of Applied Sciences, Deggendorf, Germany; [3]EM-Institut GmbH, Regensburg, Germany.

12:45 **12-8**

UNCERTAINTY ESTIMATIONS FOR COMPLIANCE ZONE ASSESSMENT AROUND BASE STATION PANEL AND OMNIDIRECTIONAL ANTENNAS. F. Meyer, F. du Plessis. EMSS Consulting, Stellenbosch, South Africa.

WORKSHOP 1: BASIC TECHNIQUES IN CYTOGENETICS RESEARCH
Organizer: Vijayalaxmi
2:00–6:00pm, Main Hall

W1-1
COMET ASSAY. I. Lagroye, Laboratoire de Bioelectromagnetisme, Pessac, Cedex, France.

W1-2
CHROMOSOMAL ABERRATIONS AND SISTER CHROMATID EXCHANGES. G. Obe, University of Essen, Essen, Germany.

W1-3
THE CYTOKINESIS - BLOCK MICRONUCLEUS ASSAY. M. R. Scarfi, Nat'l Research Council, Naples, Italy.

W1-4
MUTATIONS - AMES TEST AND HPRT MUTATION ASSAY. J. Miyakoshi, Hirosaki University, Hirosaki, Japan.

WORKSHOP 2: PRACTICAL IMPLEMENTATION OF ELF AND RF GUIDELINES
Organizer: Rob Kavet
2:00–6:00pm, Large Assembly Room

W2-1
IMPLEMENTATION OF ELF AND RF GUIDELINES: RESEARCH ON ISSUES RELATED TO ELF EXPOSURE GUIDELINES. R. Kavet[1], W. H. Bailey[2], T. D. Bracken[3]. [1]EPRI, Palo Alto, CA. [2]Exponent Health Practice, New York, NY. [3]T. Dan Bracken Inc., Portland, OR, USA.

- **Rob Kavet, "**Contact currents, spark discharges and other exposures."
- **Bill Bailey,** "Clarifying the neurological basis for ELF guidelines."
- **Dan Bracken,** "Practical implementation of ELF guidelines."

W2-2
JAPANESE RF SAFETY GUIDELINES AND DOSIMETRY FOR FAR-FIELD EXPOSURE. O. Fujiwara, Nagoya Institute of Technology, Nagoya, Japan.

POSTERS AVAILABLE FOR VIEWING UNTIL 6:00pm

FRIDAY, JUNE 15

PLENARY V

8:30–10:30am, Main Hall, Bunka Hall
Chair: Richard Nuccitelli

BIOELECTROMAGNETIC EFFECTS ON THE NERVOUS SYSTEM II

- **Andrew Cei Ahn, Harvard Medical School** "Acupuncture: The Evidence for a Bioelectrical Mechanism"
- **Anthony Barker, Royal Hallamshire Hospital, UK** "Magnetic Stimulation of the Central and Peripheral Nervous System: Implementation and Clinical Applications"
- **Shoogo Ueno, Kyushu University, Japan** "Effects of Ultra-High Static Magnetic Fields and Pulsed Magnetic Fields on Sciatic Nerve Regeneration and Functions of Neurons in Hippocampus and Substaintia Nigra"

10:30–11:00am Coffee Break

SESSION 13: DOSIMETRY III
Chairs: Toshio Nojima & Joe Wiart
11:00am–12:30pm, Main Hall

13-1
SAR INDUCED BY MONOPOLE AND PLANAR ANTENNAS TO DETERMINE THRESHOLD POWER LEVELS OF WIRELESS DEVICES. A. Sayem[1], G. Schmid[2], B. Petric[2], M. Douglas[3], M. Ali[1]. [1]Dept of Electrical Engineering, Univ of South Carolina, Columbia, SC, USA; [2]ARC Seibersdorf research GmbH, Seibersdorf, Austria; [3]Motorola, Inc., Ft. Lauderdale, FL, USA.

13-2
FURTHER EXPERIMENTAL DATA VERIFYING THE ACCURACY AND EFFICIENCY OF USING SIMPLE ANALYTICAL FORMULAS FOR COMPLIANCE ZONE ASSESSMENT AROUND BASE STATION ANTENNAS. F. Meyer, M. Strydom, V. Kellerman. EMSS Consulting, Stellenbosch, South Africa.

SESSION 14: IN VITRO STUDIES
Chairs: Chiyoji Ohkubo & Kazuyuki Sasaki
11:00am–12:30pm, Large Assembly Room

11:00 **14-1**
IN VITRO EFFECT OF 2.45 GHZ MICROWAVE EXPOSURE ON MUTAGEN-INDUCED DNA DAMAGE. A. Perrin[1], M. Freire[1], A. Collin[2], M. Cueille[2], C. Bachelet[1], P. Leveque[2]. [1]Department of Radiobiology - Molecular and Cellular Biophysics Unit, Health Service Research Center for Defense (CRSSA, Ministry of Defense), LA TRONCHE, France; [2]Department OSA, XLIM CNRS, LIMOGES, France.

11:15 **14-2**
NO INDUCTION OF TRANSFORMATION IN BALB/3T3 CELLS EXPOSED TO 2-GHZ BAND W-CDMA MODULATED RADIOFREQUENCY FIELDS. M. Sekijima[1], H. Hirose[1], T. Suhara[1], N. Kaji[1], N. Sakuma[1], T. Nojima[2], J. Miyakoshi[3]. [1]Mitsubishi Chem Safety Inst Ltd., Kamisu, Japan; [2]Hokkaido Univ, Sapporo, Japan; [3]Hirosaki Univ, Hirosaki, Japan.

SESSION 13: DOSIMETRY III (continued)
Chairs: Toshio Nojima & Joe Wiart
11:00am–12:30pm, Main Hall

13-3
NEAR FIELD MODELING WITH OPTIMIZATION ALGORITHMS. M. Johansson, A. Fhager, M. Persson. Signals and Systems, Chalmers Univ of Technology, Gothenburg, Sweden.

13-4 **11:45**
CHILDREN HEAD RF EXPOSURE ANALYSIS. J. Wiart[1], A. Hadjem[1], I. Bloch[2], M.F. Wong[1]. [1]RESA FACE IOP, France Telecom R&D, Issy les Moulineaux, France; [2]ENST PARIS, Paris, France.

13-5 **12:00**
A MULTI-LEVEL SUBGRID APPROACH FOR HIGH RESOLUTION SAR CALCULATION. A. Prokop, T. Wittig. CST, Darmstadt, Germany.

13-6 **12:15**
A RADIO FREQUENCY RADIATION REVERBERATION CHAMBER EXPOSURE SYSTEM FOR RODENTS. M. Capstick[1], N. Kuster[1], S. Kühn[1], V. Berdinas-Torres[1], J. Ladbury[2], G. Koepke[2], D. McCormick[3], J. Gauger[3], R. Melnick[4]. [1]IT'IS Foundation, Zurich, Switzerland; [2]NIST, Boulder, CO, USA; [3]IITRI, Chicago, IL, USA; [4]NIEHS, Research Triangle Park, NC, USA.

SESSION 14: IN VITRO STUDIES (continued)
Chairs: Chiyoji Ohkubo & Kazuyuki Sasaki
11:00am–12:30pm, Large Assembly Room

11:30 **14-3**
STUDY ON GENE EXPRESSION OF HSP70 FOR CHO-K1 CELLS DUE TO 2.45GHZ MICROWAVE EXPOSURE UNDER THE TEMPERATURE CONTROLLED ENVIRONMENT. Y. Suzuki[1], S. Hiromoto[1], T. Sonoda[1], M. Taki[1], J. Miyakoshi[2], K. Wake[3], S. Watanabe[3]. [1]Dept of Electrical & Electronic Eng, Tokyo Metropolitan Univ, Hachioji, Japan; [2]Dept of Radiological Tech, School of Health Sciences, Faculty of Medicine, Hirosaki Univ, Hirosaki, Japan; [3]Electromagnetic Compatibility Group, Applied Electromagnetic Research Center, Nat'l Inst of Info and Communication Technology, Koganei, Japan.

11:45 **14-4** **STUDENT**
IMPROVEMENTS TO A FREE SPACE BROADBAND IN VITRO MICROWAVE EXPOSURE SYSTEM FOR ONLINE MONITORING OF CATECHOLAMINE RELEASE FROM CHROMAFFIN CELLS. J. Yoon[1], I. Chatterjee[1], D. McPherson[1], G. Craviso[2]. [1]Electrical Engineering, Univ of Nevada, Reno, Reno, NV, USA; [2]Dept of Pharmacology, Univ of Nevada, Reno, Reno, NV, USA.

12:00 **14-5**
IN-VITRO EXPERIMENTS ON FREE RADICAL PRODUCTION WITHIN HUMAN WHITE BLOOD CELLS DUE TO 900 MHZ MOBILE RADIO WAVES EXPOSURE. T. Hikage, M. Endo, T. Nojima. Graduate School of Information Science & Technology, Hokkaido University, Sapporo, Japan.

12:15 **14-6** **STUDENT**
COMBINATION EFFECTS OF REPETITIVE PULSED MAGNETIC STIMULATION AND IMATINIB MESYLATE ON IMATINIB-RESISTANT CHRONIC MYELOGENOUS LEUKEMIA CELLS. S. Yamaguchi[1,2], Y. Sato[2], M. Sekino[3], Y. Abe[1], S. Ueno[1]. [1]Dept of Biomedical Engineering, Graduate School of Medicine, The Univ of Tokyo, Tokyo, Japan; [2]Division of Ultrafine Structure, Dept of Pathology, Research Inst International Medical Center of Japan, Tokyo, Japan; [3]Dept of Advanced Energy, Graduate School of Frontier Sciences, The Univ of Tokyo, Tokyo, Japan.

12:30pm AWARDS CEREMONY AND CONCLUDING REMARKS

C.A.L. Basset Memorial Award
Curtis Carl Johnson Memorial Award for the Best Platform Presentation given by a Student
Curtis Carl Johnson Memorial Award for the Best Poster Presentation given by a Student
Second and Third Place Student Awards for both platform and poster presentations

POSTERS

DOSIMETRY

P-1

EFFECTS ON LOCALIZED SAR OF POWER REDISTRIBUTION BETWEEN THE ANTENNA ELEMENTS FOR LOADED BASE STATION ANTENNAS. P. Håkansson[1], B. Thors[1], J. Danestig[1], B. Hansson[1], C. Törnevik[1]. [1]Ericsson Research, Ericsson AB, Stockholm, Sweden.

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COMPARISON OF INDUCED CURRENTS IN REAL AND ROTATIONALLY-SYMMETRICAL HUMAN MODELS BY EXPOSURE TO INTERMEDIATE FREQUENCY MAGNETIC FIELD FROM A HOUSEHOLD INDUCTION HEATER UNIT. H. Tarao[1], N. Hayashi[2], K. Isaka[3]. [1]Dept. of Electrical and Computer Eng., Takamatsu Nat'l College of Tech, Takamatsu, Japan. [2]Kyushu Univ, Kasuga, Japan. [3]The Univ of Tokushima, Tokushima, Japan.

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SAR CALCULATIONS IN AN ANATOMICALLY REALISTIC WHOLE-BODY MODEL OF PREGNANT WOMEN FOR PLANE WAVE EXPOSURES. T. Nagaoka[1], T. Togashi[2], K. Saito[2], M. Takahashi[2], K. Ito[2], S. Watanabe[1]. [1]Nat'l Inst of Info and Communications Tech, Koganei, Japan. [2]Chiba Univ, Chiba, Japan.

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NUMERICAL INVESTIGATION OF FIELD ELEVATIONS DUE TO MOBILE PHONE USAGE IN TRANSPORTATION MEANS COMPARED TO FREE SPACE CONDITIONS. G. Schmid[1], S. Cecil[1], R. Ueberbacher[1], R. Georg[2]. [1]Mobile Communications Safety, Austrian Research Centers GmbH-ARC, Seibersdorf, Austria. [2]Eng Office for Telecom Consult, Kronberg/Taunus, Germany.

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A NUMERICAL-EXPERIMENTAL METHODOLOGY FOR DOSIMETRY IN BRAIN SLICES. A. Paffi[1], M. Pellegrino[1], F. Apollonio[1], M. Liberti[1], G. D'Inzeo[1]. [1]Dept of Electronic Eng, ICEmB at Univ of Rome 'La Sapienza', Rome, Italy.

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STATISTICAL MULTIPATH EXPOSURE OF A HUMAN IN A REALISTIC ELECTROMAGNETIC ENVIRON-MENT. G. Vermeeren[1], W. Joseph[1], C. Olivier[1], L. Martens[1]. [1]Info Tech, Ghent Univ, Ghent, Belgium.

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LOCAL AND WHOLE BODY EXPOSURE TO RF ELECTROMAGNETIC FIELDS OF PATIENTS UNDERGOING MAGNETIC RESONANCE IMAGING DIAGNOSTICS. E. Cabot[1], A. Christ[1], M. Oberle[1], N. Kuster[1, 2]. [1]IT'IS, Zurich, Switzerland. [2]ETH Zurich, Zurich, Switzerland.

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SAR CHARACTERIZATION INSIDE INTRACRANIAL TUMORS FOR CASE-CONTROL EPIDEMIOLOGICAL STUDIES ON CELLULAR PHONES AND RF EXPOSURE. N. Varsier[1,2], K. Wake[2], M. Taki[1], S. Watanabe[2], T. Takebayashi[3], N. Yamaguchi[4], Y. Kikuchi[3]. [1]Dept of Electrical Eng, Tokyo Metropolitan Univ, Tokyo, Japan. [2]NICT, Koganei, Japan. [3]Dept of Preventive Medicine and Public Health, Keio Univ, Tokyo, Japan. [4]Dept of Hygiene and Public Health, Tokyo Women's Medical Univ, Tokyo, Japan.

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THE DEPENDENCE OF SAR UPON POSITION OF A MOBILE PHONE USER IN ENCLOSED ENVIROMENTS. A. Y. Simba[1], T. Hikage[2], S. Watanabe[1], T. Nojima[2]. [1]Nat'l Inst of Info and Communications Tech, Tokyo, Japan. [2]Hokkaido Univ, Sapporo, Japan.

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REDUCTION OF COMPUTATIONAL COSTS IN FDTD SIMULATION WITH A NEW ABC BASED ON PML FOR LARGE SCALE DOSIMETRY. K. Sasaki[1], Y. Suzuki[1], M. Taki[1]. [1]Tokyo Metropolitan Univ., Tokyo, Japan.

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SPECIFIC ABSORPTION RATE INDUCED BY A DISH ANTENNA AT 7.75 GHZ. M. Wong[1], F. Lacroux[1], J. J. Wiart[1]. [1]RESA/FACE, France Telecom R&D, Issy Moulineaux, France.

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IMPACT OF THE USED NUMERICAL HUMAN MODELS IN DOSIMETRIC STUDY. A. Hadjem[1], E. Conil[1], F. Lacroux[1], M. Wong[1], J. J. Wiart[1]. [1]France Telecom R&D, RESA/FACE/IOP, Issy Les Moulineaux, Hauts de seine, France.

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DOSIMETRY NEAR A DIRECTIVE ANTENNA: METHOD TO DETERMINE A POSITION MAXIMIZING THE LOCAL SAR. F. Lacroux[1], E. Conil[1], M. Wong[1], J. J. Wiart[1]. [1]France Telecom Research and Development, Issy Les Moulineaux, France.

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EVALUATION OF REDUCTION EFFECTIVENESS FOR MF EXPOSURE COMPARES UNDERGROUND TRANSMISSION CABLE WITH OVERHEAD POWER LINE. H. Park[1], S. Hong [1], Y. Kim[2], S. Choi[2]. [1]Occupational Health & Safety Eng, College of Biomedical Science & Eng, Inje Univ, Kimae, South Korea. [2]Inst of Env and Industrial Medicine, College of Medicine, Hanyang Univ, Seoul, South Korea.

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COUPLING BETWEEN HANDS FREE WIRE AND THE USER HEAD. D. Picard[1]. [1]EMG, SUPELEC, Gif sur Yvette, France.

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A NEW HIGH PERFORMANCE DOSIMETRIC ASSESSMENT SYSTEM. D. Picard[1], N. Ribiere-Tharaud[1], A. Ziyyat[2]. [1]EMG, SUPELEC, Gif sur Yvette, France. [2] UMP Univ, Oujda, Morocco.

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LOOP ANTENNA DOSIMETRY FOR LONG TIME EXPOSURE AT GSM AND UMTS FREQUENCIES. A. Collin[1], P. Leveque[1], B. Billaudel[2], I. Lagroye[2], B. Veyret[2] [1]XLIM, Limoges, France. [2]ENSCPB, Bordeaux, France.

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A PROPOSAL FOR NEW SET OF REFERENCE FUNCTIONS FOR THE EVALUATION OF THE POST-PROCESSING UNCERTAINTY CONTIBUTION IN SAR COMPLIANCE TESTS. A. Schiavoni[1], M. Francavilla[1]. [1]Telecom Italia Lab, Torino, Italy.

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ELECTROMAGNETIC PROPERTIES OF TISSUE IN THE TERAHERTZ REGION. K. Yaws[1], D. G. Mixon[1], W. Roach[1]. [1]Air Force Research Laboratory, Brooks City-Base, TX, USA.

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EFFECTS OF THE ELECTRICAL PROPERTIES OF THE TISSUE-EQUIVALENT LIQUID ON SAR-PROBE CALIBRATION IN 5-GHZ BAND. L. Hamada[1], T. Inoue[2, 1], S. Watanabe[1], T. Iwasaki[2]. [1]EMC Group, NICT, Tokyo, Japan. [2]Univ of Electro-Communications, Tokyo, Japan.

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SIMPLE EVALUATION METHOD OF NONUNIFORM ELF MAGNETIC FIELD EXPOSURE FOR COMPLIANCE WITH GUIDELINES. K. Yamazaki[1], T. Kawamoto[1], H. Fujinami[1], T. Shigemitsu[2]. [1]Div High Volt & EMC, Central Research Inst of Electric Power Industry, Yokosuka, Kanagawa, Japan. [2]Div EMF Environment, Central Research Inst of Electric Power Industry, Abiko, Chiba, Japan.

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CALCULATIONS ON SAR UNDER VARIOUS POSITIONS OF RF COIL DURING MR IMAGING EMPLOYING A NUMERICAL MODEL OF JAPANESE PREGNANT WOMAN. S. Kikuchi[1], K. Saito[2], M. Takahashi[2], K. Ito[3], H. Ikehira[4]. [1]Graduate Sch of Science and Tech, Chiba Univ, Chiba, Japan. [2]Research Center for Frontier Medical Eng, Chiba Univ, Chiba, Japan. [3]Faculty of Eng, Chiba Univ, Chiba, Japan. [4]Nat'l Inst of Radiological Sciences, Chiba, Japan.

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RESEARCH PROGRAMME AND KNOWLEDGE PLATFORM ON ELECTROMAGNETIC FIELDS AND HEALTH IN THE NETHERLANDS. J. Bolte[1], M. Pruppers[1]. [1]Laboratory for Radiation Research, Nat'l Inst for Public Health and the Environment (RIVM) of the Netherlands, Bilthoven, Netherlands.

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STATISTICAL MODEL OF THE ELECTROMAGNETIC FIELDS IN A REALISTIC ENVIRONMENT. G. Vermeeren[1], C. Olivier[2], W. Joseph[1], L. Martens[1]. [1]Info Tech, Ghent Univ/IBBT, Ghent, Belgium. [2]Excentis, Ghent, Belgium.

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SIMULATION OF SAR NEAR LONG PASSIVE RE-RADIATORS AT VHF FREQUENCIES RELEVANT TO ON TOWER OCCUPATIONAL EXPOSURES. E. D. Mantiply[1], S. Chhabra[1], R. F. Cleveland[1]. [1]Office of Eng and Tech, Federal Communications Commission, Washington, DC, USA.

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DEVELOPMENT OF A HUMAN-BODY EQUIVALENT ANTENNA WITH TISSUE-EQUIVALENT LIQUID. Y. Takahashi[1, 2], T. Arima[1], P. Pongpaibool[2], S. Watanabe[2], T. Uno[1]. [1]Graduate Sch of Eng,Tokyo Univ Agriculture and Tech, Koganei, Tokyo, Japan. [2]Biomedical EMC Project, NiCT, Koganei, Tokyo, Japan.

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A CONSIDERATION OF THE UNCERTAINTY OF CALIBRATING ANTENNA GAIN IN THE LIQUID FOR THE SAR PROBE MEASUREMENT. N. Ishii[1, 2], H. Shiga[3], K. Sato[4], L. Hamada[2], S. Watanabe[2]. [1]Fac Eng, Niigata Univ, Niigata, Japan. [2]EMC Group, NICT, Tokyo, Japan. [3]Graduate Sch of Science and Tech, Niigata Univ, Niigata, Japan. [4]NTT Advanced Tech, Tokyo, Japan.

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NUMERICAL SAR ANALYSIS AND MEASUREMENT OF A SMALL INDOOR BASE-STATION ANTENNA. S. Ilvonen[1], T. Toivonen[2], T. Toivo[2], I. Laakso[1], T. M. Uusitupa[1], K. Kärkkäinen[3]. [1]Electromagnetics Laboratory, Helsinki Univ of Tech, Espoo, Finland. [2]STUK - Finnish Radiation and Nuclear Safety Authority, Helsinki, Finland. [3]Nokia Corporation, Espoo, Finland.

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DIELECTRIC PROPERTIES OF FRESHLY EXCISED HUMAN PINEAL GLAND TISSUE AND RF POWER ABSORPTION IN THE FREQUENCY RANGE 400 MHZ – 1,850 MHZ. G. Schmid[1], R. Ueberbacher[1], P. R. Mazal[2], M. Tschabitscher[3]. [1]Mobile Communications Safety, Austrian Research Centers GmbH-ARC, Seibersdorf, Austria. [2]Dept of Clinical Pathology, Medical Univ Vienna, Vienna, Austria. [3]Center of Anatomy and Cell Biology, Medical Univ Vienna, Vienna, Austria.

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MODELING OF SAR IN THE USER FOR BODY-WORN WIRELESS DEVICES. M. Douglas[1], G. Bit-Babik[1], J. Nadakuduti[1], A. Faraone[1], C. Chou[1]. [1]Corporate EME Research Laboratory, Motorola Labs, Ft. Lauderdale, FL, USA.

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30 MHZ MEASUREMENT USING THE AGILENT 85070C DIELECTRIC PROBE KIT. M. Ballen[1], M. Douglas[1], C. Chou[1]. [1]Corporate EME Research Laboratory, Motorola Labs, Ft. Lauderdale, FL, USA.

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EVALUATION OF BOUNDARY EFFECT IN THE PHANTOM LIQUID. L. Hamada[2], Y. Miyota[1], K. Sato[1], T. Inoue[3], S. Watanabe[2], T. Iwasaki[3]. [1]NTT Advanced Tech Corporation, Musashino-shi,Tokyo, Japan. [2]Nat'l Inst of Communication Tech, Koganei-shi, Tokyo, Japan. [3]Univ of Electro-Communications, Chofu-shi, Tokyo, Japan.

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DEVELOPMENT OF THE SAR-PROBE CALIBRATION SYSTEM USING THE REFERENCE DIPOLE ANTENNA IN HEAD-SIMULATING LIQUID. L. Hamada[2], K. Sato[1], N. Ishii[1, 3], S. Watanabe[1]. [1]NICT, Tokyo, Japan. [2]NTT Advanced Tech Corporation, Tokyo, Japan. [3]Niigata Univ, Niigata, Japan.

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COMPUTATIONAL SAR DOSIMETRY INSIDE THE JAPANESE WOMAN MODEL IN THE EARLY PERIOD OF PREGNANCY EXPOSED TO THE PLANE WAVE. H. Kawai[1], T. Nagaoka[1], S. Watanabe[1], K. Saito[2], M. Takahashi[2], K. Ito[3]. [1]Nat'l Inst of Info and Communications Tech, Koganei, Tokyo, Japan. [2]Research Center for Frontier Medical Eng, Chiba Univ, Chiba, Japan. [3]Faculty of Eng, Chiba Univ, Chiba, Japan.

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DEVELOPMENT OF A SAR PROBE CALIBRATION SYSTEM IN VHF BAND BASED ON TEMPERATURE MEASUREMENT (2). H. Asou[2], L. Hamada[1], K. Sato[2], S. Watanabe[1], T. Iwasaki[3]. [1]Nat'l Inst of Info and Communications Tech, Koganei-shi, Tokyo, Japan. [2]NTT Advanced Tech Corporation, Musashino-shi, Tokyo, Japan. [3]Univ of Electro-Communications, Chofu-shi, Tokyo, Japan.

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SAR MEASUREMENT METHOD BASED ON THE THEORETICAL ESTIMATION FOR FAST SAR ASSESSMENT. K. Kiminami[1], T. Iyama[1], T. Onishi[1]. [1]Research Laboratories, NTT DoCoMo Inc., Yokosuka, Kanagawa, Japan.

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EVALUATION OF MEASUREMENT TECHNIQUES TO SHOW COMPLIANCE WITH RF SAFETY LIMITS IN HETEROGENEOUS FIELD DISTRIBUTIONS. S. Kühn[1], A. Kramer[1], P. Sepan[2], N. Kuster[1]. [1]IT'IS Foundation, ETH Zurich, Zurich, Switzerland. [2]SPEAG, Zurich, Switzerland.

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DOSIMETRY FOR LOCAL BRAIN EXPOSURE OF RODENTS AT 2 GHZ. V. Hansen[1], A. Bitz[1], J. Streckert[1], K. Ladage[2], D. Krause-Finkeldey[2], A. El Ouardi[1], T. Reinhardt[1]. [1]Chair of Electromagnetic Theory, Univ of Wuppertal, Wuppertal, Germany. [2]Inst of Anatomy, Ruhr-Univ Bochum, Bochum, Germany.

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EFFECTS OF LONG-DURATION MILLIMETER WAVE EXPOSURE OF RAT SKIN: NUMERICAL AND EXPERIMENTAL RESULTS. D. A. Nelson[1, 2], R. V. Blystone[2], M. A. Shah[3], J. L. Robles[2]. [1]Mechanical Eng, Univ of South Alabama, Mobile, AL, USA. [2]Biology, Trinity Univ, San Antonio, TX, USA. [3]Biomedical Eng, Michigan Technological Univ, Houghton, MI, USA.

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COMPLETE DOSIMETRY OF TEM CELL FOR MICROSCOPE FOR A FREQUENCY BAND FROM 500 MHZ TO 2.5 GHZ. M. Cueille[1], A. Collin[1], R. O'connor[2], P. Leveque[1]. [1]OSA, XLIM-UMR CNRS n°6172, Limoges, France. [2]Laboratory of Molecular Signalling, Babraham Inst, Babraham, UK.

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FINITE DIFFERENCE TIME DOMAIN (FDTD) SIMULATIONS OF A HIGH RESOLUTION EYE MODEL. J. Payne[1], J. M. Ziriax[2], R. Garay[3], S. Chalfin[4]. [1]Radiofrequency Radiation Branch, Air Force Research Laboratory, Directed Energy Bioeffects Division, Brooks City-Base, TX, USA. [2]Research Operations Division, NHRC-DET DEBL, Brooks City-Base, TX, USA. [3]Henry M. Jackson Foundation, Naval Health Research Center Detachment, Directed Energy Bioeffects Laboratory, Brooks City-Base, TX, USA. [4]Ophthalmology Dept, Univ of Texas Health Science Center, San Antonio, TX, USA.

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THE BROOKS FINITE DIFFERENCE TIME DOMAIN (FDTD) CODE. J. M. Ziriax[1], J. Payne[2], S. Adams[3], A. Lyssy[3], W. Hurt[2]. [1]Research Operations Division, NHRC-DET DEBL, Brooks City-Base, TX, USA. [2]Directed Energy Bioeffects Division, Radiofrequency Radiation Branch, Air Force Research Laboratory, Brooks City-Base, TX, USA. [3]General Dynamics Corp., Directed Energy Bioeffects Division, Radiofrequency Radiation Branch, Air Force Research Laboratory, Brooks City-Base, TX, USA.

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MODELING HUMAN ELECTROMUSCULAR INCAPACITATION WITH FINITE DIFFERENCE TIME DOMAIN. J. M. Ziriax[1], J. Payne[2], J. Comeaux[3], S. Adams[3], A. Lyssy[3], J. D'Andrea[1]. [1]Research Operations Division, NHRC-DET DEBL, Brooks City-Base, TX, USA. [2]Directed Energy Bioeffects Division, Radiofrequency Radiation Branch, Air Force Research Laboratory, Brooks City-Base, TX, USA. [3]General Dynamics, Directed Energy Bioeffects Division, Radiofrequency Radiation Branch, Air Force Research Laboratory, Brooks City-Base, TX, USA.

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AVERAGING METHODS FOR RELIABLE MEASUREMENTS. G. Neubauer[1], P. Preiner[1], S. Cecil[1], G. Vermeeren[2], W. Joseph[2], L. Martens[2], S. Kühn[3], N. Kuster[3]. [1]Info Technologies - Communications Safety, ARC GmbH, Seibersdorf, Austria. [2]Dept of Info Tech, Ghent Univ, Gehnt, Belgium. [3]Foundation for Research on Info Technologies in Society, ITIS, Switzerland.

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AN ON SITE SAR EVALUATION USING PLANE WAVE SPECTRUM REDUCTION. F. Saidi[1], M. Wong[1], D. Lautru[2], A. Gati[1], E. Nicolas[3], F. Jacquin[3], J. J. Wiart[1], V. Fouad Hanna[2]. [1]France telecom R&D, France Telecom R&D, issy les Moulineaux, France. [2]LISIF, Université Pierre et Marie Curie, Paris, France. [3]Télédiffusion de France, Télédiffusion de France, Paris, France.

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VARIABILITY IN REACTIONS TO WEAK ULF VMF IN RATS. N. A. Temuryants[1], V. Martynyuk[1], E. I. Nagaeva[1], E. Y. Grabovskaya[1], V. I. Minko[1]. [1]Dept of Physiology, Tavrida Nat'l Univ, Simferopol, Crimea, Ukraine.

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A PRELIMINARY STUDY ON PERSONAL EXPOSURE CHARACTRIZATION OF MOBILE PHONE BASE STATIONS IN KOREA. M. Ha[1], H. Im[2], H. Kwon[1], N. Kim[3], A. Lee[4], H. Choi[4]. [1]Preventive Medicine, Dankook Univ College of Medicine, Cheonan, Chungnam, South Korea. [2]Hallym Univ, Sacred Heart Hospital, Anyang, Kyunggi, South Korea. [3]Chungbuk Nat'l Univ, Sch of Electrical and Computer Eng, Chungju, Chungbuk, South Korea. [4]Radio Tech Research Group, Radio & Broadcasting Research Division, ETRI, Daejun, South Korea.

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META-ANALYSIS OF CHILDHOOD BRAIN TUMORS AND MAGNETIC FIELDS. G. Mezei[1], M. Gadallah[2], L. Kheifets[2]. [1]Environment, Electric Power Research Inst, Palo Alto, CA, USA. [2]Epidemiology, Univ of California, Los Angeles, Los Angeles, CA, USA.

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STUDY ON EEG, ECG, CONGNITIVE POWER AND LEARNING ABILITY OF SCHOOL CHILDREN NEAR BY AND AWAY FROM POWER LINE. Y. Kim[1], S. Choi[1], J. Song[1], C. Lee[1], Y. Roh[1], S. Hong [2]. [1]Hanyang Univ, Seoul, South Korea. [2]Inje Univ, Kimhae, South Korea.

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THE NAT'L REGISTER OF RF WORKERS: A LONG-TERM FOLLOW-UP STUDY (UK). I. Litchfield[1], T. Sorahan[1]. [1]Inst of Occupational and Env Medicine, Univ of Birmingham, Birmingham, UK.

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CASE CONTROL STUDY OF CANCER INCIDENCE IN EARLY CHILDHOOD AND PROXIMITY TO MOBILE PHONE BASE STATIONS: EXPOSURE MODELLING. M. B. Toledano[1], P. Elliott[1], L. Beale[1], N. Best[1], J. Bennett[1], C. Keshishian[1], C. de Hoogh[1], D. Briggs[1]. [1]Epidemiology and Public Health, Imperial College London, London, UK.

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ADULT CANCERS NEAR OVERHEAD POWER LINES. M. B. Toledano[1], D. Briggs[1], J. Swanson[3], G. Shaddick[2], C. Keshishian[1], C. de Hoogh[1], P. Elliott[1]. [1]Epidemiology and Public Health, Imperial College London, London, UK. [2]Mathematical Sciences, Univ of Bath, Bath, UK. [3]Nat'l Grid Transco, Leatherhead, UK.

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CYTOGENETIC ANALYSIS OF HUMAN LYMPHO-CYTES AFTER ACUTE IN VIVO EXPOSURE TO EXTREMELY LOW FREQUENCY MAGNETIC FIELDS. G. C. Albert[1], J. P. McNamee[2], P. V. Bellier[2], F. S. Prato[1], Vijayalaxmi[3], A. Thomas[1]. [1]Dept of Medical Biophysics, Univ of Western Ontario; Bioelectromagnetics, Lawson Health Research Inst, St. Joseph's Health Care, London, ON, Canada. [2]Consumer and Clinical Radiation Protection Bureau, Health Canada, Ottawa, ON, Canada. [3]Dept of Radiation Oncology, Univ of Texas Health Science Centre, San Antonio, TX, USA.

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EFFECTS OF EMF EXPOSURE FROM MOBILE PHONE BASE STATIONS: DIFFERENCES IN REACTION TIMES BETWEEN SUBJECTS WITH MOBILE PHONE RELATED SYMPTOMS AND WITHOUT THEM. T. Furubayashi[1], Y. Terao[1], Y. Mizuno[1], K. Shirasawa[1], A. Kageyama[1], T. Okano[1], M. Nishikawa[2], K. Miyawaki[1], A. Yasuda[1], M. Uchiyama[1], H. Kobayashi Yamashita[1], A. Ushiyama[3], H. Masuda[3], S. Hirota[3], M. Takahashi[3], S. Sokejima[4], E. Maruyama[5], P. Pongpaibool[6], K. Wake[6], S. Watanabe[6], M. Taki[7], C. Ohkubo[8], Y. Ugawa[1]. [1]Neurology, The Univ of Tokyo , Tokyo, Tokyo, Japan. [2]Education, Kawamura Gakuen Woman's Univ, Chiba, Japan. [3]Env Health, Nat'l Inst of Public Health, Saitama, Japan. [4]Public Health Policy, Nat'l Inst of Public Health, Saitama, Japan. [5]Sch of Law, Kobe Univ, Kobe, Japan. [6]EMC Group, Applied Electromagnetic Research Center, Nat'l Inst of Info and Communications Tech, Tokyo, Japan. [7]Electrical and Electronic Eng, Tokyo Metropolitan Univ, Tokyo, Japan. [8]RAD, World Health Organization, Geneva, Switzerland.

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THE EFFECT OF ACUTE EXPOSURE TO A 60 HZ, 1800 μT MAGNETIC FIELD ON HUMAN MICROCIRCULATION. D. A. McNamee[1], A. Legros[1], A. Thomas[1], F. S. Prato[1]. [1]Imaging, Lawson Health Research Inst, London, ON, Canada.

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EFFECTS OF ELECTROMAGNETIC FIELD EXPOSURE FROM MOBILE PHONE BASE STATIONS - SUBJECTIVE PERCEPTION OF THE FIELDS AND PHYSIOLOGICAL RESPONSES DURING EXPOSURE AMONG THE PEOPLE WITH/WITHOUT MOBILE PHONE RELATED SYMPTOMS. A. Ushiyama[1], H. Masuda[1], S. Hirota[1], M. Takahashi[1], S. Sokejima[2], E. Maruyama[3], Y. Ugawa[4], Y. Terao[4], T. Furubayashi[4], Y. Mizuno[4], K. Shirasawa[4], A. Kageyama[4], T. Okano[4], M. Nishikawa[5], K. Miyawaki[4], A. Yasuda[4], M. Uchiyama[4], H. Kobayashi-Yamashita[4], P. Pongpaibool[6], K. Wake[6], S. Watanabe[6], M. Taki[7], C. Ohkubo[8]. [1]Dept of Env Health, Nat'l Inst of Public Health, Saitama, Japan. [2]Dept of Public Health Policy, Nat'l Inst of Public Health, Saitama, Japan. [3]Sch of Law, Kobe Univ, Kobe, Japan. [4]Dept of Neurology, Univ of Tokyo, Tokyo, Japan. [5]Dept of Education, Kawamura Gakuen Woman's Univ, Chiba, Japan. [6]EMC Group, Applied Electromagnetic Research Center, Nat'l Inst of Info and Communications Tech, Tokyo, Japan. [7]Dept of Electrical and Electronic Eng, Tokyo Metropolitan Univ, Tokyo, Japan. [8]RAD, World Health Organization, Geneva, Switzerland.

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EFFECTS OF ELECTROMAGNETIC FIELD EXPOSURE FROM MOBILE PHONE BASE STATIONS -MENTAL AND PSYCHOLOGICAL RESPONSES DURING EXPOSURE IN THE SUBJECTS WITH/WITHOUT MOBILE PHONE RELATED SYMPTOMS. M. Nishikawa[1], K. Miyawaki[2], A. Yasuda[2], M. Uchiyama[2], H. Kobayashi-Yamashita[2], Y. Terao[2], T. Furubayashi[2], Y. Mizuno[2], K. Shirasawa[2], A. Kageyama[2], T. Okano[2], A. Ushiyama[3], H. Masuda[3], S. Hirota[3], M. Takahashi[3], S. Sokejima[4], E. Maruyama[5], P. Pongpaibool[6], K. Wake[6], S. Watanabe[6], M. Taki[7], C. Ohkubo[8], Y. Ugawa[2]. [1]Social Education, Kawamura Gakuen Woman's Univ, Abiko, Chiba, Japan. [2]Neurology, Univ of Tokyo, Tokyo, Tokyo, Japan. [3]Env Health, Nat'l Inst of Public Health, Wako, Saitama, Japan. [4]Public Health Policy, Nat'l Inst of Public Health, Wako, Saitama, Japan. [5]Law, Kobe Univ, Kobe, Hyogo, Japan. [6]Applied Electromagnetic Research Center, Nat'l Inst of Info and Communications Tech, Tokyo, Tokyo, Japan. [7]Electrical and Electronic Eng, Tokyo Metropolitan Univ, Tokyo, Tokyo, Japan. [8]RAD, World Health Organization, Geneva, Switzerland.

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EFFECTS OF A W-CDMA 1950 MHZ SIGNALS ASSOCIATED WITH MOBILE PHONE ON THE REGIONAL CEREBRAL BLOOD FLOW (RCBF) IN HUMANS. Y. Mizuno[1], T. Ohnishi[1], Y. Moriguchi[2], T. Nojima[3], T. Hikage[3], Y. Ugawa[1]. [1]Neurology, Univ of Tokyo, Tokyo, Japan. [2]Nat'l Center for Neurology and Psychiatry (NCNP), Tokyo, Japan. [3]Graduate Sch of Info Science and Tech, Hokkaido Univ, Sapporo, Japan.

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ELECTROMAGNETIC FIELDS EMITTED BY MOBILE PHONES AND HEART RATE VARIABILITY. P. Ravazzani[1], M. Parazzini[1], G. Tognola[1], G. Thuroczy[2], F. Molnar[2], F. Sibella[1], A. Paglialonga[1], L. Mainardi[3]. [1]Istituto di Ingegneria Biomedica ISIB, Consiglio Nazionale delle Ricerche, Milano, Italy. [2]Dept of Non-Ionizing Radiation, Nat'l Research Inst for Radiobiology and Radiohygiene NIRR, Budapest, Hungary. [3]Dipartimento di Bioingegneria, Politecnico di Milano, Milano, Italy.

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IMAGE GUIDED MAGNETIC FIELD THERAPY. J. A. Robertson[1,2], D. Drost[4,3], F. S. Prato[4,2], A. Thomas[1,4]. [1]Bioelectromagnetics, Lawson Health Research Inst, London, ON, Canada. [2]Medical Biophysics, Univ of Western Ontario, London, ON, Canada. [3]Diagnostic Imaging, St. Joseph's Health Care, London, ON, Canada. [4]Imaging, Lawson Health Research Inst, London, ON, Canada.

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STUDY ON CHANGE OF SLEEP PATTERNS BY GENERATED MAGNETIC FIELDS DURING USING ELECTRONIC MAT. J. Song[1], Y. Kim[1], S. Choi[1], Y. Roh[1], C. Lee[1], S. Hong [2]. [1]Hanyang Univ, Seoul, South Korea. [2]Inje Univ, Kimhae, South Korea.

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ON THE CURRENT STATE OF THE GERMAN MOBILE TELECOMMUNICATION RESEARCH PROGRAMME. G. Ziegelberger[1]. [1]Federal Office for Radiation Protection, Neuherberg/Munich, Germany.

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UPDATE ON THE AUSTRALIAN CENTRE FOR RADIO FREQUENCY BIOEFFECTS RESEARCH (ACRBR). R. J. Croft[1, 2], M. Abramson[3, 2], I. Cosic[4, 2], J. Finnie[5, 2], R. J. McKenzie[2]. [1]Brain Sciences Inst, Swinburne Univ, Melbourne, VIC, Australia. [2]Australian Centre for Radiofrequency Bioeffects Research, Melbourne, VIC, Australia. [3]Dept. Epidemiology and Preventive Medicine, Monash Univ, Melbourne, VIC, Australia. [4]Sch of Electrical and Computer Eng, RMIT, Melbourne, VIC, Australia. [5]Inst of Medical and Veterinary Science, Adelaide, SA, Australia.

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EFFECTS OF WIRELESS PHONE RF ON CELLULAR IMMUNITY AND CYTOKINES. H. Park[1], J. Choi[1], S. Choi[1], M. Yoon[1]. [1]Korea Univ, Seoul, Sungbuk-Ku, South Korea.

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THE COMPARATIVE STUDY ON LEARNING-RECOGNIZING ABILITY INDUCED BY THREE KINDS OF BAND ELECTROMAGNETIC RADIATIONS IN WISTAR RATS. D. Wang[1], J. Chen[1], H. Zuo[1], Z. Han[2], L. Wang[2]. [1]Inst of Radiation Medicine, Academy of Military Medical Science, Beijing, China. [2]PLA General Hospital Neurobiology Lab, Beijing, China.

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SWEAT INCREASE IN TEENAGERS BY CDMA CELLULAR PHONES. D. Kim[1], K. Nam[2], S. Kim[1], S. Kim[3]. [1]Yonsei University College of Medicine, Seoul, S. Korea. [2]Assistive Device Tech Group, AIST, Tsukuba, Japan. [3]Hankyong Nat'l University, Anseong, S. Korea.

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EFFECT OF INTERMEDIATE FREQUENCY MAGNETIC FIELDS ON GENE CONVERSION AND POINT MUTATION IN MODEL EUKARYOTIC CELL, *SACCHAROMYCES CEREVISIAE*. S. Nakasono[1], M. Ikehata[2], M. Dateki[1], T. Shigemitsu[1], T. Negishi[1]. [1]Env Science Research Laboratory, Central Research Inst of Electric Power Industry, Abiko, Chiba, Japan. [2]BioTech Laboratory, Railway Technical Research Inst, Kokubunji, Tokyo, Japan.

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ENHANCEMENT OF CYTOKINE-MEDIATED β-CELL DYSFUNCTION BY EXTREMELY LOW FREQUENCY MAGNETIC FIELDS. T. Sakurai[1], M. Yoshimoto[1], S. Koyama[2], H. Ohtani[1], J. Miyakoshi[1]. [1]Dept of Radiological Tech, Hirosaki Univ, Hirosaki, Japan. [2]Dept of Interdisciplinary Enviroment, Kyoto Univ, Kyoto, Japan.

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EFFECT OF EXTREMELY LOW FREQUENCY MAGNETIC FIELDS ON ANTICANCER DRUG POTENCY. M. Kakikawa[1], S. Hashimoto[1], M. Iwahara[1], S. Yamada[1]. [1]Kanazawa Univ, Kanazawa, Japan.

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LONG-TERM CONDITIONS OF LARGE-SCALE IN VITRO EXPERIMENT SYSTEM FOR 2 GHZ EXPOSURE. T. Iyama[1], T. Onishi[1], H. Ebara[1], H. Hirose[2], H. Takeda[2], M. Sekijima[2], T. Nojima[3], J. Miyakoshi[4]. [1]NTT DoCoMo, Inc., Yokosuka, Kanagawa, Japan. [2]Mitsubishi Chemical Safety Inst Ltd., Kamisu, Ibaraki, Japan. [3]Hokkaido Univ, Sapporo, Hokkaido, Japan. [4]Hirosaki Univ, Hirosaki, Aomori, Japan.

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GENE EXPRESSION PROFILE ANALYSIS IN ELF MF EXPOSED MCF-7 CELLS. G. Chen[1], D. Lu[1], H. Chiang[1], Z. Xu[1]. [1]Zhejiang Univ Sch of Medicine, Bioelectromagnetics Laboratory, Hangzhou, Zhejiang, China.

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EFFECTS OF RADIOFREQUENCY FIELD FROM W-CDMA MOBILE RADIO BASE STATION ON CELL PROLIFERATION, DNA DAMAGE, AND GENE EXPRESSION. M. Sekijima[1], H. Hirose[1], H. Takeda[1], N. Sakuma[1], N. Kaji[1], T. Suhara[1], K. Nakayama[1], T. Nojima[2], J. Miyakoshi[3]. [1]Mitsubishi Chemical Safety Inst Ltd., Kamisu, Ibaraki, Japan. [2]Hokkaido Univ, Sapporo, Hokkaido, Japan. [3]Hirosaki Univ, Hirosaki, Aomori, Japan.

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EFFECT OF ELF ELECTROSTIMULATION ON ENDOCYTIC ACTIVITY OF MACROPHAGE. M. Kagawa[1], T. Shimooka[2], K. Shimizu[1]. [1]Graduate Sch of Info Science and Tech, Hokkaido Univ, Sapporo, Japan. [2]Faculty of Health and Medical Care, Saitama Medical Univ, Hidaka, Japan.

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EFFECTS OF A TIME-VARYING MAGNETIC FIELD ON CELL VOLUME REGULATION OF CULTURED BOVINE ADRENAL CHROMAFFIN CELLS. T. Ikehara[1], Y. Minami[2], N. Shiota[2], H. Yamaguchi[3], M. Shono[1], M. Kitamura[1], K. Kawazoe[2], K. Minakuchi[2], K. Yoshizaki[1], Y. Kinouchi[4], H. Miyamoto[1]. [1]Dept of Physiology, Inst of Health Biosciences, The Univ of Tokushima Graduate Sch, Tokushima, Japan. [2]Dept of Pharmacy, Tokushima Univ Hospital, Tokushima, Japan. [3]Dept of Env Physiology, Faculty of Human Life Sciences, Tokushima Bunri Univ, Tokushima, Japan. [4]Dept of Life System, Inst of Tech and Science, The Univ of Tokushima Graduate Sch, Tokushima, Japan.

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EFFECT OF ELECTRICAL STIMULATION ON NEURAL STEM CELL GROWTH AND DIFFERENTIATION. C. A. Ariza[1]. [1]Chemical and Biological Eng, Iowa State Univ, Ames, IA, USA.

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EXTREMELY LOW FREQUENCY (ELF) MAGNETIC FIELDS INCREASE HYDROGEN PEROXIDE-INDUCED MUTATIONS IN PTN89 PLASMIDS. S. Koyama[1], T. Sakurai[2], T. Nakahara[2], J. Miyakoshi[2]. [1]Dept of Interdisciplinary Environment, Graduate Sch of Human and Env Studies, Kyoto Univ, Kyoto, Kyoto, Japan. [2]Dept of Radiological Tech, Sch of Health Sciences, Faculty of Medicine, Hirosaki Univ, Hirosaki, Aomori, Japan.

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MAGNETIC FIELDS GENERATED BY AN INDUCTION HEATING (IH) COOKER DO NOT CAUSE GENOTOXICITY IN VITRO. J. Miyakoshi[1], T. Nakahara[1], T. Sakurai[1]. [1]Dept of Radiological Tech, Sch of Health Sciences, Faculty of Medicine, Hirosaki Univ, Hirosaki, Japan.

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EFFECTS OF EXPOSURE TO ELF EF IN HEK CELL TRANSFECTED WITH CALCIUM RECEPTOR. S. Harakawa[1, 3], S. Anderson[2], N. Inoue[3], J. Nearing[2], M. Betka[2], W. Harris[2]. [1]R&D, Hakuju Inst for Health Science, Tokyo, Japan. [2]MariCal Inc., Portland, ME, USA. [3]Nat'l Research Center for Protozoan Diseases, Obihiro Univ of Agriculture and Veterinary Medicine, Obihiro, Japan.

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RADIO FREQUENCY RADIATION DO NOT AFFECT CELL CYCLE, MIGRATION, AND INVASION. J. Lee[1], H. Kwak[1], Y. Lee[1], J. Lee[1], M. Park[1], H. Choi[2], N. Kim[3], J. Pack[4], S. Hong[1], J. Lee[1]. [1]Laboratory of Functional Genomics, Radiological & Medical Research Center, Seoul, South Korea. [2]EM Environment Research Team, Electronics and Telecommunications Research Inst, Daejeon, South Korea. [3]Sch of Electrical and Computer Eng, Chungbuk Nat'l Univ, Cheongju, South Korea. [4]Dept of Radio Sciences and Eng, Chungnam Nat'l Univ, Daejeon, South Korea.

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PROTEOMIC ANALYSIS OF MOBILE PHONE RADIATION-EXPOSED MCF7 BREAST CANCER CELLS. K. Kim[1], N. Han[1], H. Choi[2], N. Kim[3], J. Pack[4], S. Hong[1], J. Lee[1]. [1]Laboratory of Functional Genomics, Korea Inst of Radiological and Medical Sciences, Seoul, South Korea. [2]EM Environment Research Team, Electronics and Telecommunications Research Inst, Daejeon, South Korea. [3]Sch of Electrical and Computer Eng, Chungbuk Nat'l Univ, Cheongju, South Korea. [4]Dept of Radio Sciences and Eng, Chungnam Nat'l Univ, Daejeon, South Korea.

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EFFECTS OF EXTREMELY LOW FREQUENCY MAGNETIC FIELDS ON OSTEOCLASTS AND OSTEOBLASTS: DEVELOPMENT OF A NEW MODEL SYSTEM USING FISH SCALE. M. Kakikawa[1], Y. Oda[1], S. Sunata[1], N. Suzuki[1], K. Kitamura[1], A. Hattori[2], M. Iwasaka[3], S. Ueno[4], S. Yamada[1]. [1]Kanazawa Univ, Kanazawa, Japan. [2]Tokyo Medical and Dental Univ, Ichikawa, Japan. [3]Chiba Univ, Chiba, Japan. [4]Kyushu Univ, Hukuoka, Japan.

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LEARNING BEHAVIORS OF THE NEMATODE C. ELEGANS EXPOSED TO ELECTRIC MAGNETIC FIELDS ARE GREATLY AFFECTED. M. Kakikawa[1], S. Maeda[1], R. Hosono[2], S. Yamada[1]. [1]Graduate Sch of Natural Science & Tech, Kanazawa Univ., Kanazawa, Ishikawa, Japan. [2]Graduate Sch of Medical Science, Kanazawa Univ., Kanazawa, Ishikawa, Japan.

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EFFECTS OF MOBILE TELEPHONY SIGNALS EXPOSURE ON RADICAL STRESS IN THE RAT BRAIN. I. Lagroye[2, 1], E. Haro[1], E. Ladeveze[1], B. Billaudel[1], M. Taxile[1], B. Veyret[1, 2]. [1]Univ of Bordeaux 1, IMS Laboratory, site ENSCPB, 33607 PESSAC Cedex, France. [2]EPHE Bioelectromagnetics Laboratory, ENSCPB, 33607 PESSAC Cedex, France.

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EFFECTS OF TESTICULAR GERM CELL APOPTOSIS IN MICE EXPOSED TO 60 HZ ELECTROMAGNETIC FIELD OF 14 UT. Y. Kim[1, 2], J. Lee[1, 2], H. Kim[1, 2], S. Lee[3], K. Jung[4], Y. Gimm [5]. [1]Inst of Medical Science, College of Medicine, Hallym Univ, Chuncheon, South Korea. [2]Dept of Microbiology, College of Medicine, Hallym Univ, Chuncheon, South Korea. [3]Dept of Urology, College of Medicine, Hallym Univ, Chuncheon, South Korea. [4]Dept of Pathology, Sch of Medicine, Seoul Nat'l Univ, Seoul, South Korea. [5]Sch of Electrical, Electronic and Computer, Dankook Univ, Seoul, South Korea.

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MRET ACTIVATED WATER AND ITS SUCCESFUL APPLICATION FOR PREVENTION AND ENHANCED TUMOR RESISTANCE IN ANIMAL ONCOLOGY MODELS. I.V. Smirnov. Global Quantech, Inc., San Marcos, CA, USA.

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TECHNIQUE FOR MONITORING DERMAL SCAR HEALING USING MULTIMODAL ULTRASOUND. E. N. Bodnar[1], R. C. Lee[1]. [1]Surgery, Univ of Chicago, Chicago, IL, USA.

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MICROWAVE TREATMENT OF WOOD ARTISTIC SAMPLES. EXPOSURE OF WOODEN HANDICRAFTS. F. Augelli[3], B. Bisceglia[1], M. Boriani[3], N. Diaferia[2], F. Foppiani[4], E. Italiano[4], F. Magli[4], R. Mastropirro[5], R. Tessari[4]. [1]Dept of Electrical and Info Eng, Univ of Salerno, Fisciano (SA), Italy. [2]Emitech srl, Molfetta (BA), Italy. [3]Osservatorio per la conservazione delle opere lignee, Politecnico di Milano, Milano, Italy. [4]Restorer, Milano, Italy. [5]Architect free lancer, Milano, Italy. [6]ICVBC –CNR, Milano, Italy.

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DEVELOPMENT ON TISSUE-EQUIVALENT PHANTOM WITH CAPILLARY BLOOD FLOW FOR EVALUATION OF TEMPERATURE RISE DUE TO MICROWAVE RADIATION. K. Saito[1], A. Hiroe[3], M. Takahashi[1], K. Ito[2]. [1]Research Center for Frontier Medical Eng, Chiba Univ, Chiba, Japan. [2]Faculty of Eng, Chiba Univ, Chiba, Japan. [3]Graduate Sch of Science and Tech, Chiba Univ, Chiba, Japan.

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CALIBRATION OF CLAMP-TYPE INDUCED CURRENT METER IN THE LOW FREQUENCY (100KHZ-10MHZ) USING LUMPED PARAMETER CIRCUIT. J. Byun[1], H. Choi[1], Y. Chung[2], J. Kim[3]. [1]EME Research Team, Electronics and Telecommunications Research Inst, Daejeon, South Korea. [2]Dept of Radio Science & Eng, Kwangwoon Univ, Seoul, South Korea. [3]Dept of Communications Eng, Myongji Univ, Yongin, Kyunggi-do, South Korea.

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DESIGN OF COIL SYSTEMS AND BUILDINGS FOR GENERATING WIDE INTENSIVE UNIFORM MAGNETIC FIELD AT INTERMEDIATE FREQUENCIES. K. Yamazaki[1], A. Haga[2], K. Kobayashi[3], K. Muramatsu[4], I. Nishimura[5], S. Nakasono[5], T. Shigemitsu[5], T. Negishi[5]. [1]Takenaka Corp., Inzai, Chiba, Japan. [2]Tohoku Gakuin Univ., Tagajo, Miyagi, Japan. [3]Iwate Univ., Morioka, Iwate, Japan. [4]Saga Univ., Saga, Saga, Japan. [5]Central Research Inst of Electric Power Industry, Abiko, Chiba, Japan.

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MAGNETIC FIELD MEASUREMENT NEAR POWER FACILITIES BASED ON IEC PT62110 IN KOREA. Y. Lim[1], K. Shin[1], S. Myeong[3], J. Kim[2], D. Lee[1], J. Koo[4]. [1]Transmission Tech Group, Power System Lab., KEPRI (Korea Electric Power Research Inst), Daejeon-shi, South Korea. [2]Transmission and Substation Construction , KEPCO (Korea Electric Power Corporation), Seoul, South Korea. [3]Transmission and Env Tech Group, KERI (Korea Electric Research Inst), Changwon-shi, South Korea. [4]Electric, Electronic and Automation Dept., Hanyang Univ, Seoul, South Korea.

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IN SITU ANALYTICAL SYSTEM TO STUDY EFFECTS OF EXPOSURE TO ELF EF ON TRANSPARENT TISSUE. K. Tochio[1, 2], S. Harakawa[2, 3], F. Doge[2], H. Minamitani[1]. [1]Inst of Biomedical Eng, Keio Univ, Yokohama, Japan. [2]R&D, Hakuju Inst for Health Science, Tokyo, Japan. [3]Nat'l Research Center for Protozoan Diseases, Obihiro Univ of Agriculture and Veterinary Medicine, Obihiro, Japan.

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FREE SCANNING METHOD FOR MEASURING THE MAGNETIC FIELD DISTRIBUTION. N. Miyata[1], Y. Kamimura[1], Y. Yamada[1]. [1]Info Science, Utsunomiya Univ., Utsunomiya, Japan.

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COMPARISON OF FREE SPACE CALIBRATION TECHNIQUES OF A SAR-PROBE. L. Hamada[2], H. Kurokawa[1], K. Sato[2], S. Ishigami[1], S. Watanabe[1]. [1]Nat'l Inst of Info and Communication Tech, Tokyo, Japan. [2]NTT Advanced Tech, Tokyo, Japan.

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DEVELOPMENT OF CALCULATION PROGRAM KMAGEXPO ON PERSONAL MAGNETIC FIELD EXPOSURE OF KOREANS IN LIVING ENVIRONMENTS. K. Yang[1], M. Ju[1], S. Myung[1]. [1]Electrical Environment Group, Korea ElectroTech Research Inst, Changwon, Gyeongsangnam-do, South Korea.

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MEASUREMENT FOR LIQUID USING ELLIPSOMETRY METHOD IN MILLIMETER WAVE BANDS. T. Sakai[1], S. Watanabe[1]. [1]Nat'l Inst of Info and Communications Tech, Tokyo, Japan.

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SIMPLE CUBIC-3 COIL SYSTEM. K. Tashiro[1], H. Wakiwaka[1]. [1]Shinshu Univ, Nagano, Japan.

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DISTRIBUTIONS OF LEAKAGE MAGNETIC FIELDS PRODUCED FROM INDUCTION COOKING APPLIANCES. A. Haga[1], K. Kamata[2], K. Muramatsu[3]. [1]Tohoku Gakuin Univ, Tagajo, Miyagi, Japan. [2]Kagoshima Nat'l College of Tech, Kirishima, Kagoshima, Japan. [3]Saga Univ, Saga, Saga, Japan.

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IMPROVEMENTS TO A WAVEGUIDE BASED EXPOSURE SYSTEM FOR STUDYING MICROWAVE FIELD EFFECTS ON THE CONTRACTILE FORCE OF SKELETAL MUSCLE. P. Vandenberg[1], R. Wiese[2], I. Chatterjee[1], D. McPherson[1], G. Craviso[2]. [1]Electrical Eng, Univ of Nevada, Reno, Reno, NV, USA. [2]Pharmacology, Univ of Nevada, Reno, Reno, NV, USA.

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APPLICATION OF GIS AND LAND REGISTER FOR ESTIMATION OF MF EXPOSURE POPULATION AROUND 154KV POWER LINE H. Seung-Cheol[1], K. Keun-young[1], J. Joon-Sig[1], K. Nam[2]. [1]Occupational Health & Safety Eng, INJE Univ, Gimhae, South Korea. [2]Computer & Communication Eng, Chungbuk Nat'l Univ, Cheongju, South Korea.

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MEASUREMENT OF INTERMEDIATE-FREQUENCY MAGNETIC FIELDS EMITTED FROM ELECTROMAGNETIC COOKERS USING A LARGE-SIZE LOOP COIL ANTENNA. I. Kayano[1], S. Mochizuki[2], Y. Ogasawara[2]. [1]Medical Eng, Kawasaki College of Allied Health Professions, Kurashiki, Okayama, Japan. [2]Medical Eng, Kawasaki Medical Sch, Kurashiki, Okayama, Japan.

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DETERMINING THE THRESHOLD OF LIGHT EXPOSURE REQUIRED TO ELIMINATE ELECTROMAGNETIC SHIELDING INDUCED ANALGESIA IN CD-1 MICE. L. D. Keenliside[1], F. S. Prato[2, 3], D. Desjardins[1], A. Thomas[1, 2]. [1]Imaging, Lawson Health Research Inst, London, ON, Canada. [2]Dept of Medical Biophysics, Schulich Sch of Medicine, Univ of Western Ontario, London, ON, Canada. [3]Imaging and Nuclear Medicine and Bioelectromagnetics., St Joseph's Hospital, London, ON, Canada.

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RATS DON'T DISLIKE ELF-EF. S. Harakawa[1, 2], T. Nedachi[1], T. Hori[1], K. Tochio[1], K. Takahashi[1], F. Doge[1], N. Inoue[2]. [1]R&D, Hakuju Inst for Health Science, Tokyo, Japan. [2]Nat'l Research Center for Protozoan Diseases, Obihiro Univ of Agriculture and Veterinary Medicine, Obihiro, Japan.

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STUDY OF CAENORHABDITIS ELEGANS GENOME STABILITY DUE TO HIGH INTENSITY RADIOFREQUENCY EXPOSURE. S. Wang[1], E. Kim[1], J. Chen[1], Y. C. Kim[1], S. Lee[4], H. L. Gerber[2], C. C. Tseng[3]. [1]ENH Research Inst, Northwestern Univ, Evanston, IL, USA. [2]Electrical and Computer Eng , Purdue Univ Calumet, Hammond, IN, USA. [3]Biological Sciences, Purdue Univ Calumet, Hammond, IN, USA. [4]Life Science and BioTech, Kyungpook Nat'l Univ, Daegu, South Korea.

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EXTREMELY LOW FREQUENCY MAGNETIC FIELDS AFFECT TRANSCRIPT LEVELS OF NEURONAL GENES IN *CAENORHABDITIS ELEGANS*. S. Harada[1], S. Yamada[2]. [1]Center for Biomedical Research and Education, Kanazawa Univ Graduate Sch of Medical Science, Kanazawa, Japan. [2]Inst of Nature and Env Tech, Division of Biological Measurement and Applications, Kanazawa Univ, Kanazawa, Japan.

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EFFECTS OF LOCAL EXPOSURE TO 1,457 MHZ ELECTROMAGNETIC FIELD UNDER HIGH INTENSITY CONDITIONS ON CEREBRAL BLOOD FLOW IN THE RAT BRAIN. H. Masuda[1], A. Ushiyama[1], M. Takahashi[1], S. Hirota[1], S. Tanaka[2], H. Kawai[2], K. Wake[2], S. Watanabe[2], M. Taki[3], C. Ohkubo[4]. [1]Dept of Env Health, Nat'l Inst of Public Health, Saitama, Japan. [2]EMC Group, Applied Electromagnetic Research Center, Research Dept 3, Nat'l Inst of Info and Communications Tech, Tokyo, Japan. [3]Dept of Electrical Eng, Graduate Sch of Eng, Tokyo Metropolitan Univ, Tokyo, Japan. [4]RAD, World Health Organization, Geneva, Switzerland.

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MECHANISM OF PERIPHERAL SKIN TEMPERATURE CHANGE CAUSED BY ELF ELECTRIC FIELD EXPOSURE. M. Yamashita[1], K. Ohsaki[2], K. Shimizu[3]. [1]BioMedical Eng, Hokkaido Inst of Tech, Sapporo, Hokkaido, Japan. [2]Research & Development, Hakuju Inst for Health Science Co. Ltd., Tokyo, Tokyo, Japan. [3]Graduate Sch of Info Science and Tech, Hokkaido Univ, Sapporo, Hokkaido, Japan.

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STUDY OF CELL PHONE IRRADIATION EFFECTS ON THE MOLLUSK SINGLE NEURON HABITUATION. B. Partsvania[1], L. S. Shoshiashvili[1], Z. V. Modebadze[1], T. D. Surguladze[1]. [1]Biocyberneics, Cybernetics, Tbilisi, Georgia.

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NANOSECOND PULSED ELECTRIC FIELDS (NSPEFS) CAUSED BCL-2 DOWN REGULATION IN MELANOMA B16-F10 TUMORS ON SKH-1 MICE. J. Swanson[1, 3], X. Chen[1, 2], R. Nuccitelli[3]. [1]Dept. of Biological Sciences, Old Dominion Univ, Norfolk, VA, USA. [2]Dept of Hepatopancreatobiliary Surgery, The 1st Teaching Hospital of Medical Sch, Zhejiang Univ, Hangzhou, Zhejiang, China. [3]Frank Reidy Research Center for Bioelectrics, Old Dominion Univ, Norfolk, VA, USA.

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ESTIMATION OF MAGNETITE DENSITY BY NEEDLE TYPE GIANT MAGNETORESISTANCE PROBE. S. Yamada[1], C. Komkrit[1], C. Gooneratne[1], M. Kakikawa[1], M. Iwahara[2]. [1]Inst of Nature and Env Tech, Kanazawa Univ, Kanazawa, Ishikawa, Japan. [2]Graduate Sch of Nature Science and Tech, Kanazawa Univ, Kanazawa, Ishikawa, Japan.

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"CAPACITIVE COUPLING SYSTEM" EXPOSURE. EVALUATION OF ELECTRIC FIELD IN SPINE. B. Bisceglia[1], R. Cadossi[4], A. De Vita[3], M. Sarti[2], S. Setti[4]. [1]Dept of Electrical and Info Eng, Univ of Salerno, Fisciano (SA), Italy. [2]CNR, IREA, Napoli, Italy. [3]The Waves Group, Università del Sannio at Benevento, Benevento, Italy. [4]Laboratory of Clinical Biophysics, IGEA, Carpi (MO), Italy.

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POSSIBILITY OF FREQUENCY SPECIFICITY OF OCULAR EFFECTS BY QUASI-MILLIMETER AND MILLIMETER WAVE EXPOSURE. M. Kojima[1, 2], M. Hanazawa[3], Y. Yamashiro[2], S. Watanabe[3], H. Sasaki[1, 2], M. Taki[4], K. Sasaki[2]. [1]Dept of Ophthalmology, Kanazawa Medical Univ, Kahoku-gun, Ishikawa, Japan. [2]Division of Vision Research for Env Health, Medical Research Inst, Kanazawa Medical Univ, Kahoku-gun, Ishikawa, Japan. [3]Nat'l Inst of Info and Communications Tech, Koganei, Tokyo, Japan. [4]Dept of Electrical Eng Graduate Sch of Eng, Tokyo Metropolitan Univ, Hachioji, Tokyo, Japan.

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OPTIMAL COMPUTATIONAL ERRORS IN DIFFUSION SIMULATION OF NUCLEAR MAGNETIZATION IN WATER MOLECULES. T. Imae[1, 2], H. Shinohara[2], M. Sekino[3], S. Ueno[4], H. Ohsaki[3], K. Mima[1], K. Ootomo[1]. [1]Dept of Radiology, Univ of Tokyo Hospital, Tokyo, Japan. [2]Graduate Sch of Human Health Science, Tokyo Metropolitan Univ, Tokyo, Japan. [3]Graduate Sch of Frontier Sciences, Univ of Tokyo, Chiba, Japan. [4]Graduate Sch of Eng, Kyushu Univ, Fukuoka, Japan.

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RF ABSORPTION IN THE HUMAN HEAD IN ULTRAHIGH-FIELD MAGNETIC RESONANCE IMAGING SYSTEMS OF UP TO 11.7. T M. Sekino[1], D. Kim[1], S. Ueno[2], H. Ohsaki[1]. [1]Dept of Advanced Energy, Graduate Sch of Frontier Sciences, The Univ of Tokyo, Kashiwa, Chiba, Japan. [2]Dept of Applied Quantum Physics, Graduate Sch of Eng, Kyushu Univ, Fukuoka, Fukuoka, Japan.

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EXPOSURE OF C57BL/6J MALE MICE TO ELECTRIC FIELD IMPROVES COPULATION RATES WITH SUPEROVULATED FEMALES. T. Hori[1], S. Harakawa[1, 2], H. Suzuki[2]. [1]R&D, Hakuju Inst for Health Science, Tokyo, Japan. [2]Nat'l Research Center for Protozoan Diseases, Obihiro Univ of Agriculture and Veterinary Medicine, Obihiro, Japan.

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AN ASSESSMENT METHODLOGY OF IMPLANTABLE MEDICAL DEVICE EMI DUE TO RFID READER/WRITERS BASED UPON THE EMF DISTRIBUTION ANALYSIS. S. Futatsumori[1], S. Taguchi[1], T. Hikage[1], T. Nojima[1], B. Koike[2], H. Fujimoto[3], T. Toyoshima[3]. [1]Graduate Sch of Info Science and Tech, Hokkaido Univ, Sapporo, Hokkaido, Japan. [2]Japan Automatic Identification Systems Association, Chiyoda-ku, Tokyo, Japan. [3]Medtronic Japan Co., Ltd., Minato-ku, Tokyo, Japan.

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CHANGES IN DIFFUSION PROPERTIES OF BIOLOGICAL TISSUES ASSOCIATED WITH MECHANICAL STRAIN. K. Tanaka[1], T. Imae[1], M. Sekino[2], S. Ueno[3], H. Ohsaki[2], K. Mima[1]. [1]Dept. of Radiology, Univ of Tokyo Hospital, Tokyo, Japan. [2]Dept. of Advanced Energy, Graduate Sch of Frontier Sciences, The Univ of Tokyo, Chiba, Japan. [3]Graduate Sch of Eng, Kyushu Univ, Fukuoka, Japan.

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ANALYSIS OF A DEVICE FOR DETECTING BREAST CANCER IN DISPERSIVE CHARACTERISTICS OF BIOLOGICAL TISSUES. J. Kim[1], C. Ko[1], T. Kim[1], H. Choi[2], A. Lee[2], J. Pack[1]. [1]Dept. of Radio Science & Eng, Chungnam Nat'l Univ., Daejeon, South Korea. [2]Radio Tech Research Group, Electronics and Telecommunications Research Inst, Daejeon, South Korea.

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EFFECTS OF RF ELECTRIC FIELDS IN THE RAT ADIPOCYTE. H. Funamizu[1], A. Sugino[1], N. Mitsumune[1], T. Hara[2], T. Saito[3]. [1]Biomedical Eng, Tokyo Univ, Tokyo, Japan. [2]BESTEC Corporation, Wako-shi, Japan. [3]Hitachi Life Science Corporation, Kawagoe-shi, Japan.

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WEAK PEMF SIGNALS ARE FIRST MESSENGERS FOR TISSUE GROWTH AND REPAIR: APPLICATION TO TENDON REPAIR. A. A. Pilla[1,2]. [1]Biomedical Eng, Columbia Univ, New York, NY, USA. [2]Orthopedics, Mount Sinai Sch of Medicine, New York, NY, USA.

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DEVELOPMENT OF JELLY-TYPE POLYMER BASED SIMULATING HUMAN BRAIN FOR RESEARCH ON HYPERTHERMIA BY HIGH FREQUENCY MAGNETIC FIELD. Y. Gimm[1], O. Kim[2], K. Ito[3]. [1]Sch of Electronics and Computer Eng, Dankook Univ, Yongsangu, Seoul 140-714, South Korea. [2]Dept. of Polymer Science & Eng, Dankook Univ, Yongsangu, Seoul 140-714, South Korea. [3]Antenna Lab., Faculty of Eng, Chiba Univ, Chiba-shi 263-8522, Japan.

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MORPHOLOGIC CHANGES OF MITOCHONDRIA AND METABOLIC EFFECTS OF MICROWAVE RADIATION ON RAT HIPPOCAMPUS. P. Ruiyun[1]. [1]Beijing Inst of Radiation Medicine, Beijing, China.

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EXPOSURE OF 20 KHZ TRIANGULAR MAGNETIC FIELD TO RATS FOR 18 MONTHS. Y. Lee[1], S. Choi[2], Y. Gimm[3], J. Park[4], H. Choi[5], H. Lee[1]. [1]Laboratory of Radiation Effect, Korea Inst of Radiological and Medical Sciences, Seoul, South Korea. [2]Laboratory of Radiation Cytogenetics and Epidemiology, Korea Inst of Radiological and Medical Sciences, Seoul, South Korea. [3]EMF Safety , Dankook Univ, Seoul, South Korea. [4]Dept of Radio Sciences & Eng, Choongnam Nat'l Univ, Daejon, South Korea. [5]EME Research Team, ETRI, Daejon, South Korea.

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ABSENCE OF EFFECT OF POWER-FREQUENCY MAGNETIC FIELDS EXPOSURE ON MOUSE EMBRYONIC LENS DEVELOPMENT. K. Yao[1, 2], Y. Yu[1], K. Wang[1], J. Ye[1], D. Lu[3], H. Jiang[3]. [1]Eye Center, Affiliated Second Hospital, College of Medicine, Zhejiang Univ, HangZhou, China. [2]Ophthalmology Inst of Zhejiang Univ, HangZhou, China. [3]Bioelectromagnetic Laboratory, College of Medicine, Zhejiang Univ, HangZhou, China.

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INVESTIGATION OF THE MITIGATION COST RELATED TO THE MAGNETIC FIELD GUIDELINE IN KOREA. S. Myung[1], Y. Cho[1], Y. Lim[2], K. Shin[2], D. Lee[2], J. Kim[3]. [1]Electrical Environment Research Group, Korea Electric Research Inst, Chwang Won, Gyeongsangnam-do, South Korea. [2]Transmission Tech Group, Korea Electric Power Research Inst, Daejeon-shi, South Korea. [3]Transmission and Substation Construction, Korea Electric Power Coorporation, Seoul, South Korea.

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STUDY ON ELECTROMAGNETIC EFFECTS OF IH COOKER ON A METAMORPHOSIS OF XENOPUS LAEVIS. A. Chuman[1], A. Nuruki[1], S. Tsujimura[1], K. Yunokuchi[1]. [1]Dept of BioEng, Kagoshima Univ, Kagoshima, Japan.

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DOES WHOLE BODY EXPOSURE OF RATS TO MICROWAVES EMITTED FROM A CELL PHONE AFFECT THE TESTES? A. Mowla[1]. [1]Shiraz Univ of Medical Sciences, Shiraz, Iran.

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RADIOFREQUENCY ELECTRIC FIELD EXPOSURE ANALYSIS ACCORDING TO TIME IN INDOOR ENVIRONMENTS OF DOWNTOWN. J. Choi[1], N. Kim[1], S. Park[1], S. Hong [2], S. Choi[3]. [1]Computer & Communication Eng, Chungbuk Nat'l Univ, Cheong-ju, South Korea. [2]Occupational Health & Safety Eng, College of Biomedical Science & Eng, Inje Univ, Kimhae, South Korea. [3]Inst of Env and Industrial Medicine, College of Medicine, Hanyang Univ, Seoul, South Korea.

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ANALYSIS OF ELECTRIC FIELD EXPOSURE ON THE NEW RF SERVICE IN KOREA. S. Park[1], N. Kim[1], J. Choi[1], S. Lee[1], Y. Kim[2]. [1]Info & Communication Eng, Chungbuk Nat'l Univ, Cheongju, South Korea. [2]Inst of Env and Industrial Medicine, College of Medicine, Hanyang Univ, Seoul, South Korea.

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THEORETICAL AND EXPERIMENTAL BIOEFFECTS RESEARCH FOR HIGH-POWER TERAHERTZ ELECTROMAGNETIC ENERGY. J. McQuade[1], S. Kumru[3], N. Jindra[3], R. Seaman[4], A. Salazar[4], V. Villavicencio[5], C. D. Clark[5], K. Yaws[2], J. Payne[2], R. Thomas[3], W. Roach[2]. [1]AFRL/HEDR, Monument, CO, USA. [2]AFRL/HEDR, Brooks City-Base, TX, USA. [3]AFRL/HEDO, Brooks City-Base, TX, USA. [4]General Dynamics-AIES, Brooks City-Base, TX, USA. [5]Northrop Grumman, Brooks City-Base, TX, USA.

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EFFECTS OF GESTATIONAL EXPOSURE TO 1.95-GHZ W-CDMA SIGNAL OF IMT-2000 CELLULAR PHONES: EMBRIOTOXICITY AND TERATOTOXICITY IN RATS. T. Shirai[1], M. Kawabe[1], S. Watanabe[1], K. Wake[1], O. Fujiwara[1], J. Wang[1], S. Tamano[1]. [1]Experimental Pathology and Tumor Biology, Nagoya City Univ Graduate Sch of Medical Sciences, Nagoya, Japan.

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THE DOSIMETRY SIMULATION PIPELINE. A. R. Curran[1], D. Silver[2], D. A. Nelson[3], M. A. Hepokoski[1]. [1]ThermoAnalytics, Inc., Calumet, MI, USA. [2]Dept. of Electrical and Computer Eng, Rutgers, Piscataway, NJ, USA. [3]Mechanical Eng Dept, Univ of South Alabama, Mobile, AL, USA.

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MODELING THE BRAIN FOR THE CALCULATION OF INDUCED CURRENTS: SEGMENTED VS. MEASURED DATA. A. Barchanski[1], M. Sekino[2], E. Gjonaj[1], T. Weiland[1], S. Ueno[3], H. Ohsaki[2]. [1]Institut fuer Theorie Elektromagnetischer Felder, Technische Universitaet Darmstadt, Darmstadt, Germany. [2]Dept of Advanced Energy, Graduate Sch of Frontier Sciences, The Univ of Tokyo, Tokyo, Japan. [3]Dept of Applied Quantum Physics, Graduate Sch of Eng, Kyushu Univ, Fukoka, Japan.

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SIMULATIONS OF A MAPPING STUDY OF THE MOTOR CORTEX. A. Barchanski[1], S. Suwelack[1], M. Landgrebe[2], B. Langguth[2], P. Eichhammer[2], E. Gjonaj[1], T. Weiland[1]. [1]Institut fuer Theorie Elektromagnetischer Felder, Technische Universitaet Darmstadt, Darmstadt, Germany. [2]Dept of Psychiatry, Univ of Regensburg, Regensburg, Germany.

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DYNAMICAL MODELLING OF EXPOSURE TO MILITARY HAWK RADAR RADIATED FIELDS. B. Stockbroeckx[1], T. Colette[1], E. Degrave[2]. [1]Microwave Laboratory, Univ of Louvain, Louvain-la-Neuve, Belgium. [2]Epidemiology & Biostatistics, ACOS WB, Brussels, Belgium.

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THERMAL MODELING OF A FREE SPACE EXPOSURE SYSTEM FOR ON-LINE MONITORING OF CATECHOLAMINE RELEASE FROM CHROMAFFIN CELLS EXPOSED TO MICROWAVE FIELDS. R. Misra[3], I. Chatterjee[1], J. Yoon[1], D. McPherson[1], G. L. Craviso[2]. [1]Electrical Eng, Univ of Nevada, Reno, Reno, NV, USA. [2]Dept of Pharmacology, Univ of Nevada, Reno, Reno, NV, USA. [3]Dept of Electrical Eng, Univ of California, Los Angeles, Los Angeles, CA, USA.

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COMPLEX PERMITTIVITIES MEASUREMENTS OF OCULAR TISSUES IN QUASI-MILLIMETER AND MILLIMETER WAVE BANDS. H. Wakatsuchi[1,2], M. Hanazawa[2], T. Sakai[2], S. Watanabe[2], M. Kojima[3,4], Y. Yamashiro[4], K. Sasaki[4], O. Hashimoto[1]. [1]College of Science and Tech, Aoyama Gakuin Univ, Sagamihara, Kanagawa, Japan. [2]Biomedical EMC Project, NICT, Koganei, Tokyo, Japan. [3]Dept of Ophthalmology, Kanazawa Medical Univ, Kahoku-gun, Ishikawa, Japan. [4]Division of Vision Research for Env Health, Medical Research Inst, Kanazawa Medical Univ, Kahoku-gun, Ishikawa, Japan.

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STUDYING THE APPLICABILITY OF CPML ABSORBING BOUNDARY CONDITIONS IN FDTD SAR CALCULATIONS. I. Laakso[1], S. Ilvonen[1], T. M. Uusitupa[1]. [1]Electromagnetics Laboratory, Helsinki Univ Tech, Espoo, Finland.

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A NUMERICAL ESTIMATION FOR HUMAN BODY MITIGATION EFFECTS ON IMPLANTABLE CARDIAC PACEMAKER EMI FROM CELLULAR RADIOS USED IN ELEVATORS. T. Hikage[1], H. Louis-Ray[1], Y. Abiko[1], T. Nojima[1], A. Simba[2], S. Watanabe[2], T. Shinozuka[2]. [1]Graduate Sch of Info Science & Tech, Hokkaido Univ, Sapporo, Hokkaido, Japan. [2]Nat'l Inst of Info and Communications Tech, Koganei, Tokyo, Japan.

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BEHAVIOR OF A BRAIN MODEL IN RESPONSE TO SIMPLE AND COMPLEX STIMULI. R. Stodilka[1,2], F. S. Prato[1,2], J. A. Robertson[1, 2], B. Lewden[1], A. Thomas[1,2] [1]Bioelectromagnetics, Imaging, Lawson Health Research Inst, London, ON, Canada. [2]Medical Biophysics, Univ of Western Ontario, London, ON, Canada.

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MULTI-GOAL GENETIC ALGORITHM BASED SAR OPTIMIZATION OF CAD DERIVED MOBILE DEVICE TERMINALS. N. P. Chavannes[1], F. J. Nunez[2], E. Ofli[2], E. Cherubini[2], N. Kuster[1]. [1]IT'IS Computational Electromagnetics Group, IT'IS Foundation, Zurich, Zurich, Switzerland. [2]Software/Numerics R&D, SPEAG, Zurich, Zurich, Switzerland.

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HIGHLY ACCURATE HEAD MODEL FOR BIOELECTRIC AND RADIOFREQUENCY FIELD CALCULATIONS. M. Hannula[1], N. G. Narra[1], T. Arola[1], J. Keshvari[2], J. Hyttinen[1]. [1]Ragnar Granit Inst, Tampere Univ of Tech, Tampere, Finland. [2]Nokia Research Center, Helsinki, Finland.

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MICRODOSIMETRY OF A MULTILAYERED CELL MODEL WITH NON-CONCENTRIC NUCLEOLI. Z. Wang[1], Y. Alfadhl[1], X. Chen[1]. [1]Electronic Eng, Queen Mary, Univ of London, London, UK.

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A SOFTWARE INTERFACE FOR SIMULATED EMF STIMULATION OF A THALAMIC BRAIN MODEL. B. Lewden[1], R. Stodilka[1, 2], F. S. Prato[1, 2], J. A. Robertson[1, 2], A. W. Thomas[1, 2]. [1]Imaging Program, Lawson Health Research Inst, London, ON, Canada. [2]Medical Biophysics, Univ of Western Ontario, London, ON, Canada.

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COMPUTATION OF COMPLIANCE REGION NEAR THE PASSIVE RFID READER ANTENNA OPERATING IN THE FREQUENCY 900MHZ. J. Park[1], N. Kim[1], N. Kim[2]. [1]ETRI, Daejeon, South Korea. [2]Chungbuk Nat'l Univ., Cheongju, South Korea.

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ESTIMATING THE TISSUE WATER CONTENT FROM MAGNETIC RESONANCE IMAGES, PHANTOM DESIGN. T. Voutilainen[1], T. Arola[1], J. Keshvari[2], J. Hyttinen[1]. [1]Tampere Univ of Tech, Tampere, Finland. [2]Nokia, Helsinki, Finland.

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NUMERICAL ASSESSMENT OF HUMAN EXPOSURE TO MF AND HF BROADCAST ANTENNAS. A. Martin[1], R. Villar[1], M. Martínez-Búrdalo[1]. [1]Instituto de Física Aplicada, Consejo Superior de Investigaciones Científicas (CSIC), 28006 - Madrid, Madrid, Spain.

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PHOTON CHEMISTRY: THE MASS OF THE PHOTON. T. Fleming[1]. [1]Biophotonics Research Inst, Highett, VIC, Australia.

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