BIological Effects of EMFs

Proceedings
A: CONTRIBUTED PAPERS (ORAL SESSIONS)

Plenary Session: Mechanisms for Action of EMFs on biological systems (1)

P1I:1 Lednev’s Parametric Resonance mechanism (PRM) revisited
C.Polk and S.Wu:

P1I:2 Low-Frequency Ion Resonances in Biology
A.R.Liboff

P1I:3 Physical basis of primary detection of magnetic and modulated electromagnetic fields by biological macromolecules
M.N.Zhadin:

P1I:4 Integrated Interaction Models in Bioelectromagnetism
S.Bruna, M.Liberti, S.Giordano, E.Moggia, B.Bianco, G.D’Inzeo

P1I:5 Changes in Gap-Junction Communication and in neurite growth caused by ELF and static magnetic fields
C.Blackman

Session A1: Field modeling - simulation of biological objects

A1:1 E-field evaluation in the near and Fresnel regions of dipoles array antennas
L.Cristofooretti, A. Veccuri, C.Lodi, C.Malacame and R.Pontalti

A1:2 RF field calculation: on the use of radiation pattern data
R.Pontalti, C.Malacame, A.Vaccari and L.Cristofooretti

A1:3 Modeling microwave radiation absorption in the eye

A1:4 Using the visible human data set for Finite-Difference Time-Domain calculations

Session B1: Measurement - Assessment of EMFs (1)

B1:1 Power frequency electric and magnetic fields in hydro power stations
M.Israel, M.Ivanova

B1:2 Radiation intensity of the approach Radar at "N.Kazantzakis" airport, Heraklion, Crete
A.D.Maroyis, C.J.Veranopoulos, Ph.Constantinou

B1:3 Electromagnetic field level in front of video display terminals (VDTs)
M.Ranisavljevic

B1:4 Magnetic fields generated by electric trains
Session A2: Biological Laboratory Studies (1)

A2:1 Potential genotoxic effects in human blood cells exposed to 50Hz electromagnetic fields
E.Cordelli, M.C.Bugueno Huerta, G.Lovisolo, C.Marino, L.Stronati, P.Villani and A.Testa

A2:2 A static magnetic field reduces neuronal swelling and death produced by kainic acid

A2:3 EMF influence on neurite outgrowth in vitro
E.Herbst, P.Resig, S.Ranney, B.F.Sisken

A2:4 Static magnetic fields influence neurite outgrowth from central and peripheral neurons in vitro
B.F.Sisken, P.Midkiff, A.Twehues and R.Trumbo

A2:5 Burst activity in pulse flows of cortex neuron populations under low-intensity microwave
Chizhenkova R.A

Session B2: Interaction mechanisms - Assessment - Modeling of Biological Objects

B2:1 Assessment of biologically plausible exposure parameters for complex-spectra transport magnetic fields
N.Ptitsyna, Y.Kopytenko, V.Ismagyilov, M.Tyasto, E.Kopytenko

B2:2 Electric-field ion cyclotron resonance detection of the geomagnetic field in the optic tectum of the bird
A.R.Liboff, K.A.Jenrow

B2:3 Limiting constraints on "magnetic therapy" efficacy arising from potential physical interaction mechanisms
A.R.Liboff

B2:4 Inductive-capacitive model of the cardiaelectrogenese
A.N.Volobuev, P.I.Romanchuk, A.U.Bakhito

B2:5 Realistic modeling of the hand of a mobile phone user with the method of moments
F.J.C.Meyer, DB le Roux and KD Palmer

Session A3: Mechanisms for Action of EMFs on biological systems (2)

A3:1 Electromagnetic fields accelerate charge transfer reactions
M.Blank and L.Soo

A3:2 Biologically based safety standards for cell phones: Important differences in cellular responses to heat and magnetic fields
R.Goodman, M.Blank

A3:3 A biophysical model for the action of EMFs on cells

A3:4 Tunable diode-laser spectroscopy of the para- and ortho-water vapour as a tool for investigation of metastable states of liquid water
V.N.Binhi, E.V.Stepanov

A3:5 EMF exposure and cell signaling pathways
K.Nie, V.Martirosyan, Q.Tao and A.S.Henderson

Session B3: Biological Laboratory studies (2)

B3:1 Pulsed microwave effects on rat embryos
Th.D.Xenos, Th.Tsiligianni, T.Gioultsis, I.N.Magras, Th.Tsiboukis

B3:2 Very low power density pulsed microwave effects on quail embryos
Th.D.Xenos, I.N.Magras, A.F.Pourlis

B3:3 The effect of 144 MHz frequency electromagnetic field on the blood parameters and behaviours of rats
G.Kalkan, T.Kalkan, A.Morgul, A.Korpinar

B3:4 A histopathological study on the effect of 50Hz horizontally polarized magnetic fields on DMBA-induced mammary gland tumors in rats

B3:5 ELF EM field with different exposure periods has effect on collagen synthesis, blood biochemistry, radicals and enzymes
G.Guler and N.S.Atalay

Session A4: Biological Laboratory studies (3)

A4:1 Summary of World Wide studies related to cellular telephony and cancer
M.L.Swicord and J.J.Morrissey

A4:2 Radio frequency electromagnetic radiation at 900MHz, within "safety levels", alters the physiological function of insects

A4:3 Proteomic approach towards determining cellular response to RF-EMF exposure: A pilot study
D.Leszczynski, S.Joenväääärä

A4:4 High SAR exposure of 24 rats at 900MHz: problems of temperature limits and uniform field distribution
J.Streckert, A.Bitzi, V.Hansen, J.Buschromm

A4:5 In vivo potential effects of 900MHz exposure on antigen-specific immune response
C.Pioli, L.Gatta, P.Galloni, D.Asta, V.Ubaldi, C.Marino

Session B4: Related Studies

B4:1 The effect of the meniscus at the solid - liquid interface on the SAR distribution in Petri dishes and flasks
J.Schuderer, N.Kuster

B4:2 Image processing in detecting biological effects of electromagnetic fields
M.Tzaphlidou

B4:3 Collagen as a biological dosimeter for γ - irradiation
M.Tzaphlidou

B4:4 In vivo / in situ measurements of pig brains for determining dialectric property changes in the time period around death
G.Schmid, G.Neubauer, F.Alesch, U.M.Ilievich
B4:5  The use of protective earth as a distributor of fields and radiation
M.Lundmark, J.Hagelberg, An.Larsson, M.Bystrom, Ak.Larsson

Session A5: Field modeling - simulation of biological objects (2)

A5:1  Numerical and experimental comparison of human head models for SAR assessment
A.Christ, N.Chavannes, K.Pokovic, H-U.Gerber, N.Kuster

A5:2  Advantages and limitations of FDTD subgrid schemes for EM transmitters interacting with complex dielectric lossy structures
N.Chavannes and Niels Kuster

A5:3  Electromagnetic exposure of mobile phone users: Assessment of temperature rise in the tissues
Th.Samaras, G.I.Krikelas, J.N.Sahalos

A5:4  A pulsed microwave power density distribution study on chicken embryos during the prehatching period
Th.D.Xenos and I.N.Magras

Session B5: Measurement - Assessment of EMFs (2)

B5:1  Quality control of measurements in definite effect of EM radiation
K.Zhelev

B5:2  Electromagnetic fields in surgery
M.Israel, P.Tchobanov

B5:3  Methodology for risk evaluation from the electromagnetic field exposure in research laboratories
A.Russo

B5:4  Risk evaluation for electrotherapy equipments: shortwave, microwave and magnetic therapy
R.Delia, A.A.Russo

Session C5: EMFs as Stress factor - psychological - sociological studies - National Policy

C5:1  EMF as a low-level physical stressor
J.Lass, V.Tuulik, R.Riisalo, R.Ferenets and H.Hinrikus

C5:2  Electrophobia and radio-frequency radiation scare
M.Z.Netzer

C5:3  National system for training in risk perception and communication connected with EMF exposures - preliminary project
M.Israel, V.Zaryabova

L.Camarinopoulos, E.Karabetsos, K.Halkiotis

Session A6: Mechanisms for Action of EMFs on biological systems (3)

A6:1  Interaction mechanisms between weak low frequency magnetic fields and
calcium channel proteins - a test of the ion magnetic resonance model

A6:2 Low-level microwave effects on nervous system
H.Hinrikus, J.Lass, K.Meigas and V.Tuulik

A6:3 Time-varying and static magnetic fields in therapeutic applications: A unified theory for weak EMF bioeffects
A.A.Pilla, D.J.Muehsam and M.S.Markov

A6:4 Thermodynamics of isothermal processes of EM radiation and practical conclusions
Yu.P.Chukova

A6:5 Non-thermal bioeffects of RF Radiation: What are they?
J.De Lorge

Session B6: Biological Laboratory Studies (4)

B6:1 Potassium ion cyclotron resonance magnetic fields stimulate germination
S.D.Smith, A.R.Liboff, B.R.McLeod

B6:2 Static magnetic field generated by a 0.5T MRI unit affects release on TNF-alpha from J774 cells
A.Lo Casto, S.Salerno, N.Caccamo, M.De Maria, A.E.Cardinale

B6:3 The appearance of multinucleated giant cells after a whole body microwave irradiation of rats
I.Trosic, J.Radalj, M.Matausic-Pisl, I.Busljeta

B6:4 Biological response of junctional complexes to magnetic field exposure in differentiated HT-29 cell culture
Z.Somosy, A.Telbisz, Gy.Thuroczy, G.J.Koteles

Plenary Session II : Extended duration talks

PIII:1 Electrophobia, or why are people REALLY scared of Electromagnetic fields
E.Joffe

PIII:2 Assessment of exposure to 50Hz magnetic field on rat and human circadian system
Y.Touitou, B.Selmaoui and Lambrozo

PIII:3 Magnetic and electromagnetic fields - a new frontier in clinical biology and medicine
M.Markov

PIII:4 Risk communication to tools for EMF issues
B.Klauenberg

Session A7: Field modeling - simulation of biological objects (3)

A7:1 Performance evaluation of a new method for determining tissue equivalent liquid permittivity
A.P.Sihvonen, T.Toivo, A.Toropainen, P.Vainikainen and A.Drossos

A7:2 Mathematical modeling of human body exposed to electromagnetic field
L.F.Zybanova, M.Rezinkina, O.Rezinkin

A7:3 Electromagnetic exposure of mobile phone users: a model analysis
T.Samaras, G.I.Krikelas, J.N.Sahalos
A7:4 Ellipsoid models for human and Guinea pigs exposed to magnetic fields
A.G.Canseven, N.S.Atalay

Session B7: Measurement - Assessment - Modeling of EMFs (3)

B7:1 Overhead and underground power line electric and magnetic field reduction techniques
G.Filippopoulos, D.Tsanakas, G.Kouvarakis

B7:2 Statistical characterization of the terminal voltages of a transmission line embedded in multi-layered media excited by an oblique electromagnetic wave
P.T.Trakadas, P.J.Papakanellos, C.N.Capsalis

B7:3 Magnetic field characterization inside the new Italian high speed train
C.Caruso, M.Feliziani

B7:4 Graphic method of determining the maximal radius of safety zones around TV-relay-stations emitting antennae
M.Vatzov, M.Israel

B8:5 Combined measurement of electric and magnetic fields at home and in the office for understanding better their effect to health
A. Pantinakis, N. Skamnakis

Session C7: Epidemiological - Statistical - Assessment Studies

C7:1 Maternal exposure to EMF from power lines and pregnancy outcomes; A population based study
K.G.Blaasaas, T.Tynes, R.T.Lie

C7:2 A pilot study of residential exposure to extremely low frequency MF for the Italian epidemiologic study of risk factors for childhood cancer (SETIL)

C7:3 The efficacy of electromagnetic fields in patients with lumbal radiculopathy
M.Walzl, Ch.Thuile

C7:4 Exposure to static magnetic field in hospitals with MRI unit
M.Hrnjak, D.Zivkovic, B.Vulevic, M.Ranisavljevic

Session A8: Biological Laboratory Studies (5)

A8:1 Periodic change of the geomagnetic field's direction influences the visual sensitivity in man
F.Thoss, B.Bartsch, M.Thoss

A8:2 Circularly polarized 50Hz magnetic flux densities of 96 µT do not influence cutaneous microcirculation of the thumb in healthy human volunteers and in persons suffering from self-reported electromagnetic hypersensitivity
J.Reißenweber, F.Wenzel, E.David and J.Grote
A8:3 Migratory behavior and motility of peripheral human lymphocytes in 50Hz magnetic flux densities of up to 10 µT
E.David, J.Reißenweber and F.Gholamrezaei

A8:4 Immune response of guinea pigs to ac magnetic field
A.G.Canseven, N.S.Atalay, S.Mirshahidi, T.Imir

A8:5 Effects of extremely low-frequency pulsed electromagnetic fields on formation of osteoclast-like cells
K.Tzu-Yang Chang, Mei-Ling Wu, Chung Shih, Walter H.Chang

Session B8: Biological laboratory Studies (6): Endogenous electric fields in living organisms

B8:1 Endogenous Electric Fields during Development, Regeneration and Wound healing
R.Nuccitelli

B8:2 An outwardly directed ionic current, mark the location of limb development in the avian and murine limb
A.M.Altizer, L.J.Moriarty, S.M.Bell, C.M.Schreiner, W.J.Scott, R.B.Borgens

B8:3 Effect of physiological electric fields on corneal epithelial cell behaviour
M.Zhao, J.V.Forrester, C.McCaig

B8:4 Guidance of neuronal growth cones and epithelial cells by combinations of dc electric fields and substratum tomography
A.Rajnicek

Session C8: Biological Laboratory Studies (7)

C8:1 Effects of 50Hz sinusoidal waveform magnetic field on dehydrated rats body temperature
H.Abdelmelek, S.Chater, R.Smirani, A.M'Chirgui, C.Ben Jeddou, M.Ben Salem and M.Sakly

C8:2 Effect of pulsed microwaves on the population spike in rat hippocampal slices
A.G.Pakhomov and J.Doyle

C8:3 Does 50Hz magnetic field alter the pentylentetrazol - induced seizures?
A.G.Canseven, Z.A.Keskil, S.Keskil, N.S.Atalay

C8:4 The effect of 50Hz frequency sinusoidal magnetic field on immune system of young - old female and male rats
H.Tuncel, M.T.Kalkan, I.Bayrak, G.Dogusoy

C8:5 Absence of effects of 2.45 GHz microwaves on physical endurance, motivational levels and cardiovascular functions
S.T.Lu, S.P.Mathur, Y.Akyel

B: CONTRIBUTED PAPERS (POSTER SESSION)

1. Effects of 1.4 to 14 mTrms circularly, or 1 to 10 mTrms linearly polarized magnetic fields on macrophage phagocytosis
H.Kubota, I.Nishimura and T.Negishi
2. The method of bio-liquid dehydration self-organization in studies into the low-intensity electromagnetic fields therapeutic effect

3. Changes of cytokine levels and leukemia development in akr mice exposed to 50Hz, 350 micro Trms, circularly polarized magnetic field for 6 to 30 weeks
I. Nishimura, H. Kubota, and T. Negishi

4. In vitro exposure systems operating at 900 and 1800 MHz
G.A. Lovisolo, D. Asta, L. Ciammetti, S. Mancini, C. Marino, R. Pinto and G. D'Inzeo

5. Biological endpoints in EMF treated glioma: Relationship to carcinogenesis

6. Response of mice to complex-spectra magnetic field exposure

7. Exposure facility for generation and control of "Real-World" Complex-spectra 3-axes magnetic field

8. Increased mortality for myocardial infraction in Swiss railway workers

9. Measurement and control of electromagnetic fields and eolig energy in navarre, Spain
J.L. Bardasano, J. Alvarez-Ude, J.I. Elorrieta, L. Arana

10. Influence of 50Hz Electromagnetic fields in combination with ionizing radiation on the cell cycle progression and on proteins involved in G1/S transition in two human cell lines
S. Lange, D. Richard, T. Viergutz, R. Kriehuber, M. Simko

11. Comparison of the effects of ionizing radiation and electromagnetic fields on the immune system
A. Dehos and J. Brix

12. Effects of 50Hz electromagnetic field exposure on proliferation, apoptosis and differentiation of a neuroblastoma cell line
A. Negroni, G.A. Lovisolo, L.F. Mosiello, C. Laconi and C. Marino

13. Residential exposure to 50Hz magnetic fields
M. Crasson, P. Pirotte, F. Roge, M.T. Hagelstein, J.J. Legros

14. Power frequency magnetic fields inhibit retinol-induced growth of human hepatocardinoma cells
M.A. Trillo, M.A. Martinez, M.A. Cid. A. Ubeda, L. Chacon and J. Leal