



Recent scientific publications relevant to mobile telephony

June 2013

Details

Belgium: Exposure optimization in indoor wireless networks by heuristic network planning. Progress In Electromagnetics Research, [Plets et al., Progress In Electromagnetics Research](#), 139(445-478), 2013.

'...it is shown that exposure minimization is more effective for high than for low throughput requirements and that high field values are more reduced than low field values.'

Belgium: Stochastic method for determination of the organ-specific averaged SAR in realistic environments at 950 MHz, [Thielens et al., Bioelectromagnetics](#), Published online: 10 June 2013.

'...There is no fixed worst-case polarization for all organs, and a single plane-wave exposure condition that exceeds 91% of the SAR_{0.05} values in a certain environment can always be found for the studied organs.'

Brazil: Assessment of nuclear abnormalities in exfoliated cells from the oral epithelium of mobile phone users, [Souza et al., Electromagnetic Biology and Medicine](#), Posted online on May 28, 2013.

'...The occurrences of micronuclei and degenerative nuclear abnormalities did not differ between the groups, but the number of broken egg (structures that may be associated with gene amplification) was significantly greater in the individuals in group I ($p < 0.05$).'

China: p25/CDK5 is partially involved in neuronal injury induced by Radiofrequency Electromagnetic Field exposure, [Zhang et al., International Journal of Radiation Biology](#), Posted online on June 20, 2013.

'...These results suggest that abnormal activity of p25/CDK5 is partially involved in primary cultured cortical neuron injury induced by RF-EMF exposure.'

Finland: Electromagnetic hypersensitive Finns: Symptoms, perceived sources and treatments, a questionnaire study, [Hagström et al., Pathophysiology](#), 20(2):117-122, April 2013.

'...According to the present results the official treatment protocols should take better account the EHS person's own experiences. The avoidance of electromagnetic radiation and fields effectively removed or lessened the symptoms in EHS persons.'

France: In Situ Expression of Heat-Shock Proteins and 3-Nitrotyrosine in Brains of Young Rats Exposed to a WiFi Signal In Utero and In Early Life, [Aït-Aïssa et al., Radiation Research](#), Published Online: May 10, 2013.

'...No significant difference was observed among exposed and sham-exposed groups. These results suggest that repeated exposure to WiFi during gestation and early life has no deleterious effects on the brains of young rats.'

France: Vestibular schwannoma and cell-phones. Results, limits and perspectives of clinical studies, [Mornet et al., European Annals of Otorhinolaryngology, Head and Neck Diseases](#), Available online 28 May 2013.

'...No clinical association has been demonstrated between cell and cordless phone use and vestibular schwannoma. Existing studies are limited by their retrospective assessment of exposure.'

Greece: Reactive oxygen species elevation and recovery in Drosophila bodies and ovaries following short-term and long-term exposure to DECT base EMF, [Manta et al., Electromagnetic Biology and Medicine](#), Posted online on June 19, 2013.

'...It is postulated that the pulsed (at 100Hz rate and 0.08ms duration) idle state of the DECT base radiation is capable of inducing free radical formation albeit the very low SAR...'

India: Therapeutic approaches of melatonin in microwave radiations-induced oxidative stress-mediated toxicity on male fertility pattern of Wistar rats, [Meena et al., Electromagnetic Biology and Medicine](#), Posted online on May 15, 2013.

'...These results concluded that the melatonin has strong antioxidative potential against MW induced oxidative stress mediated DNA damage in testicular cells.'

Iran: Health effects of living near mobile phone base transceiver station (BTS) antennae: a report from Isfahan, Iran, [Shahbazi-Gahrouei et al., Electromagnetic Biology and Medicine](#), Posted online on June 19, 2013.

'...The results showed that most of the symptoms such as nausea, headache, dizziness, irritability, discomfort, nervousness, depression, sleep disturbance, memory loss and lowering of libido were statistically significant in the inhabitants living near the BTS antenna (<300m distances) compared to those living far from the BTS antenna (>300m)...'

Iran: Effects of 940 MHz EMF on Luciferase Solution: Structure, Function, and Dielectric Studies, [Sefidbakht et al., Bioelectromagnetics](#), Published online: 30 April 2013.

'...direct interactions with luciferase molecules and its dipole moment were responsible for the reduced aggregation and enhanced luciferase activity upon exposure to the EMF.'

Ireland: A Comparison of RF Exposure in Macro- and Femtocells, [Zarikoff et al., Health Physics](#), 105(1):39-48, July 2013.

'...Contrary to many individuals' initial feeling that putting a base station in your home would increase exposure, these findings indicate that having a femtocell in the home will often reduce the mobile handset user's exposure to radiofrequency energy.'

Italy: SAR Exposure From UHF RFID Reader in Adult, Child, Pregnant Woman, and Fetus Anatomical Models, [Fiocchi et al., Bioelectromagnetics](#), Published online: 23 April 2013.

'...The SAR levels in the adults and children were below 0.02 and 0.8W/kg in whole-body SAR and maximum peak SAR levels, respectively, for all tested positions of the antenna. On the contrary, exposure of pregnant women and fetuses resulted in maximum peak SAR10g values close to the values suggested by the guidelines (2W/kg) in some of the exposure scenarios with

the antenna positioned in front of the abdomen and with a 100% duty cycle and 1W radiated power.'

The Netherlands: Investigating short-term exposure to electromagnetic fields on reproductive capacity of invertebrates in the field situation, [Vijver et al., *Electromagnetic Biology and Medicine*](#), Posted online on June 19, 2013.

'...No significant impact of the exposure matrices, measures of central tendency and temporal variability of EMF, on reproductive endpoints was found...'

Poland: Reaction of the immune system to low-level RF/MW exposures, [Szmigielski, *Science of The Total Environment*](#), 454-455(0):393-400, 1 June 2013.

'...Certain premises exist which indicate that, in general, short-term exposure to weak MW radiation may temporarily stimulate certain humoral or cellular immune functions, while prolonged irradiation inhibits the same functions.'

South Korea: Effects of Whole-Body Exposure to 915 MHz RFID on Secretory Functions of the Thyroid System in Rats, [Kim et al., *Bioelectromagnetics*](#), Published online: 6 June 2013.

'...No changes in T3, T4, or TSH were observed over time between the sham- and RFID-exposed groups. We suggest that subchronic exposure to 915MHz RFID at a SAR of 4W/kg does not cause significant effects on thyroid secretory function.'

Sweden: SAR Study of Different MIMO Antenna Designs for LTE Application in Smart Mobile Handsets, [Zhao et al., *IEEE Transactions on Antennas and Propagation*](#), 61(6):3270-3279, June 2013.

'...The simulations are carried out on both an SAM head phantom and a flat phantom by CST 2011, and measurements on the flat phantom are made with iSAR and DASY4 to verify the accuracy of our simulations.'

Turkey: Long-term effects of 900 MHz radiofrequency radiation emitted from mobile phone on testicular tissue and epididymal semen quality, [Tas et al., *Electromagnetic Biology and Medicine*](#), Posted online on June 19, 2013.

'...we claim that long-term exposure of 900MHz RF radiation alter some reproductive parameters. However, more supporting evidence and research is definitely needed on this topic.'

Turkey: Evaluation of the cytogenotoxic damage in immature and mature rats exposed to 900 MHz radio frequency electromagnetic fields, [Sekeroglu et al., *International Journal of Radiation Biology*](#), Posted online on May 29, 2013.

'...Significant differences were observed in chromosome aberrations (CA), micronucleus (MN) frequency, mitotic index (MI) and ratio of polychromatic erythrocytes (PCE) in all treatment and recovery groups. The cytogenotoxic damage in immature rats was statistically higher than the mature rats...'

USA: Incidence of micronuclei in human peripheral blood lymphocytes exposed to modulated and unmodulated 2450 MHz radiofrequency fields, [Vijayalaxmi et al., *Bioelectromagnetics*](#), Published online: 29 May 2013.

'...(i) the incidence of MN was similar in incubator controls, and those exposed to RF/sham and Mel alone; (ii) there were no significant differences between WCDMA and CW RF exposures; (iii) positive control cells exposed to GR alone exhibited significantly increased MN; and (iv) Mel treatment had no effect on cells exposed to RF and sham, while such treatment significantly reduced the frequency of MN in GR-exposed cells.'

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