



Recent scientific publications relevant to mobile telephony

May 2009

Details

Finland: Assessment of the computational uncertainty of temperature rise and SAR in the eyes and brain under far-field exposure from 1 to 10 GHz, [Laakso, Physics in Medicine & Biology](#), 54(11):3393-3404, 7 June 2009.

'...Limiting the incident plane-wave power density to smaller than 100 W m^{-2} was sufficient for ensuring that the temperature rise in the eyes and brain were less than $1 \text{ }^\circ\text{C}$ in the whole frequency range.'

Global: The Precautionary Principle in the Context of Mobile Phone and Base Station Radiofrequency Exposures, [Dolan and Rowley, Environmental Health Perspectives](#), Online 18 May 2009.

'...We argue that conservative exposure standards, technical features that minimise unnecessary exposures, ongoing research, regular review of standards and availability of consumer information make mobile communications inherently precautionary. There are common sense measures that can be adopted by individuals, governments and industry to address public concern while ensuring that mobile networks are developed for the benefit of society.'

Greece: Reproductive and developmental effects of EMF in vertebrate animal models [Pourlis, Pathophysiology](#), Available online 7 March 2009.

'...According to the majority of the investigations, no strong effects resulted regarding the exposure to EMF of mobile telephony in the animal reproduction and development...'

INTERPHONE: Determinants of mobile phone output power in a multinational study - implications for exposure assessment, [Vrijheid et al., Occupational & Environmental Medicine](#), Published Online First: 21 May 2009.

'...Average power levels are substantially higher than the minimum levels theoretically achievable in GSM networks. Exposure indices could be improved by accounting for average power levels of different telecommunications systems...'

Italy: Assessment of SAR in the tissues near a cochlear implant exposed to radiofrequency electromagnetic fields, [Sibella et al, Physics in Medicine & Biology](#), 54(8):N135-141, 21 April 2009.

'...Results show that the presence of a CI inside the cochlea produces negligible variations in the averaged SAR values, both in the head and in the cochlear tissues...'

Italy: Continuous exposure to 900MHz GSM-modulated EMF alters morphological maturation of neural cells, [Del Vecchio, et al, Neuroscience Letters](#), 455(3): 173-177, 22 May 2009.

'...We found that RF-EMF exposure reduced the number of neurites generated by both cell systems, and this alteration correlates to increased expression of β -thymosin mRNA.'

Japan: Influence of Use Conditions and Mobile Phone Categories on the Distribution of Specific Absorption Rate in Different Anatomical Parts in the Brain, [Varsier et al., Microwave Theory and Techniques](#), IEEE Transactions on, 57(4, Part 1):899-904, April 2009.

'...The temporal lobe was generally the part with the highest exposure to RF, except for flip-type phones with the antenna on top extended. Occipital lobe and cerebellum were generally the second-highest exposed parts; exposure of parietal and frontal lobes were generally low, except for flip-type phones with the antenna in the center...'

Japan: Specific Absorption Rates of Anatomically Realistic Human Models Exposed to RF Electromagnetic Fields From Mobile Phones Used in Elevators, [Simba et al., IEEE Transactions on Microwave Theory and Techniques](#), 57(5, Part 1):1250-1259, May 2009.

'...the maximum values of the whole-body average and peak spatial-average SAR were 4.4% and 78% of the international RF safety guideline, respectively.'

Japan: Modeling time variation of blood temperature in a bioheat equation and its application to temperature analysis due to RF exposure, [Hirata et al., Physics in Medicine & Biology](#), 54(10):N189-N196, 21 May 2009.

'...The computational uncertainty in the core temperature elevation was found to be reasonable when a proper scheme for computing the net rate of heat acquisition by blood from body tissue was introduced.'

Russia: The puzzle of magnetic resonance effect on the magnetic compass of migratory birds, [Kavokin, Bioelectromagnetics](#), Published Online: 16 Mar 2009.

'...the consistent analysis shows that the amplitudes of the RF fields used are far too small to noticeably influence electron spins in organic radicals...'

Switzerland: Temporal and spatial variability of personal exposure to radio frequency electromagnetic fields, [Frei et al., Environmental Research](#), Available online 23 May 2009.

'... Exposure to RF-EMF varied considerably between persons and locations but was fairly consistent within persons. Mobile phone handsets, mobile phone base stations and cordless phones were important sources of exposure in urban Switzerland.'

Sweden: Exposure to an 890MHz mobile phone-like signal and serum levels of S100B and transthyretin in volunteers, [Söderqvist et al., Toxicology Letters](#), Available online 7 May 2009.

'...Repeated blood sampling before and after the provocation showed no statistically significant increase in the serum levels of S100B, while for transthyretin a statistically significant increase was seen in the final blood sample 60 min after the end of the provocation...The clinical significance of this finding, if any, is unknown...'

Sweden: Disturbance of the immune system by electromagnetic fields—A potentially underlying cause for cellular damage and tissue repair reduction which could lead to disease and impairment [Johansson, Pathophysiology](#), Available online 23 April 2009.

'...it must be concluded that the existing public safety limits are inadequate to protect public health, and that new public safety limits, as well as limits on further deployment of untested technologies, are warranted.'

Sweden: Mobile and cordless telephones, serum transthyretin and the blood-cerebrospinal fluid barrier: a cross-sectional study, [Söderqvist et al., Environmental Health](#), 8(1):19, 21 April 2009.

'...In this hypothesis-generating descriptive study time since first use of mobile telephones and DECT combined was significantly associated with higher TTR levels regardless of how much each telephone type had been used...'

Turkey: The effects of microwave emitted by cellular phones on ovarian follicles in rats, [Gul et al., Archives of Gynecology and Obstetrics](#), Published Online: February 25, 2009.

'...We suggest that the microwaves of mobile phones might decrease the number of follicles in rats by several known and, no doubt, countless unknown mechanisms.'

Ukraine: The influence of differently polarised microwave radiation on chromatin in human cells, [Shckorbatov et al., International Journal of Radiation Biology](#), 85(4): 322 - 329, April 2009.

'...The data obtained in this work demonstrate important biological effects of monochromatic microwave irradiation at 35 GHz...'

USA: Risk factors for leukemia in Thailand, [Kaufman et al., Annals of Hematology](#), Published online: 18 March 2009.

'...There was no clear association with cellular telephone phone use, but durations were relatively short...'

USA: Estimating the risk of brain tumors from cellphone use: Published case-control studies, [Morgan, Pathophysiology](#), Available online 7 April 2009.

'...These are the circumstances where application of the Precautionary Principle is indicated, especially if low-cost options could reduce the absorbed cellphone radiation by several orders of magnitude.'

The MMF is an international association of wireless communications manufacturers established to support scientific research in relation to mobile telephony and health www.mmfai.info

The GSM Association (GSMA) is the global trade association that exists to promote, protect and enhance the interests of GSM mobile operators throughout the world. <http://www.gsmworld.com/health>

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