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Janet Lathrop continues her coverage of the final COST 281 meeting held in Graz, Austria, with an overview of the first day's talks. A number of speakers presented findings on a variety of EMF issues ranging from applications of new mobile phone technologies to genetic toxicology.

RF Gateway
Resource Strategies, Inc., Madison, WI, USA

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Speakers Discuss Variety of EMF Issues

4/24/06---Graz, Austria---Many familiar speakers joined a handful of local experts at the final COST 281 (European Cooperation in the Field of Scientific and Technical Research--Potential Health Implications from Mobile Communication Systems) workshop, "Emerging Technologies, Potential Sensitive Groups and Health," held here last week. The timeliness and importance of the issue was noted by several participants. Emilie van Deventer of the World Health Organization's (WHO) International EMF Project said the workshop was particularly appropriate to recent developments at WHO, where the EMF Project is now part of a re-named unit devoted to energy, technology, and health impacts. Representing the International Commission on Non-Ionizing Radiation Protection (ICNIRP), Maila Hietanen said ICNIRP welcomes discussion about potentially sensitive people. Paolo Ravazzani, the director of EMF-NET, said the workshop topic is a crucial issue for future EMF study, particularly in the context of environmental impact.

Altogether, 17 invited scientists spoke on the first day, beginning with James Lin of the University of Illinois, Chicago. He offered an overview of new technologies and applications such as broadband, ultra-wide band, wireless local area network, radio-frequency identification, and others.

Pharmacist and pharmacologist Peter Dittrich of KF-University Graz, reviewed the literature on the relationship between EMF exposure within international guidelines and therapeutic drugs, concluding that at present there is no indication of a clinically relevant interaction.

In particular, Dittrich said the literature does not indicate an interaction of elevated body temperature (which could be related to RF exposure) on drug therapy under normal circumstances. He mentioned one known interaction---taking psychoactive drugs for treatment of depression makes it more difficult to stimulate the brain with static-frequency transcranial magnetic stimulation (TMS), also for treating depression---but though TMS is an emerging technology, this has no relevance for mobile telecommunications.

Later in the morning, Mays Swicord of Motorola Florida Research Laboratories summarized the evidence that theoretical analysis of EMF physical properties does not provide testable hypotheses of low-level, nonthermal effects. He pointed out that there is an extensive biological database to consult and in his opinion, it shows, as Dittrich and Pessendorfer [see RF Gateway meeting report of April 24, 2006] mentioned, that discussion of human sensitivity must center on the established effects of electrical stimulation and heating. Scores of mechanisms have been evaluated, Swicord noted, but robust physical obstacles such as the damping effect of water and rapid blood circulation that reduces local heating remove any plausible nonthermal mechanism of RF EMF effects on the body.

Swicord supported these statements with a review of the literature. In particular, he pointed to recent studies by Jiri Silny of Aachen University, Germany, and by William Pickard of Washington University, US, who independently predict that no EMF demodulation effects are likely in biological systems.

Swicord stated that more research will only strengthen the weight of "no effects" evidence at low exposure levels. He urged COST 281 participants to let science guide us about what is reasonable and not reasonable in terms of effects of new applications, "not our wishes or wants." He concluded, "For public health, I think we should turn to other issues."

Other speakers of the first day were Norbert Leitgeb of the Technical University of Graz, Austria, who summarized methods of his ongoing EPROS study of sleep quality in people who believe they are affected by EMF from base stations [see RF Gateway news from BEMS meeting of June 23, 2005]. Also, Kjell Hansson Mild of the Swedish Institute for Working Life, Umea, reviewed results of his pooled analysis with Lennart Hardell, Örebro Medical Center, Sweden, of brain tumor risk with mobile phone use [see RF Gateway news of April 3, 2006].

Anton Kolodynski of the University of Latvia reported recent findings in his long-term study of people living within 20 km of the Skrunda, Latvia radar station (154-162 MHz), compared to those who live away from it. Kolodynski said that EMF exposure from the radar installation appears to have depressed baseline nervous system parameters in school girls living in the Skrunda area compared to controls living near Preilli, and compared to boys. Data analysis is ongoing so it is premature to make a final statement, he added. Also, he is continuing to explore whether subjects who grew up near the radar have different baseline scores on various nervous system parameters than their peers elsewhere.

Kolodynski added that the Latvian Council of Sciences has funded a new study of psychophysiological function in children exposed to mobile telecommunications and to explore possible mechanisms.

Joachim Schuz, now of the Danish Cancer Registry in Copenhagen, reported on the German "Watchdog Study" of people who believe they are sensitive to EMF, conducted from October 2003 to March 2005, results of which were recently published [see RF Gateway research summary of March 7, 2006]. And in a later presentation, Dariusz Leszczynski of the Finnish Radiation Protection Authority repeated his belief that high-throughput screening methods, including proteomics, are useful as part of an approach to risk evaluation of health effects of mobile telecommunications. He acknowledged, however, that such large-scale screening should be followed by target validation of the individual proteins.

In the first talk of the afternoon session, Vijayalaxmi of the University of Texas Health Science Center, San Antonio, USA, summarized her 2004 review of the genetic toxicology EMF literature and gave a short tutorial on the 4 major endpoints usually covered in this research area: DNA strand breaks, chromosomal aberrations, micronuclei, and sister chromatid exchanges. She updated her previous findings to the end of 2005, which brought her to a discussion of the controversial findings from the REFLEX program.

According to Vijayalaxmi, the "overwhelming weight of evidence" in vitro and in vivo---based on replication studies, on studies with large sample sizes, and on work using experimentally sound methods---suggests that RF exposure within international guidelines does not cause increased genetic damage. One of the few exceptions comes from the REFLEX program in experiments by Rudiger, Diem, et al. at the University of Vienna, she noted. The Vienna experiments are of doubtful quality and have many methodological limitations, she said. The problems were outlined in a letter she published recently with others [see RF Gateway research summary of January 27, 2006]. Because Diem et al.'s reply in the same journal was "not very convincing," Vijayalaxmi said at this COST meeting that she is now writing a paper to present her detailed objections to Diem et al.'s methods and interpretations.

REPORTED BY: Janet Lathrop, RF Gateway, jlathrop@rs-inc.com