

## Commission K (Electromagnetics in Biology & Medicine) Activity Report

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by

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### 1. Update on EMF safety issue

The third meeting of Japanese URSI-Commission K for the 21<sup>st</sup> term of the Science Council of Japan was held on May 12, 2010, at Akihabara Satellite Campus of Tokyo Metropolitan University

In this meeting, the progress of AP- RASC'10, Toyama, was introduced. After discussion, Dr. Hamaguchi of National Institute of Information and Communication Technology (NICT), Medical ICT Group, gave us very interesting lecture on "ICT technology for Medical Healthcare and Its standardization in IEEE802" as a new research topic. Medical ICT Group is conducting an application of implantable BAN (Wireless Body Area Networks) into medical field. There are many possible applications of BAN technology such as monitoring of electrocardiograph, arterial oxygen saturation and body temperature. Dr. Hamaguchi also pointed out that IEEE 802.15 Task group is developing a communication standard optimized for low power devices and operation on, in or around the human body to serve applications of medical healthcare and consumer electronics. NICT is now active organization for development of BAN technology and for communication standard establishment. In the second presentation, Dr Yamaguchi, National Institute of Occupational Safety and Health, gave us two topics. The first topics is that the seeking of new effect of magnetic stimulation for the biomedical application. Next, she talked about the measurement of DC magnetic fields distribution around MRI equipment and added the comments of the survey of own measured results with the comparison of previously published data. She emphasized, due to the lack of Japanese data, the necessity of the measurement and characterization of DC magnetic field around MRI (up to maximum 7T) from the occupational exposure assessment.

The 32<sup>nd</sup> Annual meeting of the Bioelectromagnetic Society was held in Seoul on 14 to 18, June, 2010. During this meeting, the 2010 d'Arsonval award was presented to Prof Ueno, Past Chair of URSI-K, Professor Emeritus at the University of Tokyo. He contributes to the development of the magnetic field stimulation and the success of the Bioelectromagnetic Society. The member of Japanese URSI-K congratulates him on his award.

As a third topic, the long waited Interphone study was published on May 17, 2010. The Interphone study was conducted in 13 countries, to investigate the relationship between the use of cellular phone and brain tumors (glioma and meningioma) by the epidemiological approaches. Overall, this study did not find an increased in the risks of two tumors in relation to the use of cellular phone. See the paper at

[http://www.oxfordjournals.org/our\\_journals/ije/press\\_releases/freepdf/dyq079.pdf](http://www.oxfordjournals.org/our_journals/ije/press_releases/freepdf/dyq079.pdf)

### 2. Meetings

#### (a) Past meetings

- (1) Progress in electromagnetic Research Symposium (PIERS) 22-26 March 2010, Xi'an, China (<http://piers.mit.edu/piers/>)
- (2) Asia-Pacific Symposium on Electromagnetic Compatibility, 12-16, April 2010, Beijing, China (<http://www/apemc2010.org/>)
- (3) ESHO 26<sup>th</sup> Annual Meeting May 20-22, Rotterdam, The Netherlands (<http://www.sho.info/>)
- (4) EU COST Action Meeting May 25-29, 2010, Bordeaux, France, Joint event with URSI Commission K (<http://www.cost-bm0704.org>) and (<http://www.ursi.org>)
- (5) Pan-Pacific EMC Joint Meeting May 27-28, 2010, Cyberscience Center, Sendai, Japan, <http://www.ieice.org/cs/emci/jpn/international/pan-pacific>

- (6) 28<sup>th</sup> Annual International Symposium on Man and His Environment in Health and Disease (The Chemical Mechanisms leading to ELF Sensitivity), June 3-6, 2010, Double Tree Hotel Dallas, Texas, USA
- (7) 32<sup>th</sup> BEMS Annual Meeting, Seoul KyoYuk MunHwa HoeKwan, June 13-18, 2010, Seoul, Korea. (<http://www.bioelectromagnetics.org/>)
- (8) Progress in Electromagnetics Research Symposium (PIERS) 2020, July 5-8, Cambridge, MA (USA) (<http://piers.mit.edu/piers/>)

(b) Future meetings

- (1) 2010 Asia-Pacific Radio Science Conference, 22-26, September, 2010 Toyama, Japan (<http://www.ap-rasc10.jp/>)
- (2) MobiHealth 2010, International ICST Conference on Wireless Mobile Communication and Healthcare October 18-20, 2010, Ayia Napa, Cyprus, (<http://mobihealth.name/orgncomm.shtml>)
- (3) 5<sup>th</sup> course: "Medical applications of electromagnetic fields". 22-23 November 2010, Erice (Sicily), Italy ([http://www.ebea.org/ebea\\_schol\\_2010.htm](http://www.ebea.org/ebea_schol_2010.htm))
- (4) 10<sup>th</sup> EBEA International Congress, February 21-24, 2011, Rome, Italy ([http://www.ebea.org/ebea\\_2011.htm](http://www.ebea.org/ebea_2011.htm))
- (5) 33<sup>th</sup> BEMS Annual Meeting, June 12-17, 2011, Halifax, Nova Scotia, Canada
- (6) Sixth International Workshop on EMF. October 11-16, 2010, Bodrum, Turkey
- (7) IEEE Antennas and Propagation Society International Symposium and USNC-URSI National Radio Science Meeting, July 8-14, 2012, Chicago, Illinois, USA (<http://www.ece.uic.edu/2012aps-ursi>)

3. Publications

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