

Commission K (Electromagnetics in Biology & Medicine) Activity Report

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by

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1. Update on EMF safety issue

(1) 2nd tentative meeting of Japanese URSI-Commission K for 21st term of the Science Council of Japan

In order to setup the new member of Japanese URSI-Commission K for the 21st term of the Science Council of Japan, the 2nd tentative meeting of Japanese URSI-Commission K was held on May 12, 2009, at the Tokyo Metropolitan University's Akihabara satellite campus, Tokyo.

In this meeting, the preparation and contribution of Japanese URSI-Commission K to AP-RASC'10, Toyama was discussed, and the organization of the Study Group of 30 Young Researchers on Bio-EMF and Technology, cooperating with Japanese URSI-K Commission was also discussed. Prof Taki of Tokyo Metropolitan University, Vice-Chair of Commission-K of the URSI Society, is to be the Chair of this Bio-Research Group.

After considerable discussion, as a new research topic, Dr. Akagi of Department of Bioengineering, School of Engineering, The University of Tokyo, gave us very interesting lecture on "NanoBio Device for cell analysis". His presentation focused on noninvasive cellular analysis using on-chip electrophoresis and brain interface device for long-term observation of neural cell in vivo using 2-photon laser scanning microscopy. These two new analysis techniques are suitable for evaluation of cell properties in cell engineering.

After the start of 21st term of the Science Council of Japan, this tentative commission will serve automatically formal.

(2) Publication

1) Radiofrequency (RF) review document

International Commission on Non-Ionizing Radiation Protection (ICNIRP) published two RF review documents titled, "Exposure to high frequency electromagnetic fields, biological effects and health consequences (100 kHz-300 GHz)", and "Epidemiologic evidence on mobile phones and tumor risk: a review". Two documents address the current scientific evidence concerning exposure to high frequency electromagnetic fields and the resulting consequences for health. The former RF review document is now available for free download on web page (<http://www.icnirp.de/documents/RFReview.pdf>) (ISBN 978-3-934994-10-2) and the latter is obtained from the journal of "Epidemiology" as [doi:10.1097/EDE.0b013e3181b0927d](https://doi.org/10.1097/EDE.0b013e3181b0927d).

2) Guideline of static magnetic field

ICNIRP published the document for the guideline of static magnetic field in Health Physics. The document contains a review of biological effects of static magnetic field as a scientific database for the development of the rationale for the guidelines. This new document supersedes 1994's, which is published by ICNIRP. This guideline applies to occupational and general public exposure to static magnetic fields (it does not apply to the exposure of patients undergoing medical diagnosis or treatment).

The title is "Guidelines on Limits of Exposure to Static Magnetic Fields", which is in Health Physics 96(4), pp.504-514 (2009). The document is also available to download free on web page (<http://www.icnirp.de/documents/statgdl.pdf>).

2. Meetings

(a) Past meetings

- (1) Society for thermal Medicine Annual Meeting. April 3-7, 2009, Tucson, USA (<http://www.thermalmedicine.org>)
- (2) Third International conference of applied electromagnetism CNEA 2009: “Potentialities of Electro-magnetism in Medicine, Agriculture, Industry, and Environment”. May 18-21, Santiago de Cuba, Cuba (<http://cnea.uno.edu.cu/english/indexi.htm>)
- (3) CIGRE International Colloquium: “Power frequency electromagnetic fields-ELF EMF” June 3-4, 2009, Sarajevo, Bosnia & Herzegovina (<http://www.bhkcigre.ba/english/ebhkcigre.htm>)
- (4) WHO IAC (International EMF Project). June 10-11, 2009. Geneva, Switzerland
- (5) BioEM2009: Joint Meeting of The Bioelectromagnetics Society and the European BioElectromagnetics Association. June 14-19, 2009, Davos, Switzerland (<http://bioem2009.org>)
- (6) 12th National Symposium on Radio Science. June 16-21, 2009 Warsaw University of Technology, Warsaw (<http://www.ursi2009.pl>)
- (7) 2009 International Symposium on Electromagnetic Compatibility. July 20-24, 2009. International Conference Center, Kyoto, Japan (<http://www.ieice.org/emc09>)

(b) Future meetings

- (1) Progress in Electromagnetic Research Symposium (PIERS) August 18-21, 2009, Moscow, Russia (<http://piers.mit.edu/piers2k9Moscow/>)
- (2) World Congress 2009 on Medical Physics and Biomedical Engineering. September 7-12, 2009. Munich, Germany (<http://www.wc2009.org>)
- (3) International Conference on Electromagnetics in advanced application (ICEAA 09). September 14-18, 2009, Torino, Italy (<http://www.iceaa.polito.it>)
- (4) 5th Asia-Pacific Conference on Environmental Electromagnetic & Exhibition. September 16-19, 2009, Xi'an, China
- (5) Occupational exposure to electromagnetic fields: paving the way for a future EU initiative. October 6-9. Umea, Sweden (<http://www.av.se/inenglish/aboutus/eu/electromagnetic.aspx>)
- (6) Second scientific meeting of the Health & Radiofrequencies Foundation. October 20-21, 2009, Paris, France
- (7) Asia-Pacific Microwave Conference. December 7-10, 2009, Singapore (<http://www.apmc2009.org>)
- (8) World Congress 2009 on Medical Physics and Biomedical Engineering. September 7-12, 2009, Munich, Germany
- (9) 6th International Workshop of Electromagnetic Compatibility (CEM 2009). November 12-14, 2009, Constanta, Romania
- (10) International Conference on Electromagnetic Fields, Health and Environment – EHE, November 17-19, Guaruja, San Paolo, Brazil
- (11) 32th BEMS Annual Meeting, June 14-18, 2010, Seoul, Korea.
- (12) 33th BEMS Annual Meeting, June 12-17, 2011, Halifax, Nova Scotia, Canada
- (13) Sixth International Workshop on EMF. October 11-16, 2010, Bodrum, Turkey
- (14) 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. Published papers by the member of Japanese Commission K(2008~)

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- Tokuhara Y, Sato F, Matsuki H and Sato T (2008): Examination to improve transmissible range in the transcutaneous energy transmission system for the artificial heart (in Japanese with English summary). *J Magn Soc Japan* 32, pp.430-433.
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