



URSI Meeting of National Commission K Representatives
Monday, 11 Aug 17 17:20 to 18:40; Wed 13 Aug 17:20 to 18:20;
Fri 15 Aug 17:20 to 19:00

AGENDA

- 1.0 Welcome and Introductions – Dr. Frank Prato
- 2.0 Acceptance of Agenda – Dr. Frank Prato
- 3.0 Election of Commission K Vice Chair Election – Dr. Guglielmo D’Inzeo
 - 3.1 Review of Guidelines for Chairs and Vice-Chairs
 - 3.2 Presentations by Vice Chair Candidates
 - 3.2.1 Prof. Masao Taki (Japan)
 - 3.2.2 Dr. Joe Wiart (France)
 - 3.3 Voting
 - 3.4 Announcement of Vice Chair Elect
- 4.0 Review and Update of Commission Terms of Reference – Dr. Frank Prato
- 5.0 Commission K 2005 – 2008 Triennium Report – Dr. Frank Prato
 - 5.1 Contributions to Radio Science Bulletin
 - 5.2 Sponsorship of Scientific Meetings
 - 5.3 Mid-Triennium Symposium July 2007, Ottawa Canada
 - 5.4 White Paper on Wireless Communication and Health
 - 5.5 National Representative meetings at BEMS 06 and 08
 - 5.6 URSI Commission K Emerging Issues
 - 5.7 Preparations for GA08
 - 5.8 Nomination of Dr. Shoogo Ueno for the Balthasar Van der Pol G M
 - 5.9 Student Support at URSI
- 6.0 Commission K RSB Associate Editor for the next Triennium – Dr. Guglielmo D’Inzeo
- 7.0 Emerging Issues and GA11 – Dr. Guglielmo D’Inzeo
- 8.0 Other Business – Dr. Frank Prato
 - 8.1 Proposed Resolutions
 - 8.2 Long Range Planning Committee

- 8.3 Location of 2011 meeting: Beijing, Goteborg, Istanbul
- 8.4 2010 Asia-Pacific RS Conference in Toyama, Japan
- 8.5 Continuation of the Inter-Commission Working Group on Solar Power Satellites.
- 8.6 Proposal for White Paper on Remote Sensing.
- 8.7 Proposal from Commission A Chair P. Banerjee to have a A,K,C combined session at the GA11 on “EMF Exposure and Health”.

9.0 Adjournment

Minutes of All Three Commission K Business Meetings at GA08

Present:

Mon Aug 11:

Frank Prato (*Canada - National Representative*), Phillipe Levesque (*France – National Representative*), Joe Wiart (*France – Observer*), Rafi Korenstein (*Israel – National Representative*), Susan Hagness (*U.S.A. – National Representative*), Jan Vrba (*Czech Republic – National Representative*), Shoogo Ueno (*Japan – Observer*), Tsukasa Shigemitsu (*Japan – National Representative*), Friedemann Kaiser (*Germany – National Representative*), Jolanta Karpowicz (*Poland – National Representative*), Masashi Ikeda (*Japan – Observer*), Soichi Watanabe (*Japan – Observer*), Nadege Varsier (*Japan – Observer*), Martin Robinson (*U.K. – National Representative*) and Masao Taki (*Japan – Observer*).

Wed Aug 13:

Susan Hagness (*U.S.A. – National Representative for Gianluca Lazzi*), Erdem Topsakal (*U.S.A. – Observer*), M. Pais-Clemente (*Portugal – National Representative*), Jolanta Karpowicz (*Poland – National Representative*), Obe Vijayalaxmi (*U.S.A. – Observer*), Mikael Persson (*Sweden – National Representative*), Vitas Anderson (*Australia – National Representative for Ken Joyner*), Martin Robinson (*U.K. – National Representative*), Soichi Watanabe (*Japan – Observer*), Tomonori Sakurai (*Japan – Observer*), Masashi Ikeda (*Japan – Observer*), Tsukasa Shigemitsu (*Japan – National Representative*), Shoogo Ueno (*Japan – Observer*), Markus Johansson (*Sweden – Observer*), Emmanuelle Conil (*France – Observer*), Yoshitsugu Kamimura (*Japan – Observer*), Niels Kuster (*Switzerland – National Representative*), Masao Taki (*Japan – Observer*), Jan Vrba (*Czech Republic – National Representative*), Friedemann Kaiser (*Germany – National Representative*) and Guglielmo D'Inzeo (*Italy – National Representative for P. Bernardi*).

Fri Aug 15:

Frank Prato (*Canada – National Representative*), Guglielmo D'Inzeo (*Italy – National Representative*), M. Pais-Clemente (*Portugal – Observer*), Niels Kuster (*Switzerland – National Representative*), Friedemann Kaiser (*Germany – National Representative*), Jan Vrba (*Czech Republic – National Representative*), Masao Taki (*Japan – Observer*), Soichi Watanabe (*Japan – Observer*), Yukihisa Suzuki (*Japan – Observer*), Masashi Ikeda (*Japan – Observer*), Jolanta Karpowicz (*Poland – National Representative*), Vitas Anderson (*Australia – National Representative for Ken Joyner*), Maila Hietanen (*Finland – Observer*), Tsukasa Shigemitsu (*Japan – National Representative*), Man-Fai Wong (*France – Observer*), Joe Wiart (*France – Observer*) and Philippe Levesque (*France – National Representative*).

1.0 Welcome and Introductions:

Dr. Frank Prato welcomed the national representatives and the observers.

2.0 Acceptance of Agenda:

The agenda was accepted and it was agreed that at the Wednesday and Friday meetings agenda items will be added as needed.

3.0 Election of Commission K Vice Chair

Dr. Guglielmo D'Inzeo reviewed the guidelines for vice chairs and chairs. Then he introduced the two candidates for Vice Chair of Commission K. Then Dr. Masao Taki made a short presentation and that was followed by a presentation by Dr. Joe Wiart. Then after answering questions the vote was help. Dr. Prato announced that the election was extremely close but that Dr. Taki received a few votes more that Dr. Wiart.

4.0 Review and Update of Commission Terms of Reference:

Terms of Reference for Commission K. The following are the terms of reference for Commission K:

Commission K - ELECTROMAGNETICS IN BIOLOGY AND MEDICINE

The Commission is charged with promoting research and development in the following domains :

- (a) Physical interaction of
*electromagnetic fields** with biological systems;
- (b) Biological effects of *electromagnetic fields*;
- (c) Mechanisms underlying the effects of *electromagnetic fields*;
- (d) Experimental *electromagnetic fields* exposure systems;
- (e) Assessment of human exposure to *electromagnetic fields*;
- (f) Medical applications of *electromagnetic fields*.

* (*frequency range from static to terahertz*)

Proposal to replace:

* (*frequency range from static to terahertz*) with:

* (*frequency range from static to optical*)

Moved by Susan Hagness (US) and seconded by Rafi Korenstein (Isreal). After discussion the motion passed 11 to 4.

5.0 Commission K 2005 – 2008 Triennium Report

5.1 Contributions to the Radio Science Bulletin:

Published Invited Reviews:

Ahlbom, A., Feychting, M, and Lonn, S., 2005. Mobile Phones and Tumor Risk: Interpretation of Recent Results. *Radio Science Bulletin*. 314: 30-33.

Lin, J. 2005. Interactions of Wireless Communication Fields with Blood-Brain Barrier of Laboratory Animals. *Radio Science Bulletin*. 315: 33-38.

Invited Reviews in Preparation:

(Waiting for Guglielmo D'Inzeo email)

Radio – Frequency Radiation Safety and Health:

Lin, J. 2005. Radio-Frequency Radiation Safety and Health. *Radio Science Bulletin*. 315: 44-46.

Lin, J. 2006. Radio-Frequency Radiation Safety and Health. *Radio Science Bulletin*. 316: 42-44

Lin, J. 2006. Radio-Frequency Radiation Safety and Health. *Radio Science Bulletin*. 318: 67-68.

Lin, J. 2006. Radio-Frequency Radiation Safety and Health. *Radio Science Bulletin*. 319: 67-68.

Lin, J. 2007. Radio-Frequency Radiation Safety and Health. *Radio Science Bulletin*. 320: 48-49.

Lin, J. 2007. Radio-Frequency Radiation Safety and Health. *Radio Science Bulletin*. 321: 54-55.

Lin, J. 2007. Radio-Frequency Radiation Safety and Health. *Radio Science Bulletin*. 322: 41-42.

Lin, J. 2008. Radio-Frequency Radiation Safety and Health. *Radio Science Bulletin*. 324: 41-42.

Published Commission K Tutorial Lecture:

Vecchia, P. 2006. Assessment of Health Effects Associated with Electromagnetic Fields by WHO, IARC, and ICNIRP. *Radio Science Bulletin*. 318: 30-33.

5.2 Sponsoring Scientific Meetings:

The following scientific meetings received non-financial i.e. moral support from Commission K.

Event Name	Event Date
International Symposium on Space THz Technologies (ISSTT), Paris, France	May 10-12, 2006
International Conference on Ultrawideband, Waltham, MA, USA	September 24-27, 2006
VIIth International Symposium on Electromagnetic Compatibility and Electromagnetic Ecology, St. Petersburg, Russia	June 26-29, 2007
2007 Asia-Pacific Microwave Conference, Bangkok, Thailand	December 11-14, 2007
ICMARS-2006, Jodhpur, India	December 20-22, 2006
Millimeter Waves in Medicine and Biology, Moscow, Russia	April 2-5, 2007
The Sixth International Kharkov Symposium on Physics and Engineering of Microwaves, Millimeter and Submillimeter Waves (MSMW'07), Kharkov, Ukraine	June 25-30, 2007
Electromagnetic Compatibility EMC Europe 2008, Hamburg, Germany	September 8-12, 2008
Microwave-08, Jaipur, India	November 2008
20 th International Zurich Symposium on Electromagnetic Compatibility, Zurich, Switzerland	January 12-16, 2009
Electromagnetic Compatibility – EMC-2009, St. Petersburg, Russia	2009

5.3 International Symposium Held July 22-26, 2007, Ottawa, Canada:

URSI International Commission K and CNC-URSI ran four symposia associated with the North American URSI Meeting in Ottawa, Canada, July 22-26, 2007 (see <http://ursi2007.ee.umanitoba.ca/Home.html>). Two were associated with Commission E CNC and US-NC. Three of the four sessions had an overarching theme: toward visualization of electromagnetic brain stimulation through electromagnetic brain imaging and mapping.

The first session (K2) focused on Neuronal Stimulation by both inductive and capacitive coupling including presentations on theory, simulations and/or experimentation. The third session (EK2) was a joint session on Electromagnetic Brain Imaging and Mapping with Commission E and focused on brain MRI, photo-acoustic imaging and current density imaging as well as brain mapping with EEG and electrical impedance tomography. The fourth session (K3) brought together the ideas in K2 and EK2 and covered Bioelectromagnetic Brain Imaging and Mapping of Effects from Electromagnetic Stimulation.

The second session was also with Commission E and this session (EK1) focused on breast imaging using microwaves - a very exciting, new and exploding field for URSI.

The success of these sessions allowed Commission K to decide on including similar sessions at the URSI GA08 in Chicago. These sessions especially the ones on Breast Imaging, Brain Imaging and imaging the effects of EMF brain stimulations have been oversubscribed suggesting that imaging will be a new large part of Commission K activities in the future.

The cost of this Symposium was about \$40,000 CAN/USD. This was raised from the \$8,000 EU available from URSI/Commission K, \$5,000 CAN from a research grant from CIHR, \$2,000 CAN for students from CNC/URSI and the remainder was generously provided by the Lawson Health Research Institute.

5.4 White Paper on Wireless Communication and Health:

Dr. Bernard Veyret is preparing this white paper, requested by URSI. He has identified the authors for the different sections and will have a draft of the white paper soon after the general assembly in August 2008. The delay has been caused by the delay in the publications of the results from the interphone study.

5.5 Two Meetings of National Representatives of Commission K*:

June 12, 2006: A meeting was held in Cancun, Mexico at the 2006 Bioelectromagnetics Meeting.

June 9, 2008: A meeting was held in San Diego, California at the 2008 Bioelectromagnetics Meeting.

* Minutes of these two meetings can be found at <http://www.ursi.org/K/Index.htm>

5.6 URSI Commission K Emerging Issues, Prepared by Bernard Veyret and Frank Prato:

The driving issue behind the creation of Commission K was health risk assessment mainly related to mobile telephony. Since then, several emerging issues of heavy societal impact have been encompassed by the terms of reference for Commission K, especially in view of the still rapid development of wireless communication technologies and the emergence of the areas of

“bioengineering” as a new area of emphasis at so many institutions, with new Departments of Bioengineering, Medical Imaging, Molecular Imaging and Molecular Biology being created. It is significant in this regard that the chair ship of Commission K has alternated between world leaders in risk assessment and biomedical engineering and imaging over the last 4 cycles.

While the underlying opportunities and applications in this connection are extremely broad, and cannot possibly be all addressed by URSI, or any other single organization, the relatively small but important component of the research thrusts of such departments, namely ‘Electromagnetic Effects in Biology & Medicine’ can be uniquely and most effectively captured by URSI.

The main emerging issues are today the new EMF-emitting devices (e.g., WiFi, Wimax, RFID) linked with dosimetric and standardization issues, and the biomedical applications of biomedical imaging (e.g., very high field MRI, microwave imaging, thermal imaging, near infrared imaging, optical imaging and hybrid imaging including optical/acoustic and microwave/acoustic), electrical mapping (e.g., electrical encephalography or EEG and electrical magneto encephalography or EMG) and electrical stimulation (e.g., direct electrical stimulation and inductive non-invasive stimulation). It must be acknowledged in this regard that Commission K members must remain current in employing the latest in technology no matter where in the spectrum of these disciplines they work. For example they must use the latest in molecular biology regardless of whether research is in the traditional area of risk assessment (e.g. use of gene c-DNA arrays) or biomedical (e.g. developing reporter probes for molecular imaging).

Realization of such opportunities should be a new thrust of URSI, especially in view of their societal importance. In that context, significant interaction with other Commissions do exist already, namely commission A (e.g., field and SAR metrology), commission B (e.g., numerical methods and modeling of electromagnetic propagation in tissues, EM and statistics), commission E (e.g., development of EMI standards), commission F (e.g., terahertz propagation in tissue), and commission H (electromagnetics in conducting media).

In order to strengthen its role in health risk assessment and standard setting, commission K has built strong links with WHO and ICNIRP.¹

Hence Commission K has two important roles to play within URSI. The risk assessment role is that of “hand maiden” to the other commissions where, for example, Commission K members use the latest tools to test for safety of a new wireless technology. The second role is where Commission K leads and asks other commissions to lend their expertise to develop new technologies such as the understanding of EM field transmission characteristics for microwave breast imaging. It is this second role that has the capacity of explosive growth but it is

¹ International Commission on Non-Ionizing Radiation Protection

also the area most likely to be taken over once it reaches a level of commercialization for medical application by large well funded medical imaging societies. However Commission K can achieve a novel niche by leveraging the strengths of the other URSI commissions.

5.7 Preparations for GA08, August 9-15, 2008, Chicago:

Commission K will lead in 11 specific sessions and one poster session. This includes one session with Commissions B and E on microwave breast imaging and one with commissions A and E on exposure assessment of new emerging technologies. Commission K has combined with Commission B on a session with the title "Future Challenges of Computational Electromagnetics" and with Commission B and F with the title "Stochastic Modeling and Uncertainty Arrangement in Electromagnetics". All 13 of these oral sessions have been filled and in addition there are a total of 31 posters and 1 Commission K Tutorial on Wireless Communication and Health. Hence there are a total of 134 Commission K presentations with 31 of these being posters.

5.8 Nomination of Dr. Shoogo Ueno for the Balthasar Van der Pol Gold Medal of URSI Society:

Dr. Shoogo Ueno was nominated for a Gold Medal of the URSI Society. Although Dr. Ueno was more than deserving for an extensive career in research, teaching and administration his nomination, through no fault of his own, was not successful. Dr. Ueno has served our community unselfishly as a former Chair of Commission K and President of BEMS. Although not successful, Commission K members would like Dr. Shoogo Ueno to realize that his associates and colleagues hold him in the greatest regard.

5.9 Student Support at URSI:

Commission K had \$5,000 US for student support and decided to use it to offset student travel costs by giving \$300 US to each of the 16 students.

Three Commission K students received Young Scientific Awards.

One Commission K student's manuscript was selected in the 10 finalists for the URSI student paper competition.

6.0 Commission K RSB Associate Editor for the next Triennium – Dr Guglielmo D’Inzeo

Dr. Guglielmo D’Inzeo proposed that Dr. Joe Wiart become the Associate Editor of the Radio Science Bulletin for Commission K. This motion was seconded by Dr. Frank Prato and was unanimously approved by the National representatives.

7.0 Emerging Issues and GA11 – Dr. Guglielmo D’Inzeo

Dr. Guglielmo D’Inzeo proposed that the issues for the next GA in 2011 would be discussed through out the next triennium.

8.0 Other Business

8.1 Proposed Resolutions

Dr. Frank Prato read over the proposed resolutions being considered by the URSI council this included the WG on Catastrophes and Disasters, the establishment of regional committees at the same location as those to be set up by ICSU, the reduction in the distribution of paper copied of the RSB and the change of GA11 name to GA11 and Scientific Symposium or GASS.

8.2 Long Range Planning Committee

Dr. Frank Prato indicated that the board has suggested that there be a Long Range Planning Committee to be made up of immediate past commission chairs.

8.3 Location of 2011 meeting: Beijing, Goteborg, Istanbul

The location of the 2011 meeting was discussed. Preference for location was voted on as suggested by Dr. Neils Kuster (Switzerland). The vote was Istanbul – 1 vote, Goteborg – 12 votes and Beijing – 2 votes. At the next council meeting Istanbul won the election.

8.4 2010 Asia-Pacific RS Conference in Toyama, Japan

Frank Prato quickly reviewed the Japanese proposal for the Asia-Pacific Radio Science Conference in Toyama Japan.

8.5 Continuation of the Inter-Commission Working Group on Solar Power Satellites

As requested by Commission H chair Kozo Hashimoto there was a discussion of continuation of the SPS ICWG and the inter commission session on SPS. It was decided that Dr. Guglielmo D’Inzeo would ask Dr. James Lin if he would continue to serve as commission K’s representative on this Working Group.

8.6 Proposal for White Paper on Remote Sensing

There was a discussion on the French proposal to have a white paper on Remote Sensing. Dr. Joe Wiart proposed that Commission K should have input into the first draft and Dr. Guglielmo D’Inzeo will appoint some one.

8.7 Proposal from Commission A Chair P. Banerjee to have a A,K,C combined session at the GA11 on “EMF Exposure and Health”.

Dr. Guglielmo D’Inzeo will contact Dr. Banerjee on this proposal

9.0 Adjournment

As there was no more business the meeting was adjourned.