



Commission Triennial Report
Commission K

1. List of Commission Officers and Technical Advisory Committee members

Commission Officers

Chair: Joe Wiart
Telecom Paris, France, E-mail : joe.wiart@telecom-paris.fr

Vice-Chair: Koichi Ito
Chiba University, Japan, E-mail : ito.koichi@faculty.chiba-u.jp

Early Career Representatives:
Puyan Mojabi, University of Manitoba, Canada, E-mail : puyan.mojabi@umanitoba.ca
Kensuke Sasaki, NICT, Japan, E-mail : k_sasaki@nict.go.jp

Technical Advisory Committee

The major roles of the Commission K Technical Advisory Committee are supposed to advise Commission Officers on essential issues relevant to the Commission, to help make up scientific programs of URSI flagship conferences, to promote contributions to the flagship conferences, and to help review papers contributed. The following members were appointed at the business meeting held during GASS 2017 in Montreal.

Joe Wiart, France (Chair)
Koichi Ito, Japan (Vice-Chair)
Puyan Mojabi, Canada (ECR)
Kensuke Sasaki, Japan (ECR)
Masao Taki, Japan (immediate past Chair)
Guglielmo D'Inzeo, Italy
Alexandre Legros, Canada
Lluis Mir, France
Tongning Wu, China
Niels Kuster, Switzerland
Vijayalaxmi, US
Mahta Moghaddam, US



2. Contributions to the Radio Science Bulletin (RSB)

Associate Editor:

Kensuke Sasaki (Japan) has served as an associate editor.

Publications in RSB:

Prof. James C. Lin (USA) has published in RSB several papers as a series of “Telecommunications Health and Safety.”

- The Mystery of “Sonic Health Attacks” on Havana-Based Diplomats (Sept 2017)
- The Moscow Embassy Microwave Signal (Dec 2017)
- Peer Review Conclusion of Clear Evidence of Cancer Risk from Cell-Phone RF Radiation (March 2018)
- DARPA’s RadioBio and Recent US Bioelectromagnetic Research Programs (June 2018)
- Mobile-Phone RF/Microwave Exposure and Memory Performance Scores in Adolescents (Sept 2018)
- What Must Not Be Neglected Are Overall Cancer Rates in Chronic Effects in NTP’s Lifelong RF Exposure Study (Sept 2019)
- US FCC Affirms its Current Safety Limits for RF Radiation and 5G Wireless (Dec 2019)
- Fighter Pilot Disorientation and Pulsed Microwave Radiation from Radars (June 2020)

3. Contributions to the Radio Science Letters (RSL)

Associate Editor:

Kensuke Sasaki (Japan) has served as an associate editor.

Publications in RSL:

Following 5 papers related to the “Com K” topics have been published in the RSL:

- T. Hikage, S. Ito, and A. Ohtsuka, “Novel Interference Voltage Measurement for Beam-Type Wireless Power Transfer Using an Electro-Optical Converter for EMI Assessment of Active Implantable Medical Devices,” RSL, Vol.2, 2020, DOI: 10.46620/20-0039
- Fedeli, C. Estatico, A. Randazzo, and M. Pastorino “Multifrequency Microwave Tomography in Lebesgue Spaces with Nonconstant Exponents,” RSL, Vol.2, 2020, DOI: 10.46620/20-0032
- J. Xi, C. Rowell, J. M. Fortes, F. Rouholahnejad, B. Derat, and N. Kuster, “Optimization on of SAM Head Phantom for Compact Antenna Test Ranges,” RSL, Vol.2, 2020, DOI: 10.46620/20-0064
- E. Narita, Y. Shimizu, M. Matsunaga, N. Shinohara, and J. Miyakoshi, “Effects of Ultrahigh-Frequency Electromagnetic Field at 28 GHz on Micronucleus Formation in Human Cell Lines,” RSL, Vol.2, 2020, DOI: 10.46620/20-0018
- S. Liu, A. Kuwahata, and M. Sekino, "Design of a Multi-Locus Transcranial Magnetic Stimulation Coil with a Single Driver," RSL, Vol.2, 2020, DOI: 10.46620/20-0057



4. Contributions to AT-RASC and AP-RASC

AT-RASC

At the 2nd URSI Atlantic Radio Science Meeting (AT-RASC), held in Gran Canaria, Spain in 2018, Commission K had 41 papers which included dedicated Commission K sessions, joint sessions and the poster session. In addition, one of the Early Career Representatives (ECR) of Commission K delivered a Commission K ECR Tutorial Talk at this conference. In particular, the Commission K technical sessions at this conference were:

Wave Chaos of Complex Systems: 7 papers (Joint Session: E, A, B, and K)

Poster Session: 2 papers

- EMF hyperthermic therapeutic applications (with EU COST): 6 papers (Joint Session: K and B)
- EMF non-hyperthermic: therapeutic applications: 6 papers
- Dosimetry and exposure assessment: 7 papers
- Electromagnetics in biomedicine: 9 papers
- Electromagnetic inversion and imaging: 4 papers (Joint Session: K and B)
- ECR Tutorial talk: A tutorial on electromagnetic inverse scattering and inverse source problems

AP-RASC

Furthermore, at the 2019 URSI Asia Pacific Radio Science Conference Meeting (AP-RASC), held in New Delhi, India in 2019, Commission K had 60 papers which included dedicated Commission K sessions, a joint session, and the poster session. In particular, the Commission K technical sessions at this conference were

Wearable Antennas and Devices: 5 papers

- EMF Exposure Assessment, Health Risk Analysis, and Compliance Assessment: 6 papers
- Biological Effects and Related Mechanisms of EMF Exposure: 5 papers
- Exposure from Wireless Power Transfer Systems / EMC in Biomedical Applications: 6 papers (Joint Session: K and E)
- Dielectric Spectroscopy and EM Biomedical Imaging/Detection: 5 papers
- Biomedical Applications of EMF: 6 papers
- Poster Session: 27 papers

5. Sponsoring scientific meetings

During the 2017-2020 triennial period, Commission K was involved (technical support) in the following conferences:

- Radio 2017 (Cape Town, South Africa)
- 2018 Asia Pacific Microwave Conference (Kyoto, Japan)
- 2019 URSI Japan Radio Science Meeting (Tokyo, Japan)
- 2019 IEEE International Conference on RFID Technology and Applications (Pisa, Italy)
- 2020 International Symposium on Antennas and Propagation (Osaka, Japan)



6. Contributions to GASS2020 (virtual, August 2020)

Due to the COVID-19 pandemic, GASS 2020 in Rome has been postponed by 1 year. All authors of accepted papers were offered the possibility to either withdraw their paper or to publish their work in the GASS 2020 Proceedings. Accordance with author's choice, a part of accepted papers in GASS 2020 in Rome were published in the GASS 2020 Proceedings.

The preparation for the General Assembly online was done with 18 "Com K" sessions, 4 joint sessions with partner Commissions B, D, and E, and 2 workshops. The program of sessions led by Commission K consists of 34 presentations (online), and 49 papers were published in the GASS 2020 Proceedings.

It is noted that the URSI Balthasar van der Pol Gold Medal has been awarded consecutively in 2017 and 2020 to the following two members of Commission K:

Dr. Lluís M. Mir (2017, France)

Citation: "For leadership in Pulsed Electric Fields Applications in Biology and Medicine: fundamentals of cell electroporation in vitro and in vivo, and development of anti-tumour electrochemotherapy, from inception to clinical use."

Prof. Koichi Ito (2020, Japan)

Citation: "For contributions to research and development in the fields of medical applications of electromagnetic waves and their evaluation using human-equivalent phantoms."

7. Preparations for GASS 2021, August 28 to September 4, 2021, Rome, Italy (with both on-site & online presentations)

The preparation for the GASS 2021 in Rome (Hybrid) has been successfully done with 15 oral Commission K sessions, Commission K flash interactive presentation (FIP) sessions, 5 joint sessions with partner Commissions B, D, and E, and 1 workshop. The program of sessions to be led by Commission K will consist of 104 oral presentations, 1 tutorial lecture, and 32 FIPs. A tutorial lecture will be given by Dr. Rodney Croft (Australia).

8. Election for the Biennium 2021-2023

Election of Vice-Chair

Two candidates have been nominated. The final voting will take place at the business meeting during the URSI GASS in Rome in August-September 2021.

Election of Early Career Representative

One candidate has been nominated. The final nomination will be made at the same business meeting as the Vice-Chair election.