



## **Commission GASS 2023 Report**

### **Commission K**

The Coordinating activities meetings for Commission K were held on Monday, Wednesday and Friday – August 21, 23 and 25, from 17:30 to 18:30 Sapporo time.

Prof. Koichi Ito, Chair of Commission K 2021-2023, led the first two meetings and turned over the last meeting to Francesca Apollonio, Chair for the 2023-2026 triennium. Part of the members was on site and part on-line, reaching however an adequate number of attendees close to 30 in average for the three meetings.

#### **1. Elections of Commission Officers**

Commission K held the election for Vice Chair during the 1st meeting. Two have been the nominations:

- Lars Ole Fichte (Helmut Schmidt University, Germany)
- Maxim Zhadobov (IETR / CNRS, France)

During the first CCA meeting the candidates presented shortly themselves. Election results were ratified at Council Meeting 2 on Tuesday, 22 August. 24 Official Members voted (first choice: 1 point, second choice: 2 points, ...).

We are pleased to announce that Lars Ole Fichte was elected Vice Chair of Commission K for the 2023-2026 triennium. We thank all the candidates for their generous offer to lead the Commission.

#### **2. Results of Election of Early Career Representative**

Commission K also held the election for Early Career Representative. Two young scientists were nominated including:

- Kun Li (Japan)
- Declan O’Loughlin (Ireland)

During the first CCA meeting the candidates presented shortly themselves. Election results were ratified at Council Meeting 2 on Tuesday, 22 August. 24 Official Members voted (first choice: 1 point, second choice: 2 points, ...).

We are pleased to announce that Kun Li was elected new Early Career Representative for the 2023-2026 triennium. We thank all the candidates for their generous offer to lead the Commission.

#### **3. Review of Terms of Reference**

After discussing at the 2nd Commission Coordinating Activities Meeting, we submitted the finalized updates on the Terms of Reference to the URSI Secretariat.



The final version in English is as follows:

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

- Physical interaction of electromagnetic fields (from static to optical) with biological systems;
- Biological and health effects of electromagnetic fields;
- Effects of electromagnetic fields due to human activity on ecosystems, biodiversity, and planetary health;
- Biological mechanisms of the effects associated with exposure to electromagnetic fields;
- Electromagnetic exposure systems, dosimetry and tissue-equivalent models;
- Monitoring and assessing the exposure to electromagnetic fields;
- Diagnostic and therapeutic applications of electromagnetic fields;
- Healthcare and rehabilitative applications of electromagnetic fields.

The final version in French is as follows:

La Commission a pour tâche de promouvoir les recherches et les développements dans les domaines suivants:

- Interactions des champs électromagnétiques (des champs statiques au domaine optique) avec les systèmes biologiques au niveau de la physique;
- Effets biologiques et sur la santé des champs électromagnétiques;
- Effets des champs électromagnétiques générés par l'homme sur les écosystèmes, la biodiversité et la santé de la planète;
- Mécanismes à la base des effets biologiques des champs électromagnétiques;
- Systèmes expérimentaux d'exposition aux champs électromagnétiques, dosimétrie et modèles équivalents à des tissus;
- Suivi et évaluation de l'exposition aux champs électromagnétiques;
- Applications diagnostiques et thérapeutiques des champs électromagnétiques;
- Applications des champs électromagnétiques dans les soins de confort et la réadaptation physique et fonctionnelle.

#### **4. Any changes/confirmation in Working Groups and other organizations**

For the moment Commission K has not set up any Working Group, but at the last Coordinating Committee meeting of Saturday 26 August it has received an invitation by Comm B which decided the following:

Comm B would like to invite all commissions to create/discuss a joint working group on "5G/6G" (John Volakis and Ludger Klinkenbusch). Commission K is in favour of joining this WG.



## **5. Technical Advisory Committee**

Commission K has defined in the past one Committee which helps the Officers in leading the activities of the Commission. This Committee is the Technical Advisory Committee (TAC) which is actually composed by the present Officers plus:

- Koichi Ito (Japan) <immediate past Chair>
- Kensuke Sasaki (Japan) < immediate past ECR >
- Michal Cifra (Czech Republic)
- Raquel Conceição (Portugal)
- Lourdes Farrugia (Malta)
- Lena Kranold (Switzerland)
- Niels Kuster (Switzerland)
- Alexandre Legros (Canada)
- Micaela Liberti (Italy)
- Lluís Mir (France)
- Puyan Mojabi (Canada)
- Azadeh Peyman (UK)
- Frank Prato (Canada)
- Masao Taki (Japan)
- Vijayalaxmi (USA)
- Jianqing Wang (Japan)
- Joe Wiart (France)
- Tongning Wu (China)
- Maxim Zhadobov (France)

## **6. Preparation of Future Meetings/Identification of meetings to be supported (cfr. Commission budget)**

The Commission anticipates providing support to URSI centered meetings in the coming triennium. As funds permit, this includes young scientist support to attend the flagship meetings. Funds permitting, we may also support relevant conferences such as BioEM, the IEEE IMBioC, the IEEE AP-S/URSI.

## **7. Report and comments on the scientific program of the Commission for the current GASS**

Commission K organized 17 scientific sessions, 4 joint sessions led by Commission K for a total of 154 papers submitted. Moreover, it organized a Tutorial inviting prof. A. Costanzo from Alma Mater Studiorum Università di Bologna, Italy on the topic “Energy-Autonomous Wearable Sensors for Biomedical Sensing”. The talk had a very good attendance.

The list of GASS sessions includes:



day	session	Conveners	Chairs	Attendees
23 Aug	K01	F. Poulettier de Gannes, M Simko	L M Mir, C Consales* (*in place of F Apollonio)	28
22 Aug	K02	F Apollonio, M Cifra	F Apollonio, L M Mir	30
23 Aug	K03	L M Mir, F Apollonio	L M Mir, F Apollonio	20
22 Aug	K04	L M Mir, C Consales	L M Mir, C Consales	30
21 Aug	K05	A Legros, N Kuster, M Liberti	N Kuster, F Apollonio	50
24 Aug	K06	K Yamazaki, I Laakso, Y Diao	K Yamazaki, I Laakso, Y Diao	20
26 Aug	K07	T Wu, K Li, G Sacco	K Li, G Sacco	20
21 Aug	K08	J Keshvari, K Sasaki	K Sasaki, Y Shimizu	40
25 Aug	K09	J Wiart, T Onishi, T Samaras	J Wiart, T Onishi;	29
23 Aug	K10	J Karpowicz, S Y Sachiko, S D'Agostino	J Karpowicz, S Y Sachiko, S D'Agostino	24
22 Aug	K11/K13	L Farrugia, K Saito, K Grenier, E Porter	L Farrugia, S Kazuyuki	40
23 Aug	K12	M Colella, S Y Sachiko, A Hirata	M Colella, S Y Sachiko	20
26 Aug	K14	J Gomez-Tames, A Kiourti, K Ito	Gomez-Tames Jose, Rodriguez-Duarte David Orlando	20
21 Aug	K15/1-2	N Tomoaki, E A Rashed, E Porter	N Tomoaki, I Laakso	50
22 Aug	K15/3	N Tomoaki, E A Rashed, E Porter	N Tomoaki, I Laakso	40
24 Aug	K16	L Farrugia, L Caramazza	L Farrugia, L Caramazza	43
25 Aug	K17/1-2	K Ito, K Kuroda, Y Zheng	K Kagayaki, K Daisuke	30

#### List of the Joint Sessions

day	session	Conveners	Chairs
21 Aug	KA	J Wiart, K Sasaki	J Wiart, K Sasaki
23 Aug	KB/1-2	P Mojabi, S Kidera, S Bojja Venkatakrishnan, E Topsakal	S Kidera, S Bojja Venkatakrishnan
24 Aug	KB/3	P Mojabi, S Kidera, S Bojja Venkatakrishnan, E Topsakal	S Kidera, S Bojja Venkatakrishnan
25 Aug	KD	L Mucchi, H Tanaka, D Anzai	H Tanaka, D Anzai
24 Aug	KE/1-2	J Wang, T Hikage, C Carobbi	W Jianqing
25 Aug	KE/3	J Wang, T Hikage, C Carobbi	W Jianqing

## 8. Proposed sessions and conveners for AT-RASC 2024

The first proposal for sessions for AT-RASC 2024 is as follows:

	Title	Proposed conveners
K01	Biological effects and related exposure systems for RF/MMW EMF	TBD, L Fichte
K02	Modeling molecular and cellular targets in bioelectromagnetics studies	M Cifra, L Caramazza
K03	Monitoring and manipulating cells and tissues with EM Fields	LM Mir, F Apollonio
K04	Characterization of dielectric and thermal parameters in tissues and cells	L Farrugia, E Porter, K Grenier
K05	Dosimetry & Exposure Assessment	I Laakso, K Li, M Zhadobov, K Sasaki, G Sacco
K06	Monitoring EMF Exposure from emerging technologies	J Wiart, M Zhadobov
K07	EMF occupational assessment of exposure: measurements and numerical dosimetry	J Karpowicz, S D'Agostino, G Schmidt
K08	Biomedical applications of EMF	M Liberti, L Farrugia, R Conceição
K09	Non invasive for brain stimulation	M Colella, A Cassarà
K10	Healthcare and Rehabilitative Applications	K Ito, A Kiourti, J Gomez-Tames
K11	Innovative EMF based biomedical applications	L Farrugia, L Caramazza, E Porter
K12	Open Session	Comm K Officers



Index	Title	Proposed conveners
KB	Electromagnetic Biomedical Imaging	P Mojabi, R Conceição, K Shouhei, E Porter
KD1	RF wearable devices for body area network: from numerical modeling to manufacturing	M Colella, G Paolini
KD2	Smart IoT for body area network	D Anzai, T Hiroshima

The proposal for a Tutorial is the following:

Index	Title	Proposed conveners
K	Telediagnostic and Telemedicine	L O Fichte, TBD

## 9. Contact information for new Commission K Officers (2023-2026)

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**10. Other business**

None