



Commission GASS 2023 Report

Commission B

Commission B held three meetings during the URSI GASS 2023 conference in Sapporo, Japan, chaired by John Volakis (Comm B Chair), assisted by Henrik Wallén (Comm B Vicechair), Andrea Michel (Comm B ECR1), and Dimitrios Tzarouchis (Comm B ECR2).

CCA-I	Monday, 21 Aug 2023	approx 30 participants in total
CCA-II	Wednesday, 23 Aug 2023	21 on-site + a few online participants
CCA-III	Friday, 25 Aug 2023	17 on-site + a few online participants

1. Elections of Commission Officers

Three candidates were running for the position of Commission B Vicechair (2023–2026) and two candidates were running for the position of Commission B ECR (2023–2026). The electronic voting was concluded on Monday evening with votes from 26 official members.

Comm B vicechair

- **Ludger Klinkenbusch, Germany** (elected)
- Tahsin Akalin, France
- Taimoon Khan, India

Comm B ECR

- **Satheesh Bojja Venkatakrisnan, USA** (elected)
- Changjiang Deng, China

The Council meeting on Tuesday confirmed the election of Ludger Klinkenbusch and Satheesh Bojja Venkatakrisnan as incoming Vicechair and ECR, respectively.

2. Review of Terms of Reference

The Commission B terms of reference were briefly discussed in CCA-III with no changes.

3. Changes in Working Groups

The working groups were discussed in CCA-III. There are no internal Commission B working groups and no new ones were proposed. No changes were proposed for the joint working group **EB Chaos and Complexity in EM** where Ari Sihvola represent Comm B.

It was decided that Comm B would like to join the working group **FCGEH Disaster and Risk Management** with Giuliano Manara as Comm B representative. Likewise, the meeting decided that Comm B would like to join the Comm E lead working group on **Spectrum Management** and later Satheesh Bojja Venkatakrisnan was appointed Comm B representative.



Comm B also decided to invite all other commission to create a joint working group on **5G/6G** with John Volakis and Ludger Klinkenbusch as Comm B representatives.

4. Commission B Technical Advisory Board (B-TAB)

Matteo Albani	Italy	Paolo Nepa	Italy
Makoto Ando	Japan	Shinichiro Ohnuki	Japan
Francesco Andriulli	Italy	Matteo Pastorino	Italy
Amir Boag	Israel	Yahya Rahmat-Samii	USA
Salvatore Campione	USA	Sembiam Rengarajan	USA
Deb Chatterjee	USA	Magdalena Salazar-Palma	Spain
Thomas Eibert	Germany	Giuseppe Schettini	Italy
George Eleftheriades	Canada	Lot Shafai	Canada
Nader Engheta	USA	Yury Shestopalov	Sweden
Levent Gürel	Turkey	Ari Sihvola	Finland
Susan Hagness	USA	Daniel Sjöberg	Sweden
Ehud Heyman	Israel	Paul Smith	Australia
Jiro Hirokawa	Japan	Donglin Su	China
David Jackson	USA	Anton Tjihuis	Netherlands
Ludger Klinkenbusch	Germany	Piergiorgio L. E. Uslenghi	USA
Kazuya Kobayashi	Japan	John Volakis	USA
Gerhard Kristensson	Sweden	Henrik Wallén	Finland
Lianlin Li	China	Don Wilton	USA
Giuliano Manara	Italy	Amir Zaghloul	USA
Andrea Michel	Italy	Richard Ziolkowski	Australia
Juan Mosig	Switzerland		

This list is somewhat old and will be updated by the incoming chair.

5. Preparation of Future Meetings: Flagship Meetings and EMTS

The upcoming URSI flagship meetings, AT-RASC 16–24 May 2024 in Gran Canaria, AP-RASC August 2025 in Sydney and GASS 15–22 August in Krakow, were briefly presented and discussed in CCA-II.

The next URSI Commission B International Symposium on Electromagnetic Theory (EMTS) will be held in 2025. Two proposals were submitted and presented at EMTS 2023 in Vancouver:

- Tessoniki, Greece (Georgios Kyriakou)
- Bologna, Italy (Giuliano Manara)

The Commission B official members voted for Bologna, Italy, using e-mail voting before GASS 2023. In CCA-II, Giuliano Manara presented the latest plans for EMTS 2025 in Bologna in the second half of June. The conference venue is the University of Bologna and the estimated early bird registration fees are: 500 € (URSI/IEEE members), 600 € (non-members), 250 € (students).



Commission B plans to support EMTS 2025 with 9000 € from the commission budget, mainly to support the young scientist program.

6. Proposed Sessions and Conveners for AT-RASC 2024

The following very preliminary list of session topics was presented at the New Coordinating Committee meeting on Saturday, 26 Aug 2023. The list is based on a reordering of the GASS 2023 sessions and serves as the starting point for further refinement. Many sessions will likely have the same conveners as in Sapporo, but since no names were confirmed during the GASS 2023 the previous convener names are not included below. It is expected that the new/updated joint working groups (see above) will generate some new/updated joint sessions.

Fundamentals

- Electromagnetic theory
- Scattering and diffraction
- High-frequency and hybrid methods
- Propagation and scattering: advances, trends and new applications
- Mathematical methods in electromagnetics
- Mathematical modelling of EM problems

Antennas

- Antenna theory, design, and measurement
- Millimeter-wave antennas/5G communications and beyond
- Vehicular and automotive RF links

Computational electromagnetics

- Advanced algorithms in computational electromagnetics
- Integral equation, hybrid, and fast methods
- Theory and applications of characteristic modes
- Quantum techniques for electromagnetics
- Inverse scattering and imaging
- Electromagnetic methods for direct and inverse scattering involving stratified media

Machine Learning

- Machine Learning and Optimization Techniques in Electromagnetics: new trends and novel applications
- Stochastic methods and machine learning for electromagnetics

Materials and surfaces

- Electromagnetics of time-varying scatterers and materials
- Materials in electromagnetics
- Metamaterial concepts for electromagnetics
- Innovations in electromagnetics and photonics
- Nanoscale Electromagnetics: Theory and Applications
- Waves in nonlinear and inhomogeneous media
- Additive Manufacturing, Novel composites and Metastructures
- Reconfigurable Intelligent Surfaces (RIS) and their Applications



Other topics

Women Contributions to Radio Science
Open Session

Commission B led joint sessions

BC: Integrated communications, sensing and computing for beyond-5G communications
BD: Wireless technologies for extreme environments
BE: Near-field wireless systems for communications and sensing
BK1: AI/ML applications to biomedical technologies
BK2: Innovative antennas for biomedical applications

7. Other Business

During the CCA meetings, updates from the GASS 2023 activities, URSI Radio Science School for Young Scientists, and EMTS 2023 were presented.