



Commission GASS 2023 Report

Commission D

Commission D held three Commission coordinating activity meetings on August 21 Monday, 5:30 pm-6:30 pm, 23 Wednesday, 5:30 pm-6:30 pm, and 25 Friday, 5:30 pm-6:00 pm, in Sapporo Convention Center, Svenue of the URSI-GASS 2023.

1. Elections of Commission Officers

We have two candidates for a vice chair and three for an early carrier representative as follows.

Vice-chair candidacies:

- Tashin Akalin, Lille University, France
- Hossein Asghari, Loyola Marymount University, United States

ECR candidacies:

- Giacomo Paolini, University of Bologna, Italy
- Sangyeop Lee, Tokyo Institute of Technology, Japan
- Jayakrishnan Methapettyparambu Purushothama, Heriot-Watt University University, United Kingdom

In the first CCA meeting, we received the presentations from the candidates. Finally, the Council decided to name Prof. Akalin as a vice chair and Prof. Paolini as an ECR based on the voting results.

2. Review of Terms of Reference

Commission D carefully reviewed the current Terms of Reference (ToR) and discussed the revision during the first and second CCA meetings and the official member email circulation. The current ToR is well organized, but it found redundancy in the covered fields that would be merged. Thus, the Commission D will update the ToR as follows.

1. Nanotechnologies and nanoelectronics systems that push beyond current frontiers;
2. Microwave, millimeter wave, terahertz, and photonics devices, circuits and systems and their applications;
3. Wireless devices, circuits and systems;
4. Combined and hybrid photonic and electronic devices and systems;
5. Optoelectronic systems, plasmonics, and electro-optics;
6. Photonic signal processing schemes, regardless of frequency of signal processed;
7. Physics, theoretical modeling, and numerical simulation of all of the above.

For expressions to the researchers outside of the URSI, the hot topic research fields are denoted in the website, not included in the ToR as follows:

- The Commission focuses on electronics and photonics devices, circuits and systems as well as emerging technologies such as 6G and beyond, optical wired and wireless communications, artificial intelligence, IoT sensors, energy harvesting, wireless power transfer, quantum technologies, and other new applications of electronics and photonics for the purpose of implementing either previously unattainable functionalities or for improving the performance of current electronic-only or photonic-only technologies.



3. Any changes/confirmation in Working Groups and other organizations

Commission D discussed the working group formation and the lack of a photonics-based working group. The Commission decided to update the formation of working group D1, to keep the structure of working group D2 as is, and to establish a new working group D3 related to photonics.

D.1 RFID Technologies and Privacy of Data

Chair: Dr. S. Tedjini (France);

email: smail.tedjini@lciis.grenoble-inp.fr

Vice-Chairs: Dr. G. Marrocco (Italy); Alessandra Costanzo (Italy); Valentina Palazzi (Italy)

email: marrocco@disp.uniroma2.it; alessandra.costanzo@unibo.it; valentina.palazzi@unipg.it

D.2 Wireless Power Transfer Technologies and Applications

Chair: Dr. N. Shinohara (Japan);

email: shino@rish.kyoto-u.ac.jp

Vice-Chair: Dr. A. Georgiadis (UK);

email: apostolos.georgiadis@ieee.org

D.3 Photonic signal processing, real-time instruments and biomedical imaging

Chair: Hossein Asghari

email: mohammadhossein.asghari@lmu.edu

Vice Chair: Günter Steinmeyer (Germany)

email: steinmey@mbi-berlin.de

4. Technical Advisory Committee

Commission D discussed the availability of a technical advisory committee (TAC) and decided to establish it. The TAC makes comments and advice for

- scientific programs of flagship conferences;
- workgroups in the Commission;
- Resolutions and Recommendations;
- technical issues in related activities.

Eligibility of TAC members was also decided. The TAC is organized by the members of

- Chair: Immediate Past-Chair
- Members: Past Chairs, past ECRs, and the personnel who are named by the TAC Chair.

Commission D TAC is established with the following organization;

Chair: Prof. Naoki Shinohara (Japan)

Member: Apostolos Georgiadis (UK), Hossein Asghari (USA), Arnaud Vena (France)

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

The costs to be budgeted for flagship conferences were discussed in the first CCA meeting. There will be 18,840 Euros for two members to attend AT- and AP-RASC and four members to attend GASS. The expected budget for Commission D will be approximately 19,900 Euros based on the number of submitted papers in AT-AP-RASC2022 and GASS2023, as shown in the Council meeting. Three officials are in Europe during the 2023-2026 period in Commission D, and thus, the budget will be matched to



our activities. Commission D decided that the use of the budget would be discussed on an individual basis.

6. Proposed sessions and conveners for AT-RASC 2024

Commission D discussed the sessions proposed in the AT-RASC 2024. The tentative list of sessions with the conveners is as follows:

- D01: Convergence of photonics and radio systems towards 6G
A. Stohr, T. Kaji
andreas.stoehr@uni-due.de, kaji@nict.go.jp
- D02: Photonic Signal Processing, Real-time Instruments and Biomedical Imaging
H. Asghari and TBD
mohammadhossein.asghari@lmu.edu, TBD
- D03: Electronic and photonic devices, circuits and systems for THz Communications
T. Akalin, K. Takano
tahsin.akalin@univ-lille.fr, ktakano@rs.tus.ac.jp
- D04: Wireless power transfer and energy harvesting
N. Shinohara, G. Paolini
shino@rish.kyoto-u.ac.jp, giacomo.paolini4@unibo.it
- D05: RFID and wireless sensing
S. Tedjini, V. Palazzi
smail.tedjini@lcis.grenoble-inp.fr, valentina.palazzi@unipg.it
- D06: Microwave photonics applications
S. Iezekiel, H. Murata
iezekiel.stavros@ucy.ac.cy, murata@elec.mie-u.ac.jp
- D07: Electronics and photonics technologies for smart transport systems
U. Mankong, T. Umezawa
ukrit.m@cmu.ac.th, toshi_omezawa@nict.go.jp
- D08: Recent Advances in Electronics and Photonics (Open Session)
A. Kanno, T. Akalin
kanno.atsushi@nitech.ac.jp, tahsin.akalin@univ-lille.fr

The Commission D have a plan to hold joint session with the Commission K, as follows:

- KD01: RF wearable devices (TBD)
M. Colella, G. Paolini
micol.colella@uniroma1.it, giacomo.paolini4@unibo.it
- KD02: Smart IoT for Body Area Network (TBD)
H. Tanaka, H. Anzai (TBD)
hitanaka@hiroshima-cu.ac.jp, anzai@nitech.ac.jp