

Commission D (Electronics and Photonics) Activity Report

August 2021 - April 2022

May 17, 2022

Chair : Naoki Shinohara

1. International Activities related to areas covered by Commission D

Contribution to URSI AT-AP-RASC2022: will be held on May. 29th – June. 3rd, 2022 in Gran Canaria, Spain and online hybrid. 7 Japanese members contributed to organizing the conference. Prof. Hiroshi Murata and Dr. Toshimasa Umezawa are conveners of session D01 “Convergence of photonics and radio systems Towards 6G ” and gather 7 papers. Prof. Masayuki Suzuki, is one of conveners of session D2 “Photonic signal processing, real-time instruments and biomedical imaging ” and gather 12 papers. Prof. Morio Toyoshima is one of conveners of session D06 “Photonics and electronics for space applications ” and gathers 7 papers. Prof. Tetsuya Kawanishi is one of conveners of session D07 “Electronic and photonic components for THz Communications” and gathers 3 papers. Prof. Naoki Shinohara and Dr. Atsushi Kanno are conveners of session D09 “Open Session” as a chair and a vice chair of Commission D and gathers 4 papers. Prof. Naoki Shinohara also is one of conveners of workshop session “Wireless Power Transfer Technologies and Applications” and gathers 10 invited talks. Prof. Shinohara, as a chair of international commission D, serves to organize “AI Special Session” and to choose Young Scientist Panel and Student Paper Competition from Commission D.

2. Domestic Activities related to areas covered by Commission D**Technical Committees on Microwave Photonics (IEICE):**

The following technical meetings were held; On Nov. 26, 2021, online, with 4 invited talks, entitled “Antenna near field measurement using radio over fiber system and industrial robot”, “R&D for higher frequency bands radio-over-fiber systems”, “Antenna-coupled electrode electro-optic modulators for beyond 5G mobile communication systems and millimeter-wave radars”, and “Field demonstration of eye-safe high capacity FSO system with multi-aperture transmission and digital coherent reception”, and 3 regular talks. On Jan. 27, in Kyoto and online, with 1 invited talk entitled “Standardizations activities on radio over fiber technologies” and 6 invited talks.

Technical Committees on Terahertz Application Systems (IEICE):

The following technical meeting was held; On Aug. 5, 2021, online, with 5 invited talks related on “Photo-excited THz wave radiation from multi-layer quantum well structure”, “MEMS based THz meta-material”, “Waste plastic identification with THz wave”, “THz

electronics and spintronics with topological semimetal”, “Development of small dielectric antenna for 300 GHz band based on visualization of the electric field and application to wireless communication” and 7 regular talks.

Technical Committees on Microwave Photonics and Terahertz Photonic-Electronics Technologies (IEICE)

On Apr. 1, 2022, Technical Committees on Microwave Photonics (MWP) and Technical Committees on Terahertz Application Systems (THz) merged to become Technical Committees on Microwave Photonics and Terahertz Photonic-Electronics Technologies. Dr. Atsushi Kanno is a chair and Prof. Masayuki Fujita is one of the co-chairs.

2021 IEICE Society Conference: was held on Sept. 14-17 online. Technical Committees on MWP and Technical Committees on THz organized a special session, CI-5 “Device and material technologies and their applications for beyond 5G and 6G.” Microwave and mm-wave photonics session (C-14) was held, and 12 regular talks were presented.

2022 IEICE General Conference: was held on Mar. 15-18 online. Technical Committees on MWP organized a special session, CI-6 “Current status and recent trends on microwave photonics technology.” Technical Committees on THz organized a special session, CI-7 “Recent trends on communication technology for beyond 5G and 6G.” Microwave and mm-wave photonics session (C-14) was held, and 12 regular talks were presented.