

Commission D (Electronics and Photonics) Activity Report

November 2016-March 2017

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1. Domestic activities related to areas covered by Commission D

Technical Committee on Microwave Photonics (IEICE): Following technical meeting was held on specific subjects including regular contributions, November 14, 2016 (Tokyo); Three Special Lectures: Technology overview of high speed and stable quantum key distribution, Future Optical Access Systems Using Burst-Mode Optical Amplifiers, Recent development of terahertz communication using resonant tunneling diode oscillators, and 8 contributed paper related MMW and THz wave photonics devices, systems, and applications were provided. The committee chair was Prof. Yuichi Kado (Graduate School of Science and Technology, Kyoto Institute of Technology), who is a member on Japan Commission D.

Technical meeting on Microwave Photonics (IEICE) was held in cooperation with other five technical committees related with Electronics and photonics on January 18-19, 2017, at Ise, Mie. Prof. Kado, Prof. Toda, Prof. Ito and Prof. Yoshimoto, Commission D members contributed in its organization and presentations. In the meeting, 4 invited presentations were provided on specific subjects; Control of circularly polarized light electromagnetic field using chiral photonic crystals; IoT Data Analysis Technology; Evolution of optical and mobile communication systems and future integration; and Elastic Optical Path Control Methods for Highly-Reliable Optical Network. 45 contributed paper on the following topics were presented: advanced photonic networks and devices, photonic generation, antenna or radio over fiber devices and systems for and modulation of microwave, millimeter wave, submillimeter wave, and THz wave.

IEICE General Conference 2016: the session of Microwave Photonics (C-14) was held at the IEICE general conference, March 22-25, 2017 (Nagoya); 19 papers were presented, which covered millimeter wave, submillimeter wave, and THz wave signal generation, modulation and antenna devices; electronic and photonic devices for microwave photonics applications; system applications including radio-over-fiber links, and optical wireless communications.

2. International activities related to areas covered by Commission D

SPIE 2017 Photonics West: The conference was held on January 28 - February 2, 2017 at Moscone Center, San Francisco USA. At the session of Conference 10128 "Broadband Access Communication Technologies XI" co-chaired by Commission D member, Prof. Tsukamoto, following notable papers were presented; Classical key distribution in optical communication; 3D hybrid integration for active silicon photonics; Integrated microwave photonics: a key enabling technology for radio-over-fiber; Advanced digital-signal processing for short-haul optical-fiber transmission beyond 100G; Data center performance improvement using optical wireless links; FireFly: a reconfigurable optical wireless networking approach in data center The role of integrated photonics in datacenter networks; Toward exa-scale optical circuit switch interconnect networks for future datacenter/HPC; Advanced Optical fibers and Amplifiers for SDM and Data Centers; Silicon Photonics and Alternative Technologies for Data Centers and Short Hauls; Millimeter-Wave Components and Technologies and 5G Radio-Over-Fiber (RoF) Systems for Access; Millimeter-Wave Technologies and Advanced MIMO RoF Systems.