

Commission D (Electronics and Photonics) Activity Report

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1. Domestic activities related to areas covered by Commission D

Technical meeting on Microwave Photonics (IEICE) was held in cooperation with other five technical committees related with Electronics and photonics on January 28-29, 2016 at Kobe Industry Promotion center. Prof. Iwatsuki, 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; recent development of space-division multiplexed optical fiber transmission using multi-core fibers and/or few-mode fibers; development trend of optical inter-connections and assembling; large-port-count optical switch based on silicon photonics; and the report of MWP2015, international conference on microwave and millimeter wave photonics technologies held on October, 2015 in Cyprus. 70 contributed paper on the topics related on 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 15-18, 2016 (Fukuoka); 25 papers were presented, which covered signal generation, electronic and photonic devices for microwave photonics applications, system applications including radio-over-fiber links, radars, imaging and wireless communications.

2. International activities related to areas covered by Commission D

SPIE 2016 Photonics West: The conference was held on February 13-18, 2016 at Moscone Center, San Francisco. At the session of Conference 9772 “Broadband Access Communication Technologies X” co-chaired by Commission D member, Prof. Tsukamoto, following notable papers were presented; Recent advances in silicon photonic integrated circuits and optical transceivers for high-speed interconnect applications; Economics of data center optics; Key Devices and Components for Datacenters and Short Hauls including Advanced Fibers and Amplifiers for Data Center, SDM, and Metro Applications; Millimeter-Wave Technologies and Radio-Over Fiber Systems for Access; and Optical Wireless Communications and PON Systems for Access. Commission D members, Prof. Iwatsuki and Prof. Tsukamoto were organized a special session on “Resilient Communication Networks: Radio over-Fiber, Mobile Wireless Access”, in which Cyber physical system based on resilient ICT, Multi-port power router and its impact on resilient power grid systems, Photonics aided ultra-wideband W-band signal generation and air space transmission were discussed.

Optical Fiber Communications Conference (OFC) 2016 held at Anaheim Convention Center, Anaheim, California, USA. In the conference, Commission D member, Dr. Jun-ichi Kani organized a workshop, “How will Optical Technologies Support Wireless Communications in 5G and beyond?” In the workshop, following topics were discussed: new heterogeneous networking architectures, the viable fronthaul solution to support 5G Radio Access Network (RAN), photonic technologies help to realize ultra-high-capacity wireless communications, FSO, millimeter-wave, and THz wireless access links, the best backhaul / fronthaul solution for the remote antenna with massive MIMO and beam-forming.