

Hot Topics

Photonic Network Symposium 2012 – 100Gbit/s Fiber Optics and Competitive Power in International Environment – Was Successfully Held at YRP



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The "Photonic Network Symposium 2012" was held at YRP Hall in Yokosuka Research Park (YRP), Japan on March 15, 2012 and the most advanced photonic technologies which would support next generation high-speed and large capacity transmission systems were overviewed by distinguished guest speakers. It was organized as the first joint forum by Ministry of Internal Affairs and Communications (MIC) and IEICE Communications Society in collaboration, and cosponsored by National Institute of Information and Communications Technology (NICT) and YRP R&D Promotion Committee. The number of participants reached 204 and they joined hot discussion with speakers.

Mr. Shigeyuki Kubota, Director General of MIC inaugurated the Symposium and referred to the national policy of photonic technology development and expectations of YRP activities in the field. Prof. Hiroshi Yasuda, President of IEICE gave a guest speech and stated the increasing dependability on networks required through the experience of huge disasters and the expected role of photonic technologies.

Keynote Speech was given by Prof. Kazuro Kikuchi, University of Tokyo. He overviewed the worldwide R&D activities of fiber optics and introduced the detailed historical R&D background of digital coherent optical communications with the fundamental knowledge and state of art technologies, proposed issues for implementation of higher speed and larger capacity communications.



Fig.1 Prof. Kazuro Kikuchi giving Keynote Speech

Special Lecture was given by Dr. Tetsuya Miyazaki, Leader of Photonic Network Group, NICT. He introduced NICT's R&D activities toward the New Generation Network covering its architecture, network virtualization, the next phase Giga-bit network testbed JGN-x and photonics, and referred to new network concepts and updated technologies represented by elastic network, multi-core fiber, optical packet/path integrated node.

Successively, five Technical Lectures on optical transmission technologies were given by distinguished guests. At first, Dr. Masahito Tomizawa, NTT Network Innovation Laboratories introduced a concept of DSP (Digital Signal Processors) for the 100Gb/s digital coherent optical transmission. He showed the proof that the interoperability of transceivers made by multiple vendors was confirmed. Dr. Kiyoshi Fukuchi, NEC System Platform Research Laboratories referred to the development details of wave length dispersion compensation capabilities

effective even at extremely high speed modulation rates. Dr. Hiroshi Onaka, Network Product Business Unit, Fujitsu Limited introduced essential technologies implemented on the DSP covering transparent client signals forwarding, photonic address switching, polarized wave processing and transceiver based on the technologies. Dr. Takashi Mizuochi, Information Technology R&D Center, Mitsubishi Electric Corporation introduced error correction technologies for optical communications, Forward Error Control capabilities implemented on the DSP with his idea of 'Economic Shannon Limit. Dr. Shinji Nishimura, Telecommunications & Network Systems Division, Hitachi Limited introduced ultra-high speed and low power photonic transmission technologies for 100Gb/s Ethernet as the result of MIC commissioned research project.

Panel Discussion on evolving photonic technologies deployed for the future business and industries was held by distinguished guests including Dr. Isao Sugino, Director of R&D Office of MIC, Dr. Shigeru Iwashina, Research Laboratories, NTT DoCoMo and the above mentioned five lecturers with the initiative of Moderator, Mr. Kazuo Hagimoto, Executive Director of NTT Science and Core Technology Laboratory Group, and President of IEICE Communications Society. As a result of discussion on the roles of Government, Academia and Industries, network virtualization, preferable relation between wireless and photonic networks, standardization strategy and the other issues, the expectation of open innovation and the survivability of networks in a disaster were pointed out to be important.

Dr. Hiroshi Kumagai, Vice President of NICT gave Closing Remarks and referred to the expectation to the synergy between wireless technologies which had been promoted by YRP and the optical communications technologies for higher level outputs.



Fig.2 Panel Discussion on evolving photonic technologies by the distinguished guests



Fig.3 Participants discussing research outputs at the exhibition sites

2012 IEICE General Conference Was Successfully Held at Okayama University with About 13,000 Participants in Total IEICE-TFIPP

The annual IEICE General Conference in 2012 was successfully held at Okayama University Tsushima Campus in Okayama, in the 800km west of Tokyo, on March 20 - 23. The paper presentation and speeches at the Conference were skipped due to the huge natural disaster last year, it was held in two years. The city has an old castle with the 660 years long history and the adjacent historical park "Korakuen", the campus is located in a quiet and wide environment covered with green trees. It was easy for the participants in the beginning of Spring season. The Conference is summarized by Table 1. The number of Conference participants reached 5,473 in registration and effectively about 13,000. Most of the participants replied their

good impression through the preferable opinion exchange with speakers in their research fields of interest, to TFIPP's question.

Table 1 Summary of the presentations at the Conference

Organizer	Speech & Panel	Paper	English paper/speech
Conference Committee	29	—	18
Engineering Sciences Soc.	46	380	16
Communications Soc.	117	1,471	89
Electronics Soc.	43	545	17
Information & Systems Soc.	20	500	28
Total	255	2,896	168

The number of papers and speeches provided in English have increased year by year. Additionally, four complete English Sessions accelerated the globalization of IEICE's academic activities. The first Session TK-1 entitled "Keynote Speech by President of The Institute of Electronics Engineers of Korea (IEEK)" was organized by the General Conference Committee and Prof., Dr. Kukjin Chun, Seoul National University, President of IEEK presented the speech in a memorial hall where about 75 participants joined. He was introduced by Prof. Nobuo Nakajima, University of Electro-Communications, Chairman of the General Conference / Chairman, and Prof. Chun gave the overview of the history, organization and recent academic activities of IEEK, especially in collaboration with IEICE and glimpse of Korean IT industry as well as a case study of next generation communication gadget where he was a principal investigator of a Korean national project covering 16 institutions.

His Speech is entitled as "A Case Study of IT Convergence :Multi Mode/Band Transceiver" and summarized as follows: IEEK has a long history and taken initiatives in academic activities since the original institution, Korean Electronic and Communication Society (KECS) was founded in 1946 and renamed IEEK in 1963. IEEK has a reputation for the oldest and most representative academic organization in Korea now. It has six Societies and publishes a monthly magazine, an SCIE grade international journal on "Semiconductor" and 6 Society journals. The number of membership reached about 32,000. He also introduced that IEEK signed a MOU of cooperation with IEICE in 1983 and it has organized many conferences in collaboration with IEICE such as 'ITC-CSCC' and 'AWAD'. His talk also was focused on a transceiver which would be useful for the 4th generation mobile communication covering mobile WiMAX and WLAN up to 5 GHz regime meeting IEEE 802.11n and 802.16e standards. The product of the transceiver is 7x3.5 cm in its size and it has 2x2 MIMO and OFDM capacity with a single RFIC chip ranging 2-6GHz as well as the Front-end module (FEM) for band/mode selection. The FEM is integrated with MEMS technology where his research interest is to reduce the size and power dissipation. The participants exchanged opinions with the Prof. Chun through positive discussion with the participants. Prof. Sung Je Ko of Korea University, President-Elect of IEEK attended the Session and exchanged opinions with the participants as well.



Fig.4 Keynote Speech given by Prof. K.Chun, President of IEEK



Fig.5 Prof. K. Chun showing the close tie with Prof. H. Yasuda, President of IEICE

The other complete English Sessions are as follows.

◆Session TK-6 entitled "Current Issues of ICT Development and Research Trend in Asian and Other Countries" was planned by the General Conference Committee and organized by IEICE International Affairs Committee (IEICE-IAC). Prof. Kenzo

Takahashi, University of Electro-Communications, Chair of IEICE-TFIPP, chaired the Session. About 65 participants joined the Session. At first, Prof. Nobuo Nakajima, the Conference Chairman and Chairman of IEICE-IAC inaugurated the Session, each of ten IEICE Overseas Section Representatives gave the speech focused on the issue, respectively, and Prof. Kaoru Arakawa, Director, IEICE International Coordination and Publicity gave the closing remarks. The venue was filled with about 65 participants and they had quite positive discussions with each of the speakers. The details of the Session will be reported in next issue of IEICE Global Plaza.

◆Session AT-2 entitled "Updated Sampling Theory and Its Application to Audio Visual Signal Processing" was planned and organized by IEICE Engineering Sciences Society. Associate Prof. Akira Hirabayashi chaired the Session and two speeches focused on the sampling theory of sparse signals were given there.

◆Session BS-3 entitled "Management and Control Technologies for Innovative Networks" was organized as a Symposium Session by IEICE Communications Society. The Session in English was commenced in 2004, to encourage international students and researchers studying in mainly Asian countries including Japan and has been evolved over the past nine years. 43 English papers were presented in 6 Sub-Sessions. It was held everyday during the Conference, about 180 participants in total joined the Session.



Fig.6 Session TK-6 filled with many participants



Fig.7 Session BS-3 provided 43 complete English presentations

IEICE Overseas Section Representative Meeting Was Held on the Occasion of the General Conference at Okayama

IEICE International Affairs Committee

The 2012 annual Overseas Section Representatives Meeting was held with IEICE International Affairs Committee at the same venue as 2012 IEICE General Conference on March 21, 2012. All of 10 Overseas Section Representatives, members of IEICE-IAC and IEICE-TFIPP joined the meeting. The details of the Session will be reported in next issue of IEICE Global Plaza as well as the Session TK-6 where the same members gave their speeches.

Call for Papers

EMTS2013- 2013 URSI Commission B International Symposium on Electromagnetic Theory, in Hiroshima, Japan, on May 20-24, 2013, sponsored by URSI Commission B and IEICE Electronics Soc., technically sponsored by IEICE Communications Soc. And others. Paper submission deadline November 1, 2012 for Young Scientist Awards, November 15, 2012 for general papers. Acceptance notification: January 15, 2013

Contact: Co-chairs, Local Organizing Committee, Prof. Makoto Ando, TIT at mando@antenna.ee.titech.ac.jp or Prof. Tsuneki Yamasaki, Nihon University at yamasaki@ele.cst.nihon-u.ac.jp.

Message from TFIPP Secretariat

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