

Ultrahigh-Speed IM/DD System using SiP OTDM Transmitter

Y. C. Chung

Korea Advanced Institute of Science and Technology (KAIST)
School of Electrical Engineering, Daejeon 34141, Korea

ychung@kaist.ac.kr

Abstract

It is forecast that the operating speed of single-lane ethernet will increase to 400 Gb/s by the mid-2030s [1]. Thus, for the datacenter applications, where cost-effectiveness is critical, it will be necessary to develop the intensity-modulation/direct-detection (IM/DD) systems capable of operating at such high speeds in the near future. However, considering the current trends in the development of high-speed optical modulators, it appears to be tremendously challenging to achieve this objective in time. To address this problem, we have recently proposed a simple optical-time-division-multiplexing (OTDM) system and demonstrated the transmission of a 300 Gb/s/λ pulse-amplitude modulation (PAM) signal using the proposed silicon photonic (SiP) OTDM transmitter driven by a sinusoidally modulated input light source [2]-[4]. The details of this system will be presented at the conference, along with its implications and outlook for the future.

References

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Yun C. Chung is a professor emeritus of electrical engineering at the Korea Advanced Institute of Science and Technology (KAIST), which he joined in 1994. From 1987 to 1994, he was with the Lightwave Systems Research Department at AT&T Bell Labs. From 1985 to 1987, he was with Los Alamos National Laboratory. His research activities include high-capacity WDM transmission systems, optical performance monitoring techniques, WDM passive optical networks, datacenter networks, and fiber-optic mobile fronthaul networks, etc. He has published over 500 journal and conference papers in these areas and holds over 90 patents issued.

He has been the General Co-Chair of OFC, OECC, and APOC, and served as the President of the Optical Society of Korea. Prof. Chung is a Fellow of IEEE, OSA, Korean Academy of Science and Technology, and National Academy of Engineering of Korea.