Traveling-Wave Electro-absorption Modulators and Applications in High Speed OTDM Systems and All Optical Networks

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The Chinese University of Hong Kong

Abstract

We describe the development of high speed traveling wave electroabsorption (TW-EAM) modulators with low drive voltage (0.35 V). A new mechanism of cross-absorption modulation is proposed and experimentally demonstrated to assist wavelength conversion. This photocurrent-assisted mechanism does not rely on the saturation of absorption and has the potential to reduce the high pumping power required by EAM-based wavelength converters. The use of EAMs for pulse generation, multiplexing and demultiplexing at 40 and 160 Gbit/s is described. All optical network concepts using OTDM and all optical switching will be described.

Bio:
Professor Bowers is Director of the Multidisciplinary Optical Switching Technology Center (MOST), and a professor in the Department of Electrical Engineering at the University of California, Santa Barbara. His research interests are primarily concerned with optoelectronic devices and optical networking. Prof. Bowers is cofounder of the Center for Entrepreneurship and Engineering Management, a founder of Terabit Technology and Calient Networks and serves on the Board of Directors of Calient Networks. Prof. Bowers received the M.S. and Ph.D. degrees from Stanford University. He has worked for AT&T Bell Laboratories and Honeywell before joining UCSB. Dr. Bowers is a fellow of the IEEE, OSA and the American Physical Society, and a recipient of the IEEE LEOS William Streifer Award and the South Coast Business and Technology Entrepreneur of the Year Award. He has published six book chapters, 350 journal papers, 600 conference papers and has received 32 patents.

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