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Future Directions of Optical Communications

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Abstract

The optical communications revolution will continue, as the 10-year-horizon capacity needs are expected to grow by 2-3 orders-of-magnitude and the words “Terabit/s Ethernet” might be spoken. Importantly, optics might be a powerful enabler for additional transformative functions, including: (a) stable and reconfigurable networking, (b) high-speed signal processing, and (c) low-power interconnections. It is quite possible that optics will follow trends of the RF world, such that robustness, spectral-efficiency, and functionality will increase dramatically. Some challenges in achieving this vision include: (i) high-bandwidth and tunable technologies, (ii) integration of linear and nonlinear elements, (iii) low power consumption, (iv) maintenance of signal integrity.



Alan Willner

Alan Willner received the Ph.D. from Columbia University, has worked at AT&T Bell Labs and Bellcore, and is Professor of EE at USC. He has received the NSF Presidential Faculty Fellows Award from the White House, Packard Foundation Fellowship, NSF National Young Investigator Award, Fulbright Foundation Senior Scholars Award, OSA Leadership Award, IEEE LEOS Distinguished Traveling Lecturer Award, USC University-Wide Award for Excellence in Teaching, IEEE Fellow, OSA Fellow, Eddy Paper Award from Pennwell Publications for the Best Contributed Technical Article, and Armstrong Foundation Award. Prof. Willner has been President of IEEE LEOS, Editor-in-Chief of the IEEE/OSA Journal of Lightwave Technology, Editor-in-Chief of Optics Letters, Editor-in-Chief of the IEEE Journal of Selected Topics in Quantum Electronics, Co-Chair of the OSA Science and Engineering Council, General Co-Chair of CLEO, General Chair of the LEOS Annual Meeting, Program Co-Chair of the OSA Annual Meeting, and Chair of the IEEE TAB Ethics Committee. He has 800 publications, including 25 patents and 2 books.