Lecture Summary

Optical fiber has been a key enabler of the fantastic growth in nearly all forms of global communications. Amazingly, one tiny glass fiber can accommodate >10,000 Gbit/s of information traffic, which is the equivalent of many millions of simultaneous phone calls or a million simultaneous high-speed Internet connections. The never-ending increase in capacity demand by different types of users necessitates that advances in optics keeps pace with this growth.

The good news is that optical communications continues to follow its own “Moore’s Law-like” growth, with technical innovations abounding. Engineering progress in advanced data-modulation formats, high-performance integrated optics, and over-coming non-idealities in the optical fiber itself are rich in recent technical achievements. Future systems will likely have greater capacity, be more flexible and reconfigurable, and be more robust. The party continues!

Speaker Biography

Alan Willner received the Ph.D. from Columbia University, has worked at AT&T Bell Labs and Bellcore, and is Professor of Electrical Engineering at the Univ. of Southern California. He has received the NSF Presidential Faculty Fellows Award from the White House, Packard Foundation Fellowship, NSF Young Investigator Award, Fulbright Foundation Senior Scholars Award, IEEE Lasers and Electro-Optics Society (LEOS) Distinguished Traveling
Lecturer Award, USC University-Wide Award for Excellence in Teaching, Armstrong Foundation Memorial Prize, and Eddy Paper Award from Pennwell Publications for the Best Contributed Technical Article. Prof. Willner is a Fellow of the IEEE and Optical Society of America (OSA), and he has been President of the IEEE LEOS, Editor-in-Chief of the IEEE/OSA J. of Lightwave Technology, Editor-in-Chief of Optics Letters, Co-Chair of the OSA Science & Engineering Council, and General Co-Chair of the Conference on Lasers and Electro-Optics. Prof. Willner has 700 publications, including two books and 25 patents, in the areas of optical communications and technologies.

Lecture Web-cast

A webcast of the lecture recorded by the Royal Canadian Institute is available here.