



IEEE

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Section**



The IEEE Ottawa Photonics Society (former LEOS) in conjunction with the IEEE Ottawa Joint Chapter of Communications Society and Broadcast Technology Society (ComSoc/BTS), and Algonquin College Student Branch are inviting all interested IEEE members and other engineers, technologists, and students to a technical seminar on

40 Gb/s and 100 Gb/s Coherent Modems

by

Kim Roberts, Nortel

3500 Carling Ave, Ottawa, Ontario, Canada

DATE: March 19, 2009.

TIME: Refreshments, Registration and Networking: 06:30 p.m.; Seminar: 08:00 p.m. – 09:00 p.m.

PLACE: Algonquin College, [1385 Woodroffe Ave.](#), [School of Advanced Technology, Building-T](#), Room T119

PARKING: No fee after 5:00 p.m. at the Visitors' Parking Lots 8 & 9. Please respect restricted areas.

Admission: Free. Registration required. To ensure a seat, please register by e-mail contacting:

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Abstract

Due to demand for increased optical transmission capacity, lower cost, and better spectral efficiency, 40 Gb/s optical systems are emerging and 100 Gb/s transmission is being discussed. With increased baud rate, system performance becomes very sensitive to chromatic dispersion, noise, and Polarization Mode Dispersion. It is desirable to have 40 and 100 Gb/s systems that operate as independently of optical physics as is possible. Traditionally, optical dispersion compensation modules were used within line amplifiers to compensate chromatic dispersion. Electrical Domain Compensation of Optical dispersion (eDCO) systems at 10 Gb/s, use digital signal processing to perform dispersion compensation in the transmitter such that all forms of optical compensation are obsolete. Systems at 40 and 100 Gb/s should be designed to be just as independent of dispersion. Telecommunications operators have been discovering significant amounts of Polarization Mode Dispersion in many of their installed fibers. Coherent detection provides several thousand kilometres of reach at 40 Gb/s, and allows linear digital filters in the receiver to combat dispersion, PDL and PMD. A 100 Gb/s coherent product operates within a single 50 GHz WDM slot. The same coherent technology can be applied to 200, 400 and 1000 Gb/s modems, with future generations of CMOS.

Bio

Kim Roberts has innovated in the areas of optical transmission and high capacity packet connections since 1984. His creations are at the heart of much of Nortel's optical transmission portfolio from the first OC-48 to the 40 Gb/s DSP-assisted coherent transceiver. He has been granted 85 US patents while at the Nortel labs in Edmonton, Harlow UK, and Ottawa. Kim holds a BSc and MSc. in EE from UBC and is a Nortel Fellow. Kim received the Outstanding Engineer medal in 2008 from IEEE Canada.