**Title:**

Physical Layer of Fiber Optical Communication and Sensor Systems

**Abstract:**

Chromatic dispersion (CD), polarization mode dispersion (PMD) and nonlinear effects are important issues on the physical layer of fiber optical communication and sensor systems. It is essential that these degrading physical effects be well managed in the optical fiber systems. One the other hand, they can also be beneficial and have applications on pulse generation, all-optical signal processing and network function. In this presentation, I will give a brief review of the recent research of my group at National University of Singapore in this area, including: multi-channel 40-GHz & 160-GHz optical pulse train generation; measurement of pulse width of short pulses based on degree of polarization (DOP); polarization-insensitive distributed sensing system based on stimulated Brillouin scattering (SBS); and receiver sensitivity improvement in coherent optical phase shift keying (PSK) system using decision-aided maximum likelihood (DA ML) receiver.

**Biography of Changyuan Yu:**

Dr. Changyuan Yu has been an assistant professor at Dept. of Electrical and Computer Engineering, National Univ. of Singapore since December 2005. He received Bachelor of Science in Applied Physics and Bachelor of Economics in Management from Tsinghua Univ., China in 1997, Master of Science in Electrical and Computer Engineering from the Univ. of Miami, USA in 1999, and Ph.D. in Electrical Engineering from the Univ. of Southern California, USA in 2005. And he was a visiting researcher at NEC Labs America in 2005. His research focuses on integrated electro-optical devices, optical interconnects, fiber-optical devices and subsystems, fiber sensors, and high-speed optical fiber communication systems and networks. Dr. Yu has authored/co-authored 4 book chapters and over 80 research papers on the peer reviewed journals and the prestigious conferences. He won IEEE/LEOS Graduate Student Fellowship Award (2004), Academic Achievement Award (Univ. of Southern California, 2005), and Award of Academic Merit (Univ. of Miami, 1999).