

## Workshop Speaker

Full Name	Chao Lu
Affiliation	The Hong Kong Polytechnic University
Presentation Title	Application of optical communication and signal processing techniques in distributed optical sensing systems

### Biography

Prof. Chao LU obtained his BEng in Electronic Engineering from Tsinghua University, China in 1985, and his MSc and PhD from University of Manchester in 1987 and 1990 respectively. He joined the School of Electrical and Electronic Engineering, Nanyang Technological University(NTU), Singapore in 1991 and was a faculty member there until 2006. From June 2002 to December 2005, he was seconded to the Institute for Infocomm Research, Agency for Science, Technology and Research (A\*STAR), Singapore, as Program Director and Department Manager leading a research group in the area of optical communication and fibre devices. He joined the Department of Electronic and Information Engineering, The Hong Kong Polytechnic University in 2006 and is Chair Professor of Fibre Optics there now. Over the years, he has published more than 300 papers in major international journals such as Optics Express, Optics Letters, IEEE Photonic Technology Letters and IEEE/OSA Journal of Lightwave Technology. He has presented more than 100 papers and has given a number of invited talks in major international conferences including OFC, CLEO, ECOC, OECC and ACP. He has been organizer or technical program committee member of many international conferences. His current research interests are in the area of high capacity transmission techniques for long haul and short reach systems and distributed optical sensing systems. In addition to academic research work, he has had many industrial collaborative research projects and has a number of awarded patents. He currently serves as Associate Editor for Optics Express and Chinese Optics Letters and is fellow of the Optical Society(OSA).

### 200 words abstract

Coherent detection has almost completely replaced IMDD in long-hual systems in the past few years. In short and intermediate reach systems, IMDD is still the dominating technology due to cost and power consumption concerns. However, further increase in system capacity in IMDD system is limited by component bandwidth and dispersion. To overcome this limitations, many new variations have been proposed include SVDD and KK receiver. This has inevitably increased system complexity and simplified coherent detection may be a better alternative. In this talk, we will try to analyze the cost, performance and power consumption tradeoffs of various techniques and see where they are the most suitable transmission techniques.