



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY
Department of Electronic and Computer Engineering
and
IEEE Photonics Society (Hong Kong & Singapore Chapters)

JOINT SEMINAR

by

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Presentation I: Lightwave Technology in Singapore and NTRC (Components, Systems and Networks)

Abstract

Photonics is the technology of generating, detecting and manipulating light. It has been termed the revolutionary technology of the 21st century that would make as huge an impact as electronics did in the 20th century. The industry is constantly changing and developing new sophisticated applications and capabilities to support the next generation Internet and high-speed wireless connectivity. Its area of influence has expanded and advanced to the frontiers of science and industrial processes in a wide spectrum of industries. This includes some of today's most dynamic, high-growth markets, including genomes and proteomics research as well as telecommunications. The global value of the optics and photonics industries is estimated to be worth S\$620 billion, and expected to increase to reach S\$1.6 trillion by 2015

Singapore has the right conditions and environment for emerging industries such as photonics. With an established science and technology infrastructure, skilled human resources and a thriving venture capital community, Singapore is the ideal place for new research activities as well as the commercialisation of innovations. Singapore is also the home to over 7,000 multinational corporations (MNCs) and 100,000 small-and-medium-sized enterprises (SMEs), many with advanced manufacturing facilities, design and headquarters. This pool of companies provides the right environment for photonics-related companies to engage new partners and address markets.

The future ahead for the photonics sector is bright and vibrant with the influx of more investments, and growth of the research expertise and community.

Presentation II: Simultaneous Implementation of Photonic OR and AND Logic Gates for CSRZ-OOK Signa

Abstract

A simultaneous implementation of photonic OR and AND logic gates for 10-Gb/s CSRZ-OOK signal is demonstrated using FWM in a 60-meter highly nonlinear photonic crystal fiber (HNL-PCF) or a single semiconductor optical amplifier (SOA). The logic integrity and system performance are experimentally evaluated by BER measurements

Presentation III: Optimized Design of Node-and-Link Protecting p -Cycle with Restorability Constraints for Optical Multicast Traffic Protection

Abstract

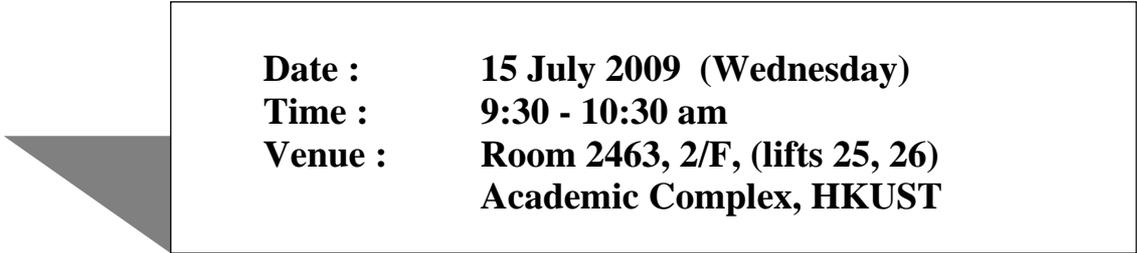
Network survivability is crucial to optical multicast traffic. We present the optimized design of node-and-link protecting p -cycle with restorability constraints for optical multicast traffic protection. Results show that 100% node and link failure recovery can be achieved at a small amount of additional capacity, compared with the case of 100% link failure recovery.

Biographies

P. Shum received the B. Eng. and PhD degrees in electronic and electrical engineering from of the University of Birmingham, UK, in 1991 and 1995, respectively. After PhD graduation, he stay in the same university as an honorary postdoctoral research fellow. In 1996, he carried out research in semiconductor laser and high speed optical laser communication in the Department of Electrical and Electronic Engineering, Hong Kong University, as a visiting research fellow. Since July 1997, Dr. P. Shum joined the Department of Electronic Engineering, Optoelectronics Research Centre, City University of Hong Kong. In 1998, he has received the IEEE EDS/MTTS India Chapter best paper award for his paper in Photonics-98. In 2002, he received the best paper award at the 3rd International Conference on Microwave and Millimeter Wave Technology. In 1999, Dr. Shum joined the School of Electrical and Electronic Engineering, Nanyang Technological University. He is the chair and founding member of IEEE Photonics Society (formerly LEOS) Singapore chapter. Since 2002, he has been appointed as the Director of Network Technology Research Centre. He received the Singapore National Academy of Science Young Scientist Award in 2002 for his contributions on next generation optical communication technology. Dr. Shum has published more than 400 international journal and conference papers. He is the chair, committee member and international advisor of many international conferences (e.g. ICAIT, COIN, ICOCN, OECC, APOC, ICMAT, ICICS, WOCN, ICCAS, AOE, PIERS, ECOC, PhotonicsGlobal etc). His research interests are concerned with optical communications, nonlinear waveguide modelling, fibre-based technology.

Dr. Songnian Fu received the B.Sc. and the M. Sc. Degree from Xiamen University, Xiamen, Fujian, China in 1998 and 2001, respectively. In 2004, he received the Ph.D. degree from Beijing Jiaotong University, Beijing, China. In 2005, he joined Network Technology Research Center (NTRC), Nanyang Technological University, Singapore, as a research fellow. His research interests include all-optical signal processing, microwave photonic, and advanced modulation format.

Feng Zhang is currently pursuing his PhD degree in School of Electrical and Electronic Engineering, Nanyang Technological University (NTU), Singapore. He received his B.Eng (First Class Honors) from the same university in 2005 and expected to receive his PhD at the end of 2009. He is also working as a research engineer in the same university from June 2009. His research interests include network survivability, and WDM-PONs



Date : 15 July 2009 (Wednesday)
Time : 9:30 - 10:30 am
Venue : Room 2463, 2/F, (lifts 25, 26)
Academic Complex, HKUST

**** ALL ARE WELCOME ****