

## Silicon Photonics – Emerging Devices and Applications

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### Abstract

Silicon photonics has emerged since the start of this century to become one of the mainstream platforms for photonic integration. It has found commercial applications in telecommunications and photonic integrated circuits for optical interconnects in data centres, and there are emerging potential applications of silicon photonics as energy efficient on-chip optical interconnects in high-performance computing and in mid-infrared spectroscopy. This talk describes some of our recent research on silicon photonic devices, including hyperuniform disordered photonic bandgap structures for integrated polarisers and the hybrid integration of graphene on silicon waveguides. Some recent results on high-speed mode division multiplexing in silicon interconnects will also be presented.

*Refreshments will be served.*

*The lecture will be followed by opportunities for questions.*

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### Biography

Hon Ki Tsang received his Ph.D. in 1991 from the University of Cambridge. He joined the Chinese University of Hong Kong (CUHK) in 1993 and became a professor in 2003. During 2002-03 he took a break from academic work to manage the development of the silicon four channel array electronic variable optical attenuator at Bookham Technology plc. He is currently Director of the Centre for Advanced Research in Photonics at CUHK and is taking a sabbatical at Cambridge University. **Current research interests include silicon photonics and waveguide components for communications, graphene on silicon photonics and on-chip mode division multiplexing, and integrated quantum optics.** He has over 350 published papers and is currently an associate editor of OSA/CLP's Photonics Research and an editor for Nature Publishing Group's Microsystems and Nanoengineering.

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