



## Talk

**Time:** Wednesday, Oct. 15, 2008, 10:00 am

**Location:** IHQ-Seminarraum, Building 30.10, Room 342

***Prof. Benjamin J. Eggleton***

**Director of Centre for Ultra-bandwidth Devices for Optical Systems (CUDOS),  
Professor of Physics, University of Sydney, Australia**

### Ultrafast Nonlinear Optics on a Chip

#### Abstract

This presentation will review the purpose and scope of the CUDOS research program. The main vision of CUDOS is to develop the theoretical and experimental expertise to create "photonic chips" -- the building blocks for the next generation of optical systems. Such miniaturization will be achieved using novel optical concepts such as photonic crystals and microphotonic structures and will rely on advanced fabrication techniques, new material systems (e.g. chalcogenides) and possibly entirely new principles. CUDOS also investigates optical processing techniques that rely on nonlinear effects in novel optical structures and will integrate these nonlinear functions onto photonic chips. CUDOS is a collaborative project combining the established expertise of researchers at the University of Sydney, ANU, Macquarie University, Swinburne University, the University of Technology, Sydney and RMIT University.

#### Speaker Biography

Benjamin Eggleton is currently an ARC Federation Fellow and Professor of Physics at the University of Sydney. He is Research Director of the Centre for Ultrahigh-bandwidth Devices for Optical Systems (CUDOS), an ARC Centre of Excellence. He studied at the University of Sydney, obtaining his BSc (Hons 1) in 1992 and his PhD in Physics in 1996. After graduation, he went to the United States to join the world's leading research institute in his field, Bell Laboratories, as a Postdoctoral Fellow in the Optical Physics Department. He then transferred to the Optical Fiber Research Department as a Member of Technical Staff and was subsequently promoted to Technical Manager of the Optical Fibre Grating group. Soon after this, he became the Research Director of the Specialty Fiber Business Division of Bell Lab's parent company, Lucent Technologies where he drove Lucent's research program in optical fibre devices. He has co-authored more than 200 journal papers, presented more than 60 invited and plenary presentations at international conferences, and has filed 35 patents. He has received several significant awards. Most notably, In 2007 Professor Eggleton received the Pawsey Medal from the Australian Academy of Sciences, in 2004 he received the Prime Minister's Malcolm McIntosh Science Prize for Physical Scientist of the Year, in 2003 the ICO Prize (International Commission for Optics), and in 1998 was awarded the Adolph Lomb Medal from the Optical Society of America. Other achievements include the award of the distinguished lecturer award from the IEEE/LEOS, a R&D100 award, and being made an OSA Fellow in 2003. He was an Associate Editor for IEEE Photonic Technology Letters from 2003 -- 2007, and is currently Editor for Optics Communications. He serves as Vice-President of the Australian Optical Society.