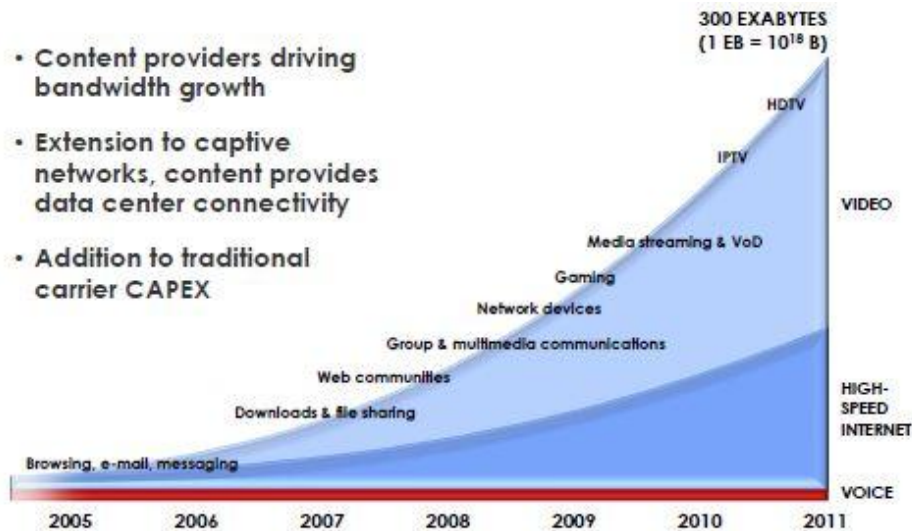




The Electrical Systems & Optics Research Division invites you to:

The Coming of Age of Photonic Integrated Circuit Technology

- Content providers driving bandwidth growth
- Extension to captive networks, content provides data center connectivity
- Addition to traditional carrier CAPEX

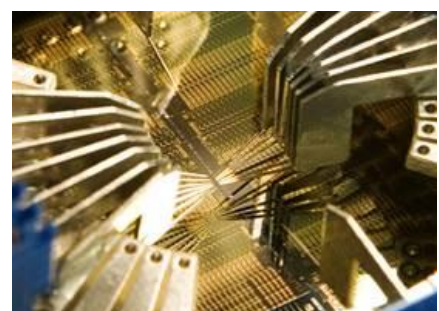
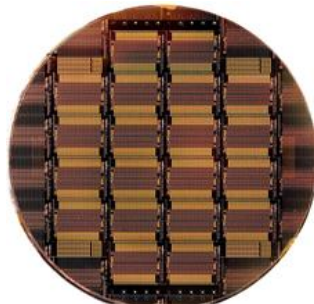
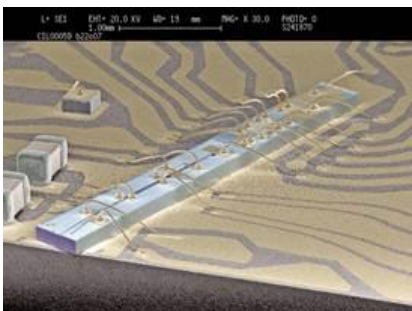


Prof. Michael Wale

2.00pm Wednesday 11th Dec 2013

Coates Building C29

All welcome



Research Seminar: The Coming of Age of Photonic Integrated Circuit Technology

2:00pm Wednesday, 11th December 2013, Coates Building C29

In order to manage the ever-increasing information flows in telecommunications and data networks, operators have had to deploy ever more sophisticated techniques for information transport, routing and switching. Already we are seeing the deployment of advanced modulation techniques, dense wavelength division multiplexing and full-band tunability, which together allow a single optical fibre to carry 10Tbit/s efficiently over networks that were originally designed to carry much lower data rates. These new systems architectures are enabled by developments in component technology, especially in photonic integrated circuits (PICs), which play a vital role in the generation, processing and management of optical signals within these networks. In a real sense this represents a new stage of maturity in integrated photonics, especially in PICs based on indium phosphide (InP), a technology which has had many successes over more than twenty years of development and which has quietly become the technology of choice in a wide range of telecom applications. We have reached an exciting stage in another respect, too: following the example of silicon microelectronics, we have now taken the first decisive steps toward the availability of generic InP integration platforms, supported by excellent computer aided design tools, which are now becoming available to innovators in a wide variety of fields, both within the communications and information systems community and in other applications such as industrial sensors and controls, medical systems and the electrical power industry. These developments should provide great stimulus to the photonics community as a whole.

In this talk, we shall review the drivers for technology development in communications networks and show how photonic integrated circuits based on InP are providing solutions to the increasingly demanding challenges of capacity, efficiency, power and cost. We look at the place of InP in relation to other technologies such as silicon photonics and identify promising directions for future innovation. Finally, we review the current status of generic foundry platforms, which offer the prospect of photonics becoming as ubiquitous in our daily lives as silicon ICs are today.

Prof. Michael Wale is Director Active Products Research at Oclaro, based at Caswell, Northamptonshire. Mike received his B.A., M.A. and D. Phil. degrees in physics from the University of Oxford. Since moving into industry in the early 1980s, he has been involved in many different aspects of research, development and manufacturing of photonic devices and systems, with particular emphasis on photonic integrated circuit technology. Alongside his role at Oclaro, where he has responsibility for strategic technology activities, he is Professor of Photonic Integration/Industrial Aspects at Eindhoven University of Technology in The Netherlands and an Honorary Professor at the University of Nottingham. Prof. Wale is a member of the Executive Board of the European Technology Platform, Photonics21, and chairman of its Working Group on Design and Manufacturing of Optical Components and Systems.

