



*“Coordinating and promoting photonics
across Northwest industry and academia”*



*“Accelerating business innovation
a Technology Strategy Board programme”*

<http://www.nwphotonicsassociation.org.uk>

North West Photonics Association Photonics and Climate Change

Daresbury Campus
Wednesday 31st October 2007

9:00hrs Registration

9:45 Welcome

Professor Colin Whitehouse, Chief Executive, STFC Daresbury

10:00 Laser-driven Space Observations and Climate Change

Dr Steve Welch, Mullard Space Science Laboratory

Earth Observation is one of the three main reasons for doing science in space. Steve Welch this talk will outline some of the ways that spacecraft have been used in the past for remote sensing, and the new missions that are on the horizon from the European Space Agency. These future missions are going to be exploiting new techniques in lasers and optics and represent an opportunity for new players to enter the space supply chain.

10:40 How Solar Energy Can Make A Difference

Professor Stuart Irvine, School of Chemistry, University of Wales Bangor

The talk will describe the global challenge of climate change and how opto-electronic technology can make a difference as we transition to a low carbon economy. In particular, LED lighting can help to reduce the demand on electricity and photovoltaic (PV) solar energy can supply clean and sustainable electricity. The talk will describe the growth of the global market in PV and how new materials technology will affect the cost, performance and adoption of PV systems. The talk will conclude with a description of the importance of networks in PV research and for influencing decision making.

11:20 Coffee

11:40 Can Organic Solar Cells Help Alleviate Climate Change?

Prof Ifor Samuel, University of St Andrews, Organic Semiconductor Solar Cells

Solar power has the potential to supply our energy needs, but cost is currently a key limiting factor. This talk will introduce organic semiconductors, remarkable plastic-like semiconductors that can be simply processed and even ink-jet printed to make low-cost semiconductor devices, and show work on their development for solar cells

12:20 Climate Change and the Technology Strategy Board

Mike Biddle, Technologist - Electronics, Photonics and Electrical Systems

Mike will introduce the Technology Strategy Board explaining their interaction with KTNs and Collaborative R&D and how it relates to the previous DTI Technology Programme. He will relate this to the structure of the existing strategies by underpinning technologies (eg Electronics, Photonics &



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Electrical Technologies) and by application areas (eg environmental sustainability) and the photonics KTN as a network that the audience should be signed up to. He will also tell us about the high-efficiency lighting, being an area that has been funded by CR&D in the past. The Technology Strategy Board is in the process of reviewing Photonics and Mike will explain how we can access the Board and feed into this policy process.

13:00 Introduction to NWP

Professor Allan Boardman, Director NWP

Allan will outline the objectives of the Association and update delegates on progress and plans.

13:15 Lunch

It may be possible for delegates to visit the 4GLS towards the end of the lunch break

14.00 Atmospheric Dynamics and Pollution Monitoring

Dr Guy Pearson, Halo Photonics Ltd and Salford University

The concept, design and operating characteristics of a new, autonomous remote sensing instrument for atmospheric monitoring will be described. Contemporary fibre-optic and photonic technologies are utilised to produce an instrument capable of providing a unique data set. Examples of wind, turbulence and particulate profiles will be presented as well as a summary of the commercial applications.

14.40 4GLS Technology & Climate Change

Professor Wendy Flavell, 4GLS @ Daresbury

4GLS is already being utilised to evaluate potential applications in a number of areas, for example:

- Advanced studies of skin cancer, and potential early diagnosis of lung cancer
- Live cell imaging to better understand action of pharmaceutical on a cell
- Evaluation of reaction pathways in real time to help develop next generation photovoltaic
- Improved understanding of chemical catalysis mechanisms
- Non-damaging “point and click” THz imaging and spectroscopy for explosives identification

The presentation will help you to understand the progress being made with 4GLS technology including investments in, and benefits derived from it. In particular it provides key industrial users with the opportunity to understand the potential benefits of 4GLS technology in key target sectors (Lifelong Healthcare, =Energy, Catalysis & Fine Chemicals, Security, Semiconductors, Electronics and Nanotechnology)

15:20 Conclusions, Opportunities and Close

Professor Allan Boardman, Director NWP

Allan will reiterate how you can be involved with Northwest Photonics Association and outline our plans for the next few months

Special Acknowledgement to WOF
Welsh Opto-electronics Forum