Engineering Applications of Optical Fibre Sensors
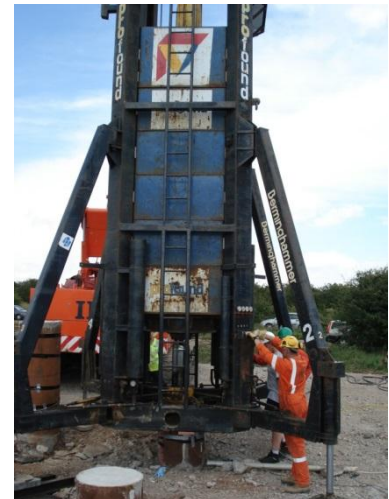## Dr Stephen James
Cranfield University

Cryogenic environments and superconducting magnets

Flight testing

Instrumented foundation piles

Rail infrastructure monitoring

Instrumented wind-tunnel models

1.00pm Tuesday 25th Feb 2014
2nd Floor Lecture Theatre
Tower Building. All welcome

Applied Optics Group Lunchtime Seminar:

Engineering Applications of Optical Fibre Sensors.

The use of optical fibre sensors is finding increasing acceptance across a range of industrial sectors, with interest being driven by features of the technology that offer advantages over conventional measurement approaches in niche applications. Despite the emergence of a new industry selling optical fibre instrumentation and measurement services, there is still a role for academic teams to develop and apply new measurement approaches exploiting this versatile sensing platform.

This presentation will introduce the research underway at the Centre for Engineering Photonics at Cranfield University, which encompasses optical fibre sensors for the measurement of physical and chemical parameters, speckle interferometry for the characterisation of the surfaces of engineering components, laser anemometry for flow measurement, spectroscopy for gas sensing and optical coherence tomography for medical imaging. The focus of the presentation will be on optical fibre sensors, providing examples of the practical deployment and field trials of the technology for structural monitoring applications in areas as diverse as railways, foundation piles, aircraft, composite material fabrication and superconducting magnets.

Dr Stephen James leads the optical fibre grating sensing activity in the Centre for Engineering Photonics at Cranfield University. He has been working on the development and application of photonic sensing systems for more than 20 years, with a focus on the field deployment and practical use of optical instruments to solve engineering measurement problems. He has published more than 280 journal and conference papers, and has supervised 15 PhD students.