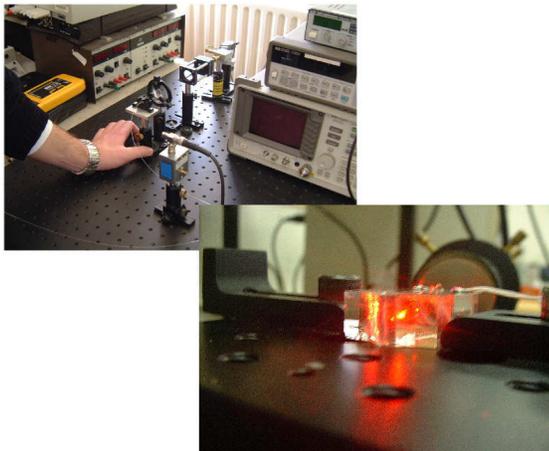


Project description- Smart Structures with Embedded Sensors

This research project aims to develop smart composite structures with integrated hybrid optical fiber sensors which would allow in-situ monitoring during both the manufacturing process and service life. Compared to traditional non destructive evaluation (NDE) techniques, fiber-optic sensors offer unique capabilities: monitoring the manufacturing process of composite parts, performing NDE testing once fabrication is complete, and enabling health monitoring and structural control. Because of their minimal weight, small size and immunity to electromagnetic interference, fiber-optic sensors have significant performance advantages. To ensure the integrity of composite structures, it is desirable to simultaneously monitor the strain, temperature and vibration frequency applied to them in real time. A multi-functional sensor that can measure multiple parameters would offer significant economic advantages and end-user appeal. An important requirement for the sensor is that it should be possible to embed into the host composite without modifying its properties and functions. Fiber embedding methods will be investigated to ensure reliability and precision of the measurement and to ensure structural integrity of the host composite structure after embedding the optical fiber sensors.

Photronics Research Centre

The Photronics Research Centre in the School of Electronic and Communications Engineering at the Dublin Institute of Technology. It involves several faculty members, post-docs and graduate students, undertaking research in areas such as optical sensing, smart sensors and structures, liquid crystals, waveguide and fiber modelling, integrated photonic devices, fiber edge filters, FBG sensors and interrogation systems etc. The group has a wide range of experience, a strong publication track record and is supported by well equipped facilities. Further information is available at www.prc.dit.ie



Requirements

For the successful candidate, the scholarship will provide a maintenance grant of €17,000 per year for 3.5 years plus all programme fees paid and funding for expenses and travel to research conferences and colloquia.

Academically strong candidates are sought who have a Masters Degree or a good primary degree in Applied Physics or Electronic Engineering or a closely related discipline, with a minimum honours grade of 2-1 or higher. Candidates should also have had demonstrated exposure to optoelectronics, optical fibre communications or optical sensing in their degree. For further details please contact the Principle Investigator (below)

Applications:

Please send an up-to-date CV by email to: **Prof. Gerald Farrell**

Closing date of applications: 31st May 2009

Email: gerald.farrell@dit.ie

Phone +353-1-4024577

Web: www.electronics.dit.ie

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