

PhD Studentship

Ref:JMC270710

Optical Measurement of Precision Surfaces

Loughborough University - Wolfson School of Mechanical and Manufacturing Engineering

A postgraduate studentship is available to investigate new methods to increase the capability of optical interferometry and to introduce new levels of traceability in the measurement of precision engineering surfaces.

With the lateral resolution of a few micrometres and an axial resolution of a few nanometres interferometry is becoming an increasingly popular means to characterise engineering surfaces. As a non-contacting technique, commercial interferometers make an indirect estimate of surface form deduced from measurements of the light scattered from the surface. Due to the complex interaction between light and rough surfaces anomalous behaviour can occur and for this reason, traditional contacting methods making more direct measurements using stylus-based instrumentation, remain the basis of international (ISO) surface standards. The purpose of this project is to develop optimisation strategies based on new, more sophisticated surface scattering models to increase measurement capability and to estimate uncertainty in optical interferometers.

The project is sponsored by the National Physical Laboratory (NPL) and Taylor Hobson Ltd. It is expected that the student will spend some time at one or both of the industrial partners' premises.

A first degree (1st class or High 2:1 honours) in the physical sciences or mathematics is required and an interest in optics would be an advantage. Strong analysis skills and proficiency in numerical computing are essential and experience of optimisation techniques would be an advantage.

The preferred starting dates are 1st October 2010 or 1st December 2010 and the studentship has a stipend of £8000-£11500 per annum tax free plus tuition fees. This studentship is to UK/EU and international students.

Please apply through the following web page: <http://www.lboro.ac.uk/departments/mm/post-graduate/by-research/index.html> Should you have any problems downloading the documents please contact Ms Jo Mason, Research Administrator (J.R.Mason@lboro.ac.uk). Applicants seeking additional information are invited to contact Prof. Jeremy Coupland (j.m.coupland@lboro.ac.uk).

Please quote the reference Ref:JMC270710 on all correspondence.

The closing date for applications to this post is Friday 3rd September 2010.