EPSRC fund for enterprise and entrepreneurship transferable skills training

Darren J Hughes - WMG

Report on Workshop 'Opportunities for materials engineering using synchrotron X-rays and neutrons – 6th December 2011

Grant recipient: Darren Hughes - WMG

Event flyer:

Final event programme:

Timetable:

09:00 Tea/coffee and biscuits available in IDL mezzanine – networking opportunity

09:30 Welcome and introduction

09:45 "Opportunities for Engineering Experiments at Diamond Light Source, the UK's National Facility for Synchrotron X-ray Science". Dr Thomas Connolley – Beamline Scientist, DIAMOND Light Source, Didcot, UK.

10:15 "Small angle scattering for Engineering Applications". Dr Ann Terry – Instrument Scientist, ISIS Neutron Source, Rutherford Appleton Laboratory, Didcot, UK.

10:45 Tea/coffee and cupcakes

11:00 “Metals analysis with synchrotron X-ray absorption spectroscopy: applications in biomedical engineering and beyond”. Dr Joanna Collingwood – School of Engineering, University of Warwick.

11:20 “Using synchrotron X-rays to investigate morphology and structure development in polymer materials”. Dr Ellen Heeley – Department of Physical Sciences, The Open University.

11:40 “Determining stresses in engineering components: a non-destructive approach” – Dr Darren Hughes, WMG, University of Warwick.

12:00 “Quantitative X-Ray Synchrotron Analysis of the FFC Cambridge Process” – Dr Rohit Bhagat, WMG, University of Warwick.

12:15 Closing discussion

Grant awarded and spending (to date):

The initial grant awarded was £800

Current spending on the event is:

- Event refreshments £147.50 and £65.00
- Travel expenditure for 3 external speakers £110 (note that there an outstanding claim)

Overview of the event:

The workshop was held in the main amphitheatre of the IDL during the morning of the 6th December. The key aims were:

- To increase awareness of the research tools available at central facilities
- To stimulate research ideas using central facilities
- To encourage the creation of new research collaborations/networks

The event appeared to be rather successful, with 30 participants from WMG/Engineering research staff and students. Feedback from a number of people has been very positive.

Two key presentations were given from instrument scientists at the two UK central facilities (DIAMOND/ISIS). Each presentation was intended to give an overview of each type of facility and cover the wide scope of science that is possible. Four further shorter presentations were made from scientists who already use the techniques, showing specific areas of application (1 external, 3 internal). The fields covered a number of areas of interest for WMG and Engineering.

The majority of the organisation for the event was performed by Darren Hughes with further technical support from Joanna Collingwood.

Event impact:

With 30 participants in total, the good attendance can be taken as a good indicator of success. Note that the event was only advertised internally within WMG and Engineering.

Feedback following the event has been extremely positive from both the internal participants and the external speakers. Indeed, the speaker from the Open University has decided to use the same format for a similar event in early 2012 for which I have been invited as a speaker. In addition to the stimulation of future research ideas in the participants, there have been several immediate actions. Several members of the research staff have approached me to make contact regarding a visit to the facilities at DIAMOND, particularly with respect to collaboration on micro-tomography. Initial discussions on collaboration were held between a WMG researcher and one of the external speakers in the field of polymer engineering.

Personal impact:

From a personal perspective, the funding has allowed me to gain experience from organising the event and managing the available budget. The event has helped to establish myself as a point of contact for local researchers who may want to learn more about the techniques available at central facilities. I would expect to have input to research projects which arise from the event.

Further use of funds:

I propose utilising funds that remain in the grant award, to help arrange a return visit to the two central facilities in Didcot (before the deadline of 31 March 2012).