

Instrumentation development for magneto-transport measurements at high-pressures and sub-Kelvin temperatures

Applications are invited for a PhD studentship to work on the above research project. Applicants must have a first or a 2.1 Master's or Bachelor's degree (or an appropriate equivalent) in Engineering, Physics, Materials Science, GeoSciences or Chemistry. Previous experience in finite element analysis (FEA), computer aided design (CAD) packages and studies of magnetic and electronic properties of materials would be an advantage.

The project will form part of "Field Induced Quantum Ordering" project lead by Prof. A. Huxley (School of Physics, University of Edinburgh) recently funded by the UK's Engineering and Physical Sciences Research Council (EPSRC). The studentship will be held in the School of Engineering and Electronics/Centre for Science at Extreme Conditions (CSEC), under the supervision of Dr. K. V. Kamenev.

The PhD project will be centred on developing of inserts into dilution refrigerators for making magnetic measurements at high pressures and magnetic fields and at sub-Kelvin temperatures. The proposed PhD project will include designing diamond-anvil high-pressure cells and auxiliary equipment, assessing the performance and safety of these designs using FEA, producing technical drawings for manufacturing using CAD software, assembling, adapting them for use with the standard sample holders and cryogenic equipment, testing the cells and developing the experimental techniques. Part of this project is focused on developing so called "designer diamonds" - diamond anvils with integrated circuits produced by microelectronics techniques. The successful candidate is expected to participate in scientific experiments involving the use of these new devices and provide training to the users.

The studentship, which is funded by the EPSRC, comprises a bursary for three years at the standard EPSRC level (around **£12,300** per year) together with College fees at the home/EU rate (overseas students will need to find additional funding to cover the difference between the fees at overseas and home/EU rate - <http://www.ed.ac.uk/studying/postgraduate/finance/pg-fees-0708.html>). Please, note that for students whose first language is not English, documentary evidence of competence in both written and spoken English must be provided (For more information see

<http://www.ed.ac.uk/studying/postgraduate/>)

Informal enquiries can be made to Dr. Konstantin Kamenev (K.Kamenev@ed.ac.uk; Tel: +44 (0)131 651 7232). For instructions on how to apply, please visit

<http://www.see.ed.ac.uk/postgraduate/apply/>

Closing date for applications: 1 August 2007