

Toshiba Research Europe Limited
Cambridge Research Laboratory
208 Cambridge Science Park
Milton Road, Cambridge
CB4 0GZ
Tel +44 (0)1223 436934
Fax +44 (0)1223 436909
11 May 2013

Department of Materials Science
University of Cambridge
New Museums Site
Pembroke Street
Cambridge
CB2 3QZ

Capital for Great Technologies

Advanced materials, Robotics and Autonomous Systems and Grid-scale Energy Storage

Dear Dr Mathur,

Thank you for the information on the funding call from the EPSRC, Capital for Great Technologies. I expect that a low-temperature scanning probe microscope will greatly enhance your research capability in the area of graphene spintronics, magneto-electrics and nano-magnetism for the Department of Materials Science.

The latest device schemes for quantum information technology that Toshiba are actively pursuing have nano-structured magnetic surfaces. A greater understanding of how the surface switches in relation to the bulk of the device is important and a low temperature magnetic force microscope would be a useful tool for this purpose, particularly if in-situ magnetic fields can be applied. Novel surface states could also be studied such as the topological insulator predicted in particular III-V semiconductor surfaces as well as magnetic surface Dirac fermion states in Mn-based materials and graphene structures. The device potential (high mobility and high switching speed) has not been realised in these material systems due to a lack in understanding of the role played by surface states. Having access to the facility would enhance Toshiba research in Cambridge and provide Materials Science with a world class research facility.

Yours Sincerely



Dr Stuart N Holmes
Senior Research Scientist