



**The MacDiarmid Institute**

*for Advanced Materials and Nanotechnology*

PhD Scholarship:

**the formation of magnetic silicon nanostructures.**

Applications are sought from suitably qualified candidates for a PhD Scholarship in Physics within the MacDiarmid Institute for Advanced Materials and Nanotechnology at GNS Science and Massey University, New Zealand.

The PhD research programme is focussed on the novel growth of silicon and SiC nanostructures for spintronic applications. Preliminary research indicates that iron can be successfully integrated into the nanostructures. The team centred at GNS Science has developed the technology to manufacture prototypes of Si nanostructures with electron beam annealing. Ion implanters are available in-house to insert magnetic ions into the nanostructures. The formation process and the magnetic ion distributions will be studied at GNS Science with AFM and RBS. Additional surface analysis methods are available in the MacDiarmid Institute. A team of three scientists from GNS Science and Massey University and a post-doc will support the PhD student. The novel magnetic silicon nanostructures will be fabricated with a brand new in-situ electron beam annealer that is coupled to an ion implanter and a RBS beamline.

Financial support will include a sustenance allowance of \$25,000 plus NZ PhD tuition fees per year for 3 years. Assistance with travel to New Zealand may be provided. The preferred starting time is 29 March 2010. Enquires and expressions of interest together with your CV and at least two referee reports should be sent to Dr Andreas Markwitz, email [a.markwitz@gns.cri.nz](mailto:a.markwitz@gns.cri.nz). Further information about the MacDiarmid Institute can be found on <http://www.macdiarmid.ac.nz>

The theoretical component of the research will be carried out in collaboration with Prof Ulrich Zuelicke from the Institute of Fundamental Sciences, Massey University, New Zealand (<http://www.massey.ac.nz/~uzuelick/>). The successful candidate will be based at GNS Science.

Applications will be considered from 5 February 2010