

### **Research Scholarship in Materials Characterisation**

A Ph.D. scholarship is available within the Discipline of Physics at The University of Newcastle to work on the design and characterisation of new plasmonic materials. This is an Australian Research Council (ARC) Discovery research project and it will be conducted in collaboration with the Institute for Nanoscale Technology at the University of Technology (UTS).

This project will develop and explore new materials for plasmonic applications. Plasmonics exploits the coupled electromagnetic resonances of light and electrons occurring at a nanometre scale and has found applications in the biological, chemical and medical sciences, including the possibility of nano-photonic devices. One problem inhibiting development in this field is that of 'optical loss, which can be considered to be attenuation of the plasmonic resonances due to insufficient electrical conductivity of the materials. We will seek to improve the corrosion resistance of nanostructures built out of the materials already known to have good optical properties for plasmonic devices. The materials will be prepared at UTS and their characterisation and comparison to the theoretical predictions will be performed at The University of Newcastle. There will be a strong emphasis on the application of advanced electron microscopy and spectroscopic techniques.

We are seeking graduates with good academic background in Physics, Materials Science, Metallurgy or other relevant field to work on this project. Scholarships of \$23,728 per annum (2012 rate, indexed annually) for three years are available for Australian and New Zealand students. International students with an exceptional academic background will also be considered. In the third year of the project, scholars may also apply for a 6 month extension to the scholarship on research related grounds. Approval will be dependent on availability of funding.

Top-up scholarships of \$5,000 per annum are also available for students who successfully apply for a Commonwealth (APA) or University of Newcastle centrally funded research scholarship and wish to join the project. All interested students are encouraged to forward a copy of their CV and academic transcript to Dr. Vicki Keast by the 31<sup>st</sup> of December: [vicki.keast@newcastle.edu.au](mailto:vicki.keast@newcastle.edu.au).