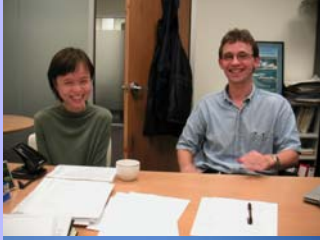
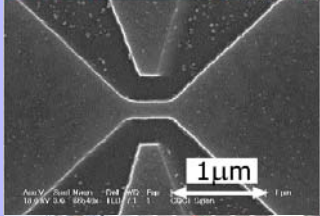
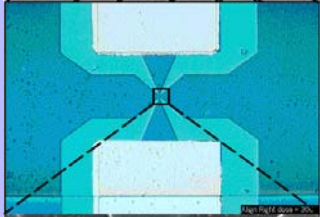
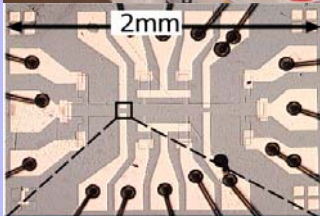


PhD openings in Quantum Electronics in Sydney at UNSW



The Quantum Electronic Devices Group uses state-of-the-art semiconductor clean-room processing equipment to develop and build advanced nanostructure devices, and ultra-low temperatures and high magnetic fields to study their fundamental electronic and magnetic properties. The group has active collaborations with leading laboratories in the USA, UK (Cambridge), Japan (NTT), Denmark (Niels-Bohr Institute) New Zealand, and Germany.

Project descriptions

We use high-resolution electron beam lithography to fabricate nanoscale devices from custom grown ultra-low disorder GaAs-AlGaAs heterostructures. Whereas there has been much research into electron-based nanostructures, devices using holes remain unexplored despite many useful properties. We have recently made a breakthrough with hole quantum wires that demonstrate their outstanding electrical properties (www.science.unsw.edu.au/news/2006/QuantumHoles.html).

A number of projects will be available for making and studying semiconductor nanostructures, looking to study spin-orbit coupling and spintronics applications in both electron and hole nanostructures.

What will you learn?

Our students learn all aspects of semiconductor processing techniques in a fully equipped clean room facility, as well as ultra-low temperature cryogenics (down to 0.01K), programming computer controlled measurement systems, and low-noise electrical measurement techniques.

Sydney and opportunities for travel

UNSW is located in the heart of Sydney, minutes from its famous beaches. Most QED students attend two or more overseas conferences during their study, with recent trips to Genoa, Vienna, and Mexico, as well as trips within Australia.

Financial assistance

Students eligible for an Australian Postgraduate Award receive a generous top-up scholarship. We also have a very limited number of scholarships for highly motivated students who narrowly miss out on APAs. For more details on scholarships, admission, etc. please see <http://www.grs.unsw.edu.au/>

For more on our group and its recent research, please see www.phys.unsw.edu.au/QED. To contact us, please e-mail qed-recruiting@phys.unsw.edu.au