Macquarie’s chemical and biomolecular sciences research is of high international quality. In the Excellence in Research for Australia (ERA) 2012 evaluation our research in the sub-discipline of analytical chemistry received a rating of ‘performance above world standard’ and our research in the sub-discipline of physical chemistry received a rating of ‘performance at world standard’.

Macquarie leads the world in the study of proteomics – a term actually coined by our researchers – and is home to the world’s first dedicated proteomics facility, the Australian Proteome Analysis Facility (APAF). Macquarie is driving major advances in basic and commercial research in separation science and instrumental methods, analytical spectrometry, and glycochemistry. Our researchers are also pioneering new methods in laser spectroscopy, catalysis, organic geochemistry and atmospheric chemistry.

Several of our researchers sit on the editorial boards of international journals including *Journal of Proteome Research*, *Proteomics*, *Molecules*, *Journal of Nanotechnology*, and *Current Opinions in Molecular Therapeutics*.

As an HDR candidate you will have the opportunity to research alongside some of the best academics and researchers not just in Australia but the world, and have access to outstanding facilities.
Highlights

• Macquarie has strategic alliances with major manufacturers of analytical equipment, including Bruker Daltonics, BioRad, ABSciex, Agilent, Shimadzu and GE Healthcare, and our researchers maintain extensive networks of collaborations with international institutions and companies including Sigma-Aldrich, Millipore, and Thermo.

• Research on the development of fluorescence probes from natural products led to the spin-off company Fluorotechnics. Additionally, several products have been developed in recent years that are currently marketed by GE Healthcare, Sigma-Aldrich, SERVA, In Vitro and the GelCompany.

Support

HDR candidates are provided with strong academic and administrative support. This includes:

• Commencement and Completion programs
• Discipline-specific research training units, including workshops in research communication, presentation skills, academic writing skills, thesis planning, and poster preparation
• Experienced supervisors and department-based higher degree research directors
• Financial support for research project costs, including top-up scholarships from industry
• Regular progress reports and interviews, and/or work-in-progress presentations in which research candidates receive feedback on their work from academics in their field

Research leaders

Macquarie is home to many internationally renowned researchers, including:

Professor Ian Paulsen is an ISI Highly Cited Researcher and an expert in bacterial genomics. He is currently utilising 'big picture' or global approaches such as genome sequencing, metagenomics and functional genomics to understand how bacteria adapt to different environmental niches through swapping genes with each other.

Associate Professor Mark Molloy is the director of the Australian Proteome Analysis Facility, and has strong interests in biomedical applications, in particular molecular cancer biology. He is developing methods to quantitatively profile changes in protein phosphorylation and is undertaking research to identify prognostic and predictive colorectal cancer biomarkers.