



A/PROF. IDRIS BLAKEY

Australian Institute for Bioengineering and Nanotechnology

Phone: 07 334 63869

Email: i.blakey@uq.edu.au

Development of Ionic Liquid/polymer “Iono-gels” as Conducting Materials

Ionic liquids are a novel class of solvent that exhibit interesting physicochemical properties, most notably are the negligible vapour pressure, high ionic conductivity and electrochemical stability. These properties have led to investigations into the use of ionic liquids in applications for fuel cells, lithium battery electrolytes and solar cells. Central to the advancement of this technology, is the requirement that the ionic liquids become immobilised or incorporated within a solid matrix. This project will investigate the development of novel (co)polymer matrices incorporating ionic liquid-based monomers. The phase behaviour, micro-structure and mechanical and physicochemical properties will be investigated. In addition to polymer synthesis, this project will involve developing an understanding of a number of characterisation techniques such as solid-state NMR, FTIR, TEM, as well as mechanical and conductivity measurements.

Enrolling School: School of Chemistry & Molecular Biosciences (SCMB)

Suitable academic background: BSc Chemistry or Biotechnology

Skills obtained in project: Advanced materials science, polymer science

Publication & postgraduate career potentials: All of our projects will lead to refereed publications and prepare the student for postgraduate studies.

Contact: Idriss Blakey – i.blakey@uq.edu.au | Kris Thurecht – k.thurecht@uq.edu.au

Andrew Whittaker – a.whittaker@uq.edu.au | **Website:** www.uq.edu.au/polymer-chemistry/