

# Summary of Linkage Infrastructure, Equipment and Facilities Proposals by State and Organisation

## Victoria

### The University of Melbourne

**LE100100131** A/Prof Evan J Bieske, Dr Adam I Mechler, Dr Evan G Robertson, Dr Toby D Bell

**Approved Project Title** **Laser facility for ultra-sensitive molecular characterisation**

2010 \$200,000.00

Primary FoR 0306 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

**Partner/Collaborating Organisation(s)**

La Trobe University, Monash University

**Administering Organisation** The University of Melbourne

**Project Summary**

Lasers are indispensable tools for the characterization and photochemical modification of molecular systems. Powerful lasers produce intense bursts of light across the electromagnetic spectrum, from the infrared to the ultraviolet. This versatility allows chemists to observe the dynamical behaviour of single molecules on ultra-fast timescales, to probe the shape of molecules relevant to the action of therapeutic drugs, to explore the characteristics of molecules found in space, and to initiate laser-activated chemical processes in microscopic dimensions to modify sensor surfaces. The proposed laser facility will enable progress in these areas and will help maintain Australia's research edge in nanotechnology and biotechnology.

**LE100100085** Dr Raymond R Dagastine, Prof Graeme J Jameson, Dr Ian C Larson, Prof Franz Grieser, Prof Geoff W Stevens, Prof Derek Y Chan, A/Prof Muthupandian Ashokkumar, Dr Grant B Webber, A/Prof Erica J Wanless, Dr Rob Atkin, Dr Benjamin J Boyd, Prof Elena Ivanova, Prof Russell J Crawford

**Approved Project Title** **Soft matter and responsive materials characterisation facility**

2010 \$340,000.00

Primary FoR 1007 NANOTECHNOLOGY

**Partner/Collaborating Organisation(s)**

Monash University, Swinburne University of Technology, The University of Newcastle

**Administering Organisation** The University of Melbourne

**Project Summary**

The processing of minerals, foods and pharmaceutical materials underpins the delivery of these materials to the community. The industries associated with the named areas have cost-driven demands for higher throughput and constraints imposed by water and energy conservation requirements. Technological advances in the processing of soft matter and responsive materials therefore offer a gateway to revolutionary changes in many aspects of our everyday lives. The outcomes from research addressing these classes of advanced materials will translate into improvements in Australian industries and in training the next generation of world leading Australian scientists and engineers using state-of-the-art technology.

**LE100100147** Prof Andrew B Holmes, Dr David J Jones, Dr Doojin Vak, Prof Yi-Bing Cheng, Dr Udo Bach

**Approved Project Title** **Advanced ultrasonic spray deposition system for large area solar cells fabrication**

2010 \$100,000.00

Primary FoR 1007 NANOTECHNOLOGY

**Partner/Collaborating Organisation(s)**

Commonwealth Scientific and Industrial Research Organisation (CSIRO), Securrency International Pty Ltd  
Monash University

**Administering Organisation** The University of Melbourne

**Project Summary**

Low cost, low carbon forms of power generation are required to enable Australia to minimise its greenhouse gas emissions. Traditional solar cells are manufactured using high cost, low volume production methods which will in future be complemented by the introduction of low cost, high volume printed organic solar cells. Spray deposition of active materials will allow the formation of active solar cells on many new materials, thus opening up new ways of using solar cells and hence new markets or export opportunities. The research is aimed at delivering a local research-driven industry which is export-oriented, thus assisting Australia to reach its carbon reduction targets.

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**LE100100109** A/Prof Jonathan M White, Dr Anne F Richards, A/Prof Stuart R Batten, A/Prof Brendan F Abrahams, Dr Peter J Barnard, A/Prof Andrew B Hughes, Dr Paul S Donnelly, Dr Colette Boskovic, Dr Craig A Hutton, A/Prof Charles G Young, Dr Spencer J Williams, Prof Peter C Junk, Prof Cameron Jones, Prof Leone Spiccia, Dr David J Wilson, Dr Conor F Hogan, A/Prof Philip C Andrews, Prof Glen B Deacon, Prof Andrew B Holmes, Prof Keith S Murray

**Approved Project Title** **Small molecule X-ray molecular structure elucidation facility**

2010 \$530,000.00

Primary FoR 0302 INORGANIC CHEMISTRY

**Partner/Collaborating Organisation(s)**

La Trobe University, Monash University

**Administering Organisation** The University of Melbourne

**Project Summary**

X-ray diffraction plays a key role in identification and molecular characterisation. X-ray techniques are the single most widely used analytical resource in structure determination and provide invaluable information for scientists working in the fields of synthesis, nanotechnology, polymer chemistry, and protein chemistry, amongst many others. The facility brings together a multidisciplinary team of scientists and provides state-of-the-art research and training facilities for these techniques.