

# Summary of Linkage Infrastructure Applications for Funding to Commence in 2006

## Victoria

### Monash University

**LE0668517** A/Prof WD Cook; Dr GP Simon; A/Prof GH Edward; Dr JS Forsythe; A/Prof PJ Halley; Prof AK Whittaker; Dr I Blakey; Dr TM Nicholson

**Approved Project Title** **Hyphenated techniques in polymer science and engineering**

**2006 :** \$220,000

**Primary RFCD** 2914 MATERIALS ENGINEERING

#### Partner Organisation(s)

Monash University  
The University of Queensland

**Administering Institution** Monash University

#### Project Summary

The collaborator's research capabilities will be greatly enhanced because the equipment will allow simultaneous measurements of various properties which can provide much more information than sequential experiments. Students will be able to undertake research with state-of-the-art equipment which will enhance their research careers and employment prospects. The resulting information will be invaluable to the development of polymer blends with optimized morphology and mechanical properties; improved polymer processing techniques linked to how the structure and orientation develops; the development of new materials, including novel human tissue implants, from studies of the rheology and phase structure of a polymer during photopolymerization.

**LE0668403** Prof D McNaughton; Prof H Schmidt; Dr J Beardall; Prof GB Deacon; Dr L Spiccia; Dr BR Wood; Dr PR Heraud; Dr SJ Langford; Prof MN Clayton; Prof AO Trounson; Prof KS Murray; A/Prof PC Junk; Dr TA Smith; A/Prof PC Mulvaney; Dr M Rowley; Prof M Forsyth; A/Prof ML Gee

**Approved Project Title** **Enhanced micro-Raman and Fluorescence spectroscopy and imaging facility for biosystems and materials**

**2006 :** \$570,000

**Primary RFCD** 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

#### Partner Organisation(s)

Monash University  
The University of Melbourne

**Administering Institution** Monash University

#### Project Summary

The state-of-the-art spectroscopic and fluorescence imaging equipment will provide cutting-edge capabilities for fundamental and applied research with the potential to impact on improved health outcomes, pharmaceuticals, biotechnology and nanomaterials research. Chemical probes based on molecular vibrations and fluorescence will allow changes in biomolecular composition within cells and tissues to be mapped/imaged down to nanometre spatial resolution. This will provide new techniques for the diagnosis of diseases, e.g. cancer, the rapid identification of pathogens, the understanding and design of new drugs, and a range of biotechnology, nanomaterials and nanotechnology applications.

**LE0668525** Dr BF Schaefer; Dr RJ Morrison; Dr SD Kolev; Dr MR Grace; Dr G Mark; A/Prof I Cartwright; Dr IS Buick; Dr ID McKelvie; Dr AL Chaffee; Dr R Beckett; Dr AI Mechler

**Approved Project Title** **A state-of-the-art trace element and speciation analysis facility for the Earth, Environmental and Chemical Sciences**

**2006 :** \$250,000

**Primary RFCD** 2504 ANALYTICAL CHEMISTRY

#### Partner Organisation(s)

Monash University  
The University of Melbourne

**Administering Institution** Monash University

#### Project Summary

Outcomes of the research utilising the proposed facility will feed directly into monitoring the health of the nations water systems (both ground and surface waters) and constraining processes responsible for the mobility and subsequent accumulation of toxic metals and metallic species in the environment. Pure research into trace element partitioning in geological materials will inform crust formation and mineral deposit models and aid in exploration of world-class ore bodies and the associated economic benefits of this activity. Applications in nanotechnology include laser cleaning and predictive laser ablation characterisation of potential application in manufacturing technology.

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**LE0668435** Prof T Sridhar; Prof WP Anderson; Prof F Caruso; Prof K Hourigan; Prof JF Bertram; Dr JR Friend; Dr IS Harper; Dr LY Yeo; Dr RG Evans; Dr GM Forde; Dr HC Parkington; Dr RP Jagadeeshan; Prof BJ Oldfield; Ms J Carberry; Dr J Pearson; Prof J Sheridan; A/Prof MC Thompson; Dr KA Gross; Dr GG Qiao; A/Prof R Wetherbee

**Approved Project Title** Biomedical Engineering Sensing and Imaging Facility

**2006 :** \$1300,000

**Primary RFCD** 2706 PHYSIOLOGY

### Partner Organisation(s)

Monash University  
The University of Melbourne

**Administering Institution** Monash University

### Project Summary

The sensing and imaging facility will be the only national facility for leading engineering and medical researchers to undertake multidiscipline research into live and model biological systems. The facility will capture and combine existing strengths in these fields in Melbourne. This will provide new insights into the physiology of human, animal and plant systems and the development of preventive and curative strategies for disease.

**LE0668493** Prof PJ Stewart; Prof J Soria; Dr DR Honnery; A/Prof H Chan; Dr BR Thompson; Dr IC Larson; Dr PM Young

**Approved Project Title** Characterising particulate laden flow in the lung airways: from drug delivery to primary anthropogenic sources

**2006 :** \$230,000

**Primary RFCD** 3205 PHARMACOLOGY AND PHARMACEUTICAL SCIENCES

### Partner Organisation(s)

Monash University  
The University of Sydney

**Administering Institution** Monash University

### Project Summary

Facilities will provide infrastructure at Monash University and University of Sydney to continue the collaboration enhancing excellence in an exciting application of fluidics research, supporting the highest level of graduate training, providing innovative tools for industry and promoting industrial collaborations. The infrastructure is unique and will create international funding and collaborative opportunities to support research and postgraduate training. The equipment will add value to existing infrastructure to enhance understanding of particulate flow with the paradoxical outcomes of improving drug deposition in respiratory delivery and of minimising anthropogenic particular deposition for better therapeutic and health outcomes.