

Summary of Linkage Infrastructure, Equipment and Facilities Proposals

New South Wales

University of Wollongong

LE0882289 Dr JL Beck; Dr SJ Blanksby; Prof MG Banwell; Prof CJ Easton; Dr JA Aquilina; A/Prof SF Ralph; Prof WE Price; Prof MJ Walker; Prof MR Wilson; Prof SG Pyne; A/Prof PA Keller; Prof MG Humphrey

Approved Project Title **New generation mass spectrometers for characterisation of molecular shape and size**

2008 : \$ 520,000

Primary RFCD 2503 ORGANIC CHEMISTRY

Partner Organisations & Collaborating Organisations

University of Wollongong

The Australian National University

Administering Organisation University of Wollongong

Project Summary

The ion mobility mass spectrometer (IMMS at UOW) will be the first of its kind in Australia, and together with the ion trap mass spectrometer (ITMS at ANU) will continue the tradition of this partnership in providing researchers with cutting-edge instrumentation for nationally and internationally important projects including: (i) fundamental understanding of the ways in which biomolecules recognize one another, (ii) investigating the structure(s) of lipids (fats) in cardiovascular disease and cataract, (iii) developing anticancer drugs, and (iv) development of new materials.

LE0883113 Prof AR Chivas; Prof RG Roberts; Dr Z Jacobs; Prof CV Murray-Wallace; Dr KE Westaway; Prof MJ Morwood; Prof GC Nanson; A/Prof BG Jones; Dr PF Carr; Dr HV McGregor; Prof CD Woodroffe; A/Prof SD Golding; A/Prof J Zhao; Dr K Yu; Dr JM Pandolfi; Dr GP Halverson; Prof MA Williams; Dr PA Gell; Dr DJ Chittleborough; Prof JR Dodson; Dr D Fink; Dr Q Hua; Dr EJ Hodge; Dr TM Esat; Prof MT McCulloch

Approved Project Title **A stable-isotope mass spectrometer for novel determinations of past temperatures**

2008 : \$ 250,000

Primary RFCD 2603 GEOCHEMISTRY

Partner Organisations & Collaborating Organisations

University of Wollongong

The University of Queensland

The University of Adelaide

Australian Nuclear Science & Technology Organisation

The Australian National University

Administering Organisation University of Wollongong

Project Summary

Much of the Australian landscape is subject to a dry and evaporative climate, making it very difficult to use conventional geochemical techniques to estimate past temperatures, even on short timescales of tens to hundreds of years. The application of a new isotopic technique to preserved carbonate minerals (soil carbonate, shells in rivers, lakes and the ocean) avoids the difficulty of this variable evaporation, and directly measures past temperatures. This will have a profound effect on our understanding of environmental changes on both short and long time scales, and permit a better understanding of the hydrological balances within the landscape.

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LE0882347 Prof SX Dou; Dr L Wang; Em/Prof SJ Campbell; Dr R Zheng; A/Prof X Wang; Dr J Zou; Dr X Liao; Dr SS Li; Dr Z Cheng; Dr J Horvat; Dr G Peleckis; Dr AV Pan; Dr Y Zhao; Dr KK Konstantinov; Prof RA Lewis; Dr J Wang; Dr D Shi; Dr ZP Guo; Prof E Pereloma; Dr D Wexler; Dr S Zhou; Dr D Li; Prof RJ Dippenaar

Approved Project Title **High field magnet for materials processing and characterisation**

2008 : \$ 340,000

Primary RFCD 2914 MATERIALS ENGINEERING

Partner Organisations & Collaborating Organisations

University of Wollongong
The University of Queensland
The University of Sydney
The University of New South Wales

Administering Organisation University of Wollongong

Project Summary

The proposed infrastructure project will bring many Australian-based researchers together to create a completely new niche of materials processing research. Such a facility will be the first of its kind in Australia. This facility will be located in Australia and thus the time required to process and characterize materials will be significantly reduced without a need to send them overseas. As a consequence of the proposed collaboration, a large number of high quality papers and patents are expected. The facility will increase Australia's position in the field of advanced materials processing and will also provide new ideas and concepts, which will be used in practical applications.

LE0882613 Prof E Pereloma; Prof GG Wallace; Prof GM Spinks; Prof RJ Dippenaar; Prof SX Dou; A/Prof PC Innis; Prof HR Brown; Dr KK Konstantinov; Dr FJ Barbaro; Dr Z Chen; Prof KA Tieu; Prof DP Dunne; Dr A Calka; Dr D Wexler; Dr G Wang; Dr RM Smith

Approved Project Title **An analytical field emission gun scanning electron microscope**

2008 : \$ 600,000

Primary RFCD 2499 OTHER PHYSICAL SCIENCES

Partner Organisations & Collaborating Organisations

University of Wollongong
BlueScope Steel Limited, Australian Manufacturing Markets Division
BlueScope Steel Limited, Australian & New Zealand Industrial Markets Division

Administering Organisation University of Wollongong

Project Summary

An analytical field emission gun scanning electron microscope is an advanced tool for the characterisation of alloys, nanomaterials, superconductors and polymers. The instrument's advanced characterisation capabilities will significantly enhance the effectiveness of three material-based research institutes and an ARC Centre of Excellence at the University of Wollongong, as well as collaborative research with BlueScope Steel. The research is directly aligned to the National Research Priority of Frontier Technologies for Building and Transforming Australian Industry. The equipment will provide a valuable resource for industries in the Illawarra region of NSW.