

Summary of Linkage Infrastructure, Equipment and Facilities Proposals

Western Australia

The University of Western Australia

LE0775672 A/Prof M Bennamoun; Prof RA Owens; Dr DD Lichti; A/Prof MP Stewart; A/Prof AL Rohl; Prof MA Spackman; Prof GM Parkinson; A/Prof MI Ogden; Prof DD Sampson; Prof JP Trevelyan; A/Prof K Haines; Dr F Boussaid; Prof SA Worden; Dr IC Fitzsimons

Approved Project Title 3D Scanning and Printing Facilities (3DSPF)

2007 : \$ 150,000

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

Partner Organisations & Collaborating Organisations

Curtin University of Technology

Administering Organisation The University of Western Australia

Project Summary

A one-stop shop is proposed to accommodate 3D scanning and printing facilities in WA to advance a range of research projects currently undertaken by internationally renowned researchers in their respective fields. The facility will impact on our research programs in a wide range of disciplines including rapid prototyping, robotics, geomatics, demining, nanotechnology, and molecular modeling. These projects are of high significance and will advance research in most of the national priorities. The facility can also be used for training and teaching purposes. The facility builds on a previous long range scanning facility and on the State Government's support of leading edge computational and visualization facilities.

LE0775650 Dr PF Greenwood; Prof RJ Watling; A/Prof K Grice; Dr M Tibbett; Dr PF Grierson; Prof RI Kagi; Dr CJ Boreham; Dr B van Aarssen; Dr A Heitz

Approved Project Title Advanced multi-purpose analytical pyrolysis facility

2007 : \$ 170,000

Primary RFCD 2504 ANALYTICAL CHEMISTRY

Partner Organisations & Collaborating Organisations

Curtin University of Technology

John de Laeter Centre

CRCWQT

Geoscience Australia (GA)

Administering Organisation The University of Western Australia

Project Summary

Investment by the ARC, two WA universities, a government research agency, a CRC (and indirectly by a water utility) demonstrate the national need for this analytical facility and the broad commitment to maintain Australia's reputation in the field of analytical pyrolysis. An innovative laser micro-pyrolysis facility will be concurrently used with a recent commercially available unit to support research of present day and palaeo-environmental occurrences of OM, directly assisting an eclectic range of research activities including environmental protection and petroleum exploration. This facility will also aid the chemical fingerprinting of minute forensic evidence, ultimately helping to convict perpetrators of crime.

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LE0775642 Dr PF Grierson; Dr NJ McNaughton; A/Prof K Grice; Dr DV Murphy; Prof DI Walker; A/Prof GA Kendrick; Dr L Barton; A/Prof JD Roberts; Dr N Brueggemann; Prof H Rennenberg
Approved Project Title **Stable isotope facility for biological, ecological, and geological applications - West Australian Biogeochemistry Centre**
2007 : \$ 350,000
Primary RFCD 3008 ENVIRONMENTAL SCIENCES

Partner Organisations & Collaborating Organisations

Curtin University of Technology
John de Laeter Centre for Mass Spectrometry
Albert Ludwigs University, Freiburg
Karlsruhe Research Center Institute for Meteorology and Climate Research (IMK-IFU), Germany

Administering Organisation The University of Western Australia

Project Summary

Stable isotope science underpins many disciplines of research, from forensic identification of sources of counterfeit money through to understanding the formation of gold and other mineral deposits. Stable isotope science also provides insights that will improve management of water and land resources, including the impacts of utilisation of groundwater, reducing gaseous emissions from land-use change and knowledge of food webs in marine systems. While a handful of laboratories utilise IRMS around Australia, equipment is fully utilised, outdated and limiting progress. A new IRMS will transform capabilities in WA and enhance projects in terrestrial and marine ecology, ecosystem science and geochemistry of mineral deposits.

LE0775499 Dr A Keating; A/Prof JM Dell; Prof L Faraone; Dr G Parish; A/Prof Y Liu; Prof X Hu; Prof K Alameh; Prof C Jagadish; Mr A Tarr
Approved Project Title **High Performance Optical Profilometer for mapping micro/meso/macrosopic topography**
2007 : \$ 130,000
Primary RFCD 2909 ELECTRICAL AND ELECTRONIC ENGINEERING

Partner Organisations & Collaborating Organisations

The Australian National University
Edith Cowan University
Department of Agriculture and Food, WA

Administering Organisation The University of Western Australia

Project Summary

Developing advanced, high performance new materials requires an understanding of surfaces and interfaces. Making a small area, low yield material or device is a regular occurrence within the Australian research community. The ability to create reproducible, high yield materials requires greater understanding of the stresses, uniformities and deformations in a material over large areas. The proposed instrument can measure topography over many centimeters-squared with sub-micron spatial resolution, currently beyond the capabilities of researchers in Australia. By providing a quantitative method to measure surface textures, the instrument will also support Australian industries looking for improved process control.

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LE0775551 Prof CL Raston; Prof MA Spackman; A/Prof CE Buckley; A/Prof MV Baker; Prof SJ Berners-Price; A/Prof D Jayatilaka; Dr GA Koutsantonis; A/Prof Y Liu; Dr M Makha; Dr AJ McKinley; Dr MJ Piggott; Dr CB Smith; A/Prof TG St Pierre; A/Prof RL Stamps; Dr SG Stewart; Dr KL Swaminatha-Iyer; Prof JD Gale; Dr RD Hart; Prof B O'Connor; A/Prof MI Ogden; Dr WR Richmond; Prof A van Riessen

Approved Project Title **Integrated Advanced X-ray Diffraction Facility**

2007 : \$ 550,000

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisations & Collaborating Organisations

Curtin University of Technology

Advanced Nano-Technologies

Administering Organisation The University of Western Australia

Project Summary

The new equipment will provide a unique facility for single crystal, powder and thin film structure elucidation using X-ray diffraction techniques. No other techniques have the capabilities in structure determination of materials at an atomic level which are necessary for delivering applications in nano-technology, health care products, amongst many fields, for the benefit for the community at large. The facility will foster a more innovative research culture and provide excellent research training at the highest international level, and will provide a platform to maximise access to the new Opal Research Reactor and Australian Synchrotron.