

Summary of Linkage Infrastructure, Equipment and Facilities Proposals

Western Australia

The University of Western Australia

LE0989351 A/Prof EL Ghisalberti; Prof SJ Berners-Price; A/Prof MI Ogden; Prof MG Humphrey; A/Prof MV Baker; Prof CS Bond; Dr GR Flematti; Dr GA Koutsantonis; Dr AJ McKinley; Dr MJ Piggott; Dr SM Saunders; Prof MA Spackman; Dr SG Stewart; Dr DH Brown; Dr RL Mancera; A/Prof M Mocerino; Prof CJ Easton; A/Prof MS Sherburn

Approved Project Title **High Resolution Mass Spectrometry Facility**

2009 : \$ 425,000

Primary RFCD 2504 ANALYTICAL CHEMISTRY

Partner Organisations & Collaborating Organisations

The University of Western Australia

Curtin University of Technology

The Australian National University

Administering Organisation The University of Western Australia

Project Summary

The research that will be supported by this vital infrastructure impacts on the sustainable environment through understanding the process of seed germination and the human condition through new drugs for the treatment of cancer and Parkinson's disease. Fundamental science will also be addressed particularly in the fields of photonics and the nature of interactions between matter.

LE0989071 Prof JT Lambers; Prof ID Small; Prof JM Whelan; Prof AH Millar; Prof SM Smith; A/Prof M Barbetti; Prof Z Rengel; Prof RP Oliver; Dr TD Colmer; Prof K Siddique; A/Prof GE Hardy; Dr EJ Veneklaas; Prof Dr K Sivasithamparam; Dr PM Finnegan; Dr SR Ellwood; A/Prof JA Plummer; Dr M Ryan; Dr G Yan; A/Prof M Tibbett; Dr PS Solomon

Approved Project Title **Phytosphere: new facilities for controlled manipulation of effects of climate change & airborne pollutants on disease epidemiology & plant performance**

2009 : \$ 600,000

Primary RFCD 2704 BOTANY

Partner Organisations & Collaborating Organisations

The University of Western Australia

Murdoch University

Administering Organisation The University of Western Australia

Project Summary

Western Australia is home to a range of world-leading plant science research groups. Establishing a world-class multi-purpose phytosphere facility in WA will enable these groups to remain at the forefront of their research fields and continue to attract high-profile international scientists and students. Such a facility will result in significant advancement of our understanding of the impact of climate change on plants through biotic stresses (e.g., disease epidemiology, plant-pathogen interactions) and in interaction with abiotic variables (e.g., CO2 concentrations, temperature, light intensity, humidity, moisture stress, airborne pollutants such as SO2), and allow crop yield optimisation in future environments.

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LE0989649 Prof DD Sampson; Prof ME Barley; Dr SJ Barnes; Dr T Baroni; Prof PA Cawood; Dr JS Cleverley; A/Prof HT Chua; Prof RJ Gilkes; Prof BJ Griffin; A/Prof SG Hagemann; Dr S Hinckley; Dr RM Hough; Dr MR Kilburn; Prof Y Liu; A/Prof DJ Macey; Prof TC McCuaig; Prof NJ McNaughton; Dr JR Muhling; Prof B Rasmussen; Prof CL Raston; Dr A Suvorova; Prof A van Riessen; Prof SA Wilde

Approved **The Nanoscale Characterisation Centre WA Electron Microprobe Facility**

Project Title

2009 : \$ 800,000

Primary RFCD 2601 GEOLOGY

Partner Organisations & Collaborating Organisations

The University of Western Australia

Curtin University of Technology

Murdoch University

Edith Cowan University

CSIRO - Exploration & Mining

Alcoa World Alumina

Administering Organisation The University of Western Australia

Project Summary

A new-generation electron microprobe will support many fields of scientific endeavour that underpin Australia's future prosperity. The ability to map element distributions in minerals and derive quantitative analyses is essential for research into the formation of ore deposits, how to find them and how to develop them in a sustainable manner. Nanotechnology and materials science hold the keys to future developments in communications, computing, catalysis, medicine, environmental remediation and more. By increasing the performance of the unique WA ion probe suite, the electron microprobe will contribute to new basic science and to Australia's scientific reputation for this flagship instrumentation.

LE0989782 Prof DD Sampson; Dr JS Croser; A/Prof M Degli-Esposti; Prof SA Dunlop; Prof DJ Hampson; Prof AR Harvey; Dr KA Heel; Dr CM James; Dr C Kahler; Prof SP Klinken; Prof PJ Leedman; Prof BJ Marshall; Prof AH Millar; Dr AR Murch; Dr JK Phillips; Dr PJ Rigby; A/Prof UM Ryan; Prof GA Stewart; Dr PA Stumbles; Prof RC Thompson; A/Prof AM Waite; Prof JM Whelan; Prof GE Wilcox; Prof GC Yeoh; Dr M Ziman

Approved **A Core Western Australian Cell Sorting Facility - Ultra-Small Objects and Rare Cell**

Project Title **Populations**

2009 : \$ 524,000

Primary RFCD 2706 PHYSIOLOGY

Partner Organisations & Collaborating Organisations

The University of Western Australia

Murdoch University

Edith Cowan University

PathWest Laboratory Medicine WA

Administering Organisation The University of Western Australia

Project Summary

This new generic capacity to rapidly isolate structures smaller than the cell has extraordinarily wide application in the biological sciences. Making this capacity widely accessible through a core facility to the Western Australian research community will generate research outcomes of national and community benefit. Sorting chromosomes to better understand genetic abnormalities and sorting bacteria to better understand and reduce bacterial infection will result in improvements in human health. Sorting parasites, bacteria and immune cells will lead to new animal vaccines for parasites and diseases such as bird flu. Sorting marine plankton will lead to more sustainable marine ecosystems and fisheries.

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LE0989788 A/Prof TG St Pierre; Prof RN Martins; Prof SM Smith; Prof SJ Berners-Price; Prof SA Dunlop; Prof AR Harvey; Prof CL Raston; Prof D Robertson; Prof GC Yeoh; Dr BA Corry; Dr L Fitzgerald; Dr MJ House; Dr GA Koutsantonis; A/Prof L Lim; Dr M Makha; Dr D Meyrick; Dr G Plant; Dr J Rodger; Dr M Ruitenber; Dr KL Swaminatha-Iyer; Dr G Verdile; Dr VP Wallace; Dr RC Woodward

Approved Project Title **Nuclear Magnetic Resonance Microimaging and Relaxometry Facility**

2009 : \$ 108,481

Primary RFCD 2918 INTERDISCIPLINARY ENGINEERING

Partner Organisations & Collaborating Organisations

The University of Western Australia

Edith Cowan University

Administering Organisation The University of Western Australia

Project Summary

Many of the research projects to be supported by the facility are dedicated to improving our understanding of conditions and diseases that detrimentally affect many in our community. Projects investigating Alzheimer's disease, the central nervous system and its ability to repair, cancer and associated therapeutic treatments are some of the areas that will benefit from access to this equipment. The new facility will also provide unique insights into aspects of fundamental plant biology, with implications for improving crop productivity and better managing our natural ecosystems. The community will also benefit from the development and testing within the facility of new diagnostic tools and markers for a range of diseases.