

Summary of Linkage Infrastructure, Equipment and Facilities Proposals

New South Wales

The University of Sydney

LE0989648 Prof BJ Eggleton; Dr DJ Moss; Prof B Luther-Davies; Prof MW Austin; Prof J Bland-Hawthorn; Prof SH Kable; Prof J Canning; Dr PG Tuthill; Prof RC McPhedran; Prof SC Fleming; Dr MC Large; Dr SD Jackson; Dr C Monat; Dr C Grillet; Dr F Luan; Dr JA Bolger; Dr C Karnutsch; Dr S Madden; Prof I Cosic; Dr E Pirogova

Approved Project Title **Optical test-bed facility for mid infrared components for sensing, imaging and astrophotonics**

2009 : \$ 350,000

Primary RFCD 2404 OPTICAL PHYSICS

Partner Organisations & Collaborating Organisations

The University of Sydney

RMIT University

The Australian National University

Administering Organisation The University of Sydney

Project Summary

This test facility will enable Australian researchers to validate optical components and technologies at wavelengths from 2.5 to 20 microns, that are crucial for a wide range of applications including biophotonics, sensing, imaging, defense, and astro-photonics. Technologies related to the Mid IR are expected to have a significant impact on quality of life and global economy. It will enable Australian researchers to achieve a major impact in many areas of Mid IR fundamental and applied science as well as industry sectors such as sensing, biophotonics, defence, health, bio-security and imaging.

LE0989859 Dr AS Jones; Prof AM Darendeliler; Prof MV Swain; Dr D Traini; Dr PM Young; Prof DR Richardson; Dr Q Li; A/Prof I Einav; Dr JM Cairney; Prof CR Murphy; Prof SP Ringer; Prof MJ Seibel; Dr H Zhou; Dr IM Ramzan; Prof PR Munroe; Prof M Archer; Dr S Hand; Dr Y Zhang; Prof BK Milthorpe; A/Prof X Wang; A/Prof AF Masters

Approved Project Title **A Multi-Resolution X-ray Microtomography Facility (NanoCT & MicroCT) for Non-Destructive 3D Characterisation**

2009 : \$1,000,000

Primary RFCD 2705 ZOOLOGY

Partner Organisations & Collaborating Organisations

The University of Sydney

The University of New South Wales

University of Wollongong

Administering Organisation The University of Sydney

Project Summary

X-ray microtomography platforms are applicable to a wide diversity of research across many of the national research priority areas. The research outlined will provide insights into bone cancer and osteoporosis, promote breakthroughs in the understanding of tumour biology and drive new developments in novel biomaterials, all of which have significant national health benefits. In dentistry, research supported by this instrumentation will provide Australians with improvements to their dental health. Furthermore applications to industrial materials are providing Australian industries with better characterisation of their products that is leading to improved export performance and consequent improvement in Australia's balance of trade.

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LE0989744 Prof NJ King; Dr K Gaus; Prof MA Vadas; Prof GE Grau; Prof LM Khachigian; Prof NH Hunt; Prof IL Campbell; Prof W Weninger; Prof J Black; Prof WJ Britton; Prof DR Richardson; Prof CL Geczy; Prof BD Fazekas de St Groth; Prof PW Gunning; Prof W Jessup; Prof RS Mason; Prof RI Christopherson; Prof G Halliday

Approved Project Title **7-laser BD LSR-II and Cellomics ArrayScan VTi, to enhance capability and throughput for the NSW Advanced Cytometry Facility**

2009 : \$ 500,000

Primary RFCD 2701 BIOCHEMISTRY AND CELL BIOLOGY

Partner Organisations & Collaborating Organisations

The University of Sydney

The University of New South Wales

Administering Organisation The University of Sydney

Project Summary

The scientific advances that will be possible with the acquisition of these complementary cutting-edge instruments will enhance the research outputs of all investigators using it. Projects where investigation of either suspended or adherent live cells is used to elucidate basic life processes of eukaryotic cells across all species of animals, including the investigation of both normal and abnormal function, will be immeasurably enhanced by both the qualitative and quantitative statistical information about these processes that is generated by this instrumentation. This in turn will inform new approaches to improve and maintain the health of both humans and animals.

LE0989703 Dr SG Solomon; Prof DG Allen; A/Prof JW Morley; Dr IS McGregor; Prof RF Westbrook; Prof B Dreher; Prof RA Dampney; Dr E Arabzadeh; Prof NJ King; Prof NH Hunt; Dr K Keay; Dr W Phillips; Dr K Cullen; Dr C Leamey; Dr C Koeppl; Dr DA Protti

Approved Project Title **Multiphoton microscope for cellular imaging in live animals**

2009 : \$ 500,000

Primary RFCD 3207 NEUROSCIENCES

Partner Organisations & Collaborating Organisations

The University of Sydney

University of Western Sydney

The University of New South Wales

Administering Organisation The University of Sydney

Project Summary

The proposed facility will for the first time allow scientists across Sydney to monitor cell function in intact brain and muscle tissues. The novel optical approach combines fluorescent markers with sophisticated microscopy. The presence of this facility will allow Australian scientists to design new approaches to fundamental biological questions concerning cellular function within the normal environment. In addition this facility will allow PhD and post-doctoral scientists to train and have access to a rapidly developing and cutting edge approach to biological problems.