

Western Australia

Curtin University of Technology

DP0771044 Prof B Gurevich; Prof AV Dyskin; Dr TM Mueller; Dr L Paterson

Approved Project Title **Seismic response of partially saturated petroleum reservoir zones: towards quantitative recovery monitoring**

2007 : \$90,000

2008 : \$70,000

2009 : \$60,000

Primary RFCD 2602 GEOPHYSICS

Administering Organisation Curtin University of Technology

Project Summary

In most Australian reservoirs less than 50% of the original oil in place is recovered. A major factor that contributes to low recovery rates is bypassed oil/gas. Even a small, 1% improvement in recovery is of substantial economic significance. The proposed project aims to develop quantitative models for reservoir monitoring of zones with bypassed hydrocarbons using time-lapse (4D) seismic measurements, and thus to improve the hydrocarbon recovery factors. Developing these models will be a cutting edge research achievement, which will make a significant contribution to the knowledge base of the discipline and advance the international reputation of Australian science.

DP0772734 Prof SM Islam; Dr M Masoum; Dr KK Tan; Dr H Dehbonei

Approved Project Title **Frequency and Voltage Stabilisation in Grid-connected Wind Farms Using Pitch-controlled Doubly Fed Induction Generators (DFIGs)**

2007 : \$70,000

2008 : \$90,000

2009 : \$30,000

Primary RFCD 2909 ELECTRICAL AND ELECTRONIC ENGINEERING

Administering Organisation Curtin University of Technology

Project Summary

Australian power systems are well developed but currently stretched to their maximum capacity and often over loaded. Development of a pitch controlled doubly-fed induction generator (DFIG) wind farm is a practical solution to extend the capacities of large interconnected power systems. This research ensures that Australian Power Systems are able to incorporate pitch-controlled DFIG without sacrificing operational simplicity and flexibility. It allows large scale penetration of renewable wind power into the grid, thereby reducing huge amount of green house gas emissions and delay capital expenditure on critical national assets.

DP0770441 Dr MA Perkins; Prof BV Lal; Prof PJ Read; Prof WC Howes

Approved Project Title **A study of writers and regional identity in the Pacific, Southeast Asia, Australia and New Zealand**

2007 : \$34,467

2008 : \$48,929

2009 : \$30,894

Primary RFCD 4301 HISTORICAL STUDIES

Administering Organisation Curtin University of Technology

Project Summary

There is currently heightened community concern about supra-national loyalties that transcend and seem to threaten national boundaries. This project will help to inform discussion about the role of transnational belonging and the complexities of regional identities, so that it can be seen that multiple loyalties are common and often enriching. It will increase the audience for some neglected life writing in the Pacific area, particularly from Indigenous writers.

Summary of Discovery Projects Proposals for Funding to Commence in 2007

DP0771132 Prof S Venkatesh; Dr BD Adams; Dr DQ Phung

Approved Project Title **Taming media for the masses: Computational frameworks for intelligent digital media capture, management, and sharing**

2007 : \$125,000

2008 : \$120,000

2009 : \$115,000

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

Administering Organisation Curtin University of Technology

Project Summary

The core issues tackled in this project are learning, recognition and application of semantics in multimedia data and the context of its creation and use - a foundational issue in pattern recognition with many applications. The project is part of the Institute for Multi-sensor Processing and Content Analysis whose aim is to tackle technical issues in large scale pattern recognition. By developing scalable and robust techniques to extract information from large scale multi-modal data, the applications include large scale surveillance systems from multi-modal data (e.g. airport security, smart homes for the aged), context-aware devices, and the next generation of media creation and repurposing tools - a fast-growing sector of the economy.

DP0770420 Dr T Zhang

Approved Project Title **Wavelet approaches for solving nonlinear dynamic systems in process engineering**

2007 : \$61,434

2008 : \$61,074

2009 : \$60,074

2010 : \$61,074

Primary RFCD 2906 CHEMICAL ENGINEERING

APD Dr T Zhang

Administering Organisation Curtin University of Technology

Project Summary

The success of the proposed project will enable us to obtain more accurate numerical solutions for the nonlinear dynamical systems arising from process engineering. This ensures the potential for understanding and optimising industrial and engineering processes. Hence, a wide range of processing industries in Australia, such as agricultural chemicals, mineral processing, food, detergents, pharmaceuticals, ceramics and specialty chemicals will benefit from the results of this project. This will ensure globally competitive production and, therefore, greater contributions to the Australian economy.