

# Summary of Linkage International Fellowships Proposals

## New South Wales

### University of Wollongong

**LX0990092** Prof A Bouzerdoun; Prof M Amin

**Approved Project Title** **Robust Beamforming for Radar Imaging**

**2009 :**

\$ 43,000

**Primary RFCD** 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

#### **Collaborating Countries**

USA

**Administering Organisation** University of Wollongong

#### **Project Summary**

The impact of radar imaging technologies on security and search and rescue operations is indisputable. They play a vital role in safeguarding a country from terrorism and crime, protecting its borders, and predicting adverse weather patterns. Searching for survivors in disaster areas such as earthquakes and fires can greatly benefit from the proposed research. Law-enforcement officers can employ radar imaging technology to enable accurate determination of targets of interest, obstacles, weapons, victims, outlaws, and hostages inside enclosed structures or buildings. The proposed research and its findings will support the development of cutting edge radar imaging research and technology in Australia.

**LX0989591** Dr J Kim; Prof SX Dou; Dr G Hong

**Approved Project Title** **Study on the deposition of superconducting REBCO film via chemical route for coated conductor**

**2009 :** \$ 143,000

**Primary RFCD** 2914 MATERIALS ENGINEERING

#### **Collaborating Countries**

Korea

UK

**Administering Organisation** University of Wollongong

#### **Project Summary**

Second generation high temperature superconducting (HTS) coated conductor is the essential raw material for the next generation of high-efficiency electric power application such as power transmission cables, transformers, motors and generators, and grid protection devices (FCL) as well as medical, transportation, and high energy physics. The high efficiency and compactness of HTS devices promises great savings in energy and reduction in CO2 emissions, which is vital for decreasing greenhouse effects.

**LX0990073** A/Prof AV Pan; Prof TH Johansen

**Approved Project Title** **Magnetic walls as nano-manipulators for physics, bio- and medical technologies**

**2009 :** \$ 71,000

**Primary RFCD** 2402 THEORETICAL AND CONDENSED MATTER PHYSICS

#### **Collaborating Countries**

Netherlands

Norway

**Administering Organisation** University of Wollongong

#### **Project Summary**

The focus of this project is the development of new scientific and technological aspects of nanomanipulators allowing not only the effective control of molecules and other magnetic quantities for a new approach in computation, but also the vital influence of biological processes at the molecular level. The outlook of this idea becomes increasingly promising in science and a broad range of industries (electronics, materials engineering, nanotechnology and biotechnology). This project will establish Australia's capability at the forefront in this rapidly advancing area. The outcomes predicted may soon lead to the development of practical devices, where Australian science and industry may play one of the key roles.

**LX0989950** Prof GG Wallace; Dr MP in het Panhuis; Prof P Calvert

**Approved Project Title** **Inkjet printing bio-functional materials**

**2009 :** \$ 95,000

**Primary RFCD** 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

**Collaborating Countries**

USA

**Administering Organisation** University of Wollongong

**Project Summary**

The proposed research will benefit existing biomedical industries in Australia and provide opportunities for new start-up companies, as well as potentially attracting biomedical industries from overseas to establish a presence in Australia. This exciting area of research will provide an excellent multidisciplinary research environment for the proposed ARC International Fellow. The new bio-inkjet printing equipment, materials and configurations developed here may also have impact on other areas of Bionics, including the development of the next generation Bionic Ear, conduits for spinal cord regeneration as well as for muscle regeneration.