New South Wales

University of Wollongong

LP0989883 Dr SJ Blanksby; Dr TW Mitchell; Prof MD Willcox; Dr Z Zhao

Approved Project Title **Identifying tear lipids, their deposition onto contact lenses and their role in the development of dry eye**
2009 : $ 101,000
2010 : $ 101,000
2011 : $ 101,000
Primary RFCD 3210 CLINICAL SCIENCES
APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Institute for Eye Research Limited

Administering Organisation University of Wollongong

Project Summary

Lipids provide a critical layer in the human tear film that retards evaporation and helps nourish and protect the eye. We will identify the molecules within this essential "oil slick" to better understand dry eye syndrome and the discomfort associated with wearing contact lenses. This may lead to new treatments for dry eye and novel technologies that provide greater comfort for the ~120,000 Australians who wear contact lenses. This collaborative research directly supports the mission of a respected non-profit organisation (Institute for Eye Research) and will train scientists in world-leading analytical technologies that are essential to Australia's emerging biotechnology industries.

LP0989352 Prof SX Dou; A/Prof X Wang; Prof CD Cook; Prof EW Collings; Dr J Yoo; Mr X Xu

Approved Project Title **Magnesium diboride superconductor magnets for applications**
2009 : $ 100,000
2010 : $ 100,000
2011 : $ 100,000
Primary RFCD 2914 MATERIALS ENGINEERING

Collaborating/Partner Organisation(s)

Hyper Tech Research Inc
R&D Ceter
Zenergy Ltd

Administering Organisation University of Wollongong

Project Summary

The proposed development of magnesium diboride magnets is one of the core technologies that underlie applications in magnetic resonance imaging, magnetic separators, and other devices. The proposed international research consortium is in a leading position to explore the potential of these superconductor magnets for various applications. A breakthrough in the current proposal will lead to widespread commercial activities in a number of industry sectors: mineral separation, health, electric power, transportation, water purification, drug delivery, and space/aviation. Application of the proposal's outcomes will lead to enormous energy savings and environmental benefits.

LP0989266 Prof GG Wallace; Dr J Chen; Dr AI Minett; Dr AT Harris; Dr P Aitchison

Approved Project Title **Nanostructured Carbon Electrodes**
2009 : $ 110,000
2010 : $ 110,000
2011 : $ 130,000
Primary RFCD 2918 INTERDISCIPLINARY ENGINEERING
APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

CAP-XX (Australia) Pty Ltd

Administering Organisation University of Wollongong

Project Summary

The development of higher capacity energy storage devices is critical to the efficient use of energy. The

fundamental knowledge gained in this project will enable the production of the next generation advanced electrode materials for this purpose and hence provide many new commercial opportunities for Australian industry. The project brings together world leaders in their own fields to address a highly multidisciplinary area of research and will provide an excellent training for PhD students and post doctoral Research Fellows, enabling them to work in and contribute to the development of new nanotechnology industries in Australia.

LP0989134 A/Prof G Wang; Dr D Wexler; Dr J Horvat; Prof C Zhang; Dr H Kim

Approved Project Title **Novel lithium iron based olivine phosphates as cathode materials for the development of new generation power batteries**
2009 : $ 125,000
2010 : $ 130,000
2011 : $ 130,000
Primary RFCD 2914 MATERIALS ENGINEERING
APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

BEZEL Science & Technology Australia Pty Ltd.
Daejung Energy Materials Co., Ltd.
Administering Organisation University of Wollongong

Project Summary

Global warming and climate change are a serious threat to our society today. We must reduce greenhouse gas emissions by using renewable energy for sustainable development. Battery technology is regarded as one of the green technologies that can be widely used to power vehicles and store energy. This project will develop new generation lithium-ion power batteries using novel lithium iron based phosphate cathode materials. The success of the research will provide advanced rechargeable batteries for electric bicycles, electric motorcycles and hybrid electric vehicles, contributing to the reduction of CO2 emissions.