Examples of Linkage Projects commencing in 2014

Victoria

Victorian (VIC) research organisations will receive more than $21.2 million through the Australian Research Council Linkage Projects scheme for 63 new research projects commencing in 2014.

Some examples of the VIC projects are provided below.

To view the summaries of all successful projects, visit the ARC announcements page.

The University of Melbourne

Lead Chief Investigator: Dr Naomi Priest (LP140100413)

Summary: This project aims to substantially increase understandings of bystander responses (including their extent, nature, potential, merits, benefits, and constraints) as a means of countering racism and racial bullying among Australian school students. This aims to be achieved through examining experiences of, attitudes towards, and responses to, racism and racial bullying among school students; identifying health, wellbeing, education and social outcomes of racism and racial bullying for individuals, schools and communities; exploring the enablers and obstacles associated with bystander responses to racism and racial bullying; and by developing and piloting a school-based program to foster bystander responses to racism and racial bullying.

Partner Organisations: Victorian Department of Education and Early Childhood Development, NSW Department of Education and Communities, Australian Human Rights Commission

ARC funding: $520 000 over three years

La Trobe University

Lead Chief Investigator: Dr Ashley Franks (LP140100459)

Summary: The aim of this project is to develop, using synthetic biology, electrically integrated microbial biosensors for the detection of heavy metals in the environment. Building on our existing technology, this project aims to produce novel ‘biobricks’ capable of electrically integrating electric microbes into real time environmental monitors for heavy metal contaminants. This expansion of synthetic biology, and integration of electric bacteria into sensor systems, will result in a new platform technology that expands our abilities to protect the ecology, agriculture and health of terrestrial, marine and agricultural at risk areas from economic and environmental damage.

Partner Organisations: Naval Research Laboratory, Asian Office of Aerospace Research and Development

ARC funding: $310 000 over two years

Monash University

Lead Chief Investigator: Professor Ian McLoughlin (LP 140100243)

Summary: The reform of healthcare systems presents one of the most pressing and fundamental challenges for nations such as Australia. To date, hospital redesign and innovation initiatives have had limited impacts and outcomes at a system level with improvements limited to discrete areas. The aim of this inter-disciplinary research is to promote the scaling up of such initiatives to have systems-wide outcomes. The research aims to address institutional constraints and organisational factors and will develop practical frameworks, processes and resources. These intend to enable hospitals to develop organisational and leadership capacities to ensure investments in redesign and innovation have ‘whole system’ economic and healthcare benefits.

Partner Organisations: Victorian Department of Health, Monash Health, Barwon Health, Eastern Health, Western Health Service

ARC funding: $499 000 over three years
RMIT University

**Lead Chief Investigator:** Professor Qian Ma (LP140100607)

**Summary:** A large number of the Australian population suffer various types of bone issues arising from either age-related degenerative bone problems or injuries from accidents, sports and other activities. As the number of joint replacements performed in Australia increases, it is important to reduce the rate of implant failure. This project aims to address this critical issue by combining unique multi-scale structural design, alloy development, 3D printing, modelling and tissue engineering to develop bone-like biomimetic titanium implants with superior structural, mechanical and biological compatibility with bone. The outcomes aim to contribute to both healthcare and manufacturing industries, as well as improving the quality of life for Australians.

**Partner Organisations:** Anatomics PTY LTD, Xian Sailong Metal Materials Co., Ltd

**ARC funding:** $360 000 over three years

Deakin University

**Lead Chief Investigator:** Professor Saeid Nahavandi (LP140100471)

**Summary:** Advanced optimisation and control are considered to be one of the top technologies that help milk powder producers operate their plants more efficiently. However, the successful implementations of these technologies are limited due to poor understanding of the relationship between raw material variations and process disturbances with the target variables. Moreover, uncertainties in process measurements also prevent reliable control and effective optimisation. This project aims to address these gaps by developing new optimisation and control methods based on effective model reduction and uncertainty process variable identification, to enable Australian milk powder manufacturers to continuously improve productivity and reduce cost.

**Partner Organisation:** HPS Engineering

**ARC funding:** $354 992 over three years

Swinburne University of Technology

**Lead Chief Investigator:** Professor James Ogloff (LP140100397)

**Summary:** Many prisoners experience mental illness and psychological distress, which has been found to relate to repeat offending. Moreover, prison officers also experience high levels of anxiety and distress. This project aims to identify the mental health needs and factors that lead to psychological distress among prisoners and prison officers. Brief intervention programs intend to be developed to address the needs of the ‘missing middle’ (those with elevated levels of distress who are not receiving services). The programs aim to be evaluated to determine whether they are preventing mental health deterioration among participants and whether the results reduce repeat incarceration for prisoners and increase job satisfaction and performance for officers.

**Partner Organisation:** G4S Australia Pty Ltd

**ARC funding:** $538 000 over three years

Federation University Australia

**Lead Chief Investigator:** Professor Erica Smith (LP140100044)

**Summary:** This project examines whether and how higher-level qualifications for vocational education and training (VET) teachers would improve quality in the VET system. Government documents and public commentary indicate that the VET sector suffers from some fairly serious quality problems. This is significant because VET provides training that underpins all Australian industries. Most VET teachers are qualified only to a Certificate IV level. A more highly qualified VET teaching workforce is likely to lead to improvements in quality; however there is currently no firm evidence to establish this link, as the 2011 Productivity Commission report on the VET workforce pointed out. This project aims to provide much-needed evidence to guide policy.

**Partner Organisations:** Southbank Institute of Technology, Australian Council for Private Education and Training, VET Development Centre Ltd, Central Gippsland Institute of TAFE, National Centre for Vocational Education Research Ltd

**ARC funding:** $120 000 over two years