



Examples of new *Discovery Projects* in 2010

Australian Capital Territory

The Australian National University (Contact: 02 6125 5575)

Who were the ancestors of Homo floresiensis? (DP1096870)

Summary: The discovery of a tiny, new hominid species living in Indonesia until just 12,000 years ago, at the same time as modern humans in the region, has sparked world-wide public interest and debate. Finding the ancestors of this species will further promote Australian research as high profile, high calibre and cutting edge. Collaboration with researchers and institutions in Indonesia, USA, Kenya, Tanzania, South Africa and the Republic of Georgia will strengthen links with these nations.

Chief Investigator: Professor Colin Groves

ARC funding: \$347,000 over 3 years

The University of Canberra (Contact: 02 6201 2441)

Shaping the National Outlook: International News in the Australian Press 1901-1950 (DP1096677)

Summary: This project will benefit the nation by demonstrating the critical importance of the Australian media and its reporting of international news in our foreign relations and, more broadly, in shaping our understanding of, and engagement with, the rest of the world. It will contribute to the research priority of strengthening our understanding of Australia's place in the region and the world. The book, articles and presentations arising from the research will greatly benefit the development of the field of media history in Australia and internationally, and improve the knowledge base of educational programs in the area.

Chief Investigator: Professor Peter Putnis

ARC funding: \$185,000 over 3 years

The Australian National University (Contact: 02 6125 5575)

Dynamic permeability and the evolution of fluid pathways in fracture-controlled hydrothermal systems (DP1093774)

Summary: This project will advance knowledge of how fracture-controlled fluid flow at depth in the Earth influences the strength and mechanical behaviour of the crust, earthquake processes, and the formation of hydrothermal ore systems. Fundamental new knowledge of the dynamic variations in fluid transport properties and flow distribution in deep fracture networks also will have application for understanding hydrocarbon migration in fractured reservoirs, controls on seal integrity in geosequestration projects, and for geothermal energy production from hot, fractured rock. The project will develop international collaboration and train young scientists in applying multidisciplinary approaches to exploring fluid systems in the Earth's crust.

Chief Investigator: Professor Stephen Cox

ARC funding: \$300,000 over 3 years



The Australian National University (Contact: 02 6125 5575)

Molecular fossils, the evolution of Earth's early oceans and the origin of the oldest oil
(DP1095247)

Summary: Australia retains undiscovered oil reserves. We believe that a change in primitive marine life forms may have fundamentally changed the chemistry of the Earth's oceans and is responsible for the world's oldest oil reserves. While these reserves have been found, and successfully commercialised overseas, similar reservoirs in Australia remain elusive. The project will develop and apply technologies based on hydrocarbon biomarkers to help determine the oil-producing rock types of Precambrian sedimentary rocks. This allows us to estimate the oil's age and predict where petroleum reservoirs may be hidden. PhD students involved in the project will gain valuable knowledge about the link between changes in ecology and the carbon cycle.

Chief Investigator: Dr Jochen Brocks

ARC funding: \$655,000 over 5 years

The University of Canberra (Contact: 02 6201 2441)

Towards an enhanced understanding of child and youth social exclusion risk at a small area level in Australia (DP1094318)

Summary: This project will produce major national benefits, improving our understanding of child and youth social exclusion risk at a small area level, and putting Australia at the forefront of research into child well-being. Communities will benefit from the availability of high quality, rigorously developed measures of child and youth disadvantage at a local area level. Results from this project will provide policy makers with tools to develop measures for overcoming disadvantage and narrowing gaps in outcomes for Australia's young people. The international team will ensure that methodological developments will be widely available in other countries interested in developing small area measures of child and youth disadvantage.

Chief Investigator: Associate Professor Anne Daly

ARC funding: \$289,000 over 3 years

CSIRO (Contact: 02 6276 6451)

The evolution and maintenance of specificity, mutualism and diversity in plant-soil microbe interactions (DP1097256)

Summary: This research will significantly advance knowledge regarding the evolution of mutualisms between plant and soil microbes. Results will provide valuable data on the importance of below-ground microbial community structure to growth and productivity of an ecologically important component of the Australian flora (*Acacia* spp.), and contribute to the development of best ecosystem restoration practices. Furthermore, it will see the continued development of the *Acacia*-rhizobia system as a world-class model for exploring interactions between perennial legumes and microbial symbionts. The research also investigates the adaptability and potential for rapid evolution of critical elements of the soil microflora to environmental change.

Chief Investigator: Dr Luke Barrett

ARC funding: \$240,546 over 3 years