Examples of *Discovery Projects* commencing in 2014

**South Australia**

South Australian universities will receive more than $12 million through the Australian Research Council *Discovery Projects* scheme for 35 new research projects commencing in 2014.

Some examples of the SA projects are provided below.

To view the summaries of all successful projects, visit the [ARC announcements page](#).

**University of South Australia**

*Lead Chief Investigator:* Dr Sarah Wheeler (DP140103946)  
*Summary:* Increased water scarcity threatens the viability of the Murray-Darling Basin. There has been little analysis conducted of the consequences of water market impediments. The economic dimensions of trade impediments, water management, water market intervention and the net social benefits of water markets are at the core of this project. In particular, this project aims to explore: the impact of impediments and policy in water markets; how further water market products may increase water market efficiency; and, the nature and sources of transactions costs in markets. Benefits from this project will enhance resilience and adaptation of irrigators to future climate change and water shortages, as well as providing future policy guidance.  
*ARC funding:* $172 000 over three years

**The University of Adelaide**

*Lead Chief Investigator:* Professor Martin Lambert (DP140100994)  
*Summary:* Water distribution networks represent society's most important infrastructure asset. They are buried pipes and are often old and deteriorating. Cost-effective methods to assess their physical condition are urgently needed. This research will develop a novel and advanced approach to determine the interior condition of pipes quickly and effectively using small water hammer pulses or waves. Paired pressure sensor arrays will be used to measure reflections of the waves in pipes and these methods will enable finer resolution and identification of pipeline faults, such as wall thickness loss and leakage while at the same time allowing operational continuity. The outcome will be powerful tools to more cost effectively manage these crucial assets.  
*ARC funding:* $430 000 over three years

**The Flinders University of South Australia**

*Lead Chief Investigator:* Associate Professor Kathleen Soole (DP140103090)  
*Summary:* Plants often face hostile environments that place them under stress. Reactive oxygen molecules produced under these conditions act as signals to activate defense mechanisms, but also cause cell damage. Mitochondria are subcellular compartments involved in energy production and are essential for plant growth and development, but they have also been implicated in the response of plants to environmental stress, and in production of reactive oxygen molecules. This project will investigate special features of plant mitochondria that ameliorate oxidative stress. Potential outcomes include crops better able to cope with environmental stress.  
*ARC funding:* $387 095 over three years

**University of Adelaide**

*Lead Chief Investigator:* Associate Professor Joel Brugger (DP140102765)  
*Summary:* Olympic Dam (OD) is a supergiant Cu-U-Au-REE ore deposit, containing more than a trillion Australian dollars worth of metals, and hosted by hematite-rich breccia in South Australia. Yet, key aspects of the geochemistry of OD-style deposits remain poorly understood. This project will conduct innovative experiments to address the role for fluorine in Fe, U and REE transport at OD, and the role of fluid-rock interaction in generating the unusually oxidised Fe-Cu mineral assemblages and in controlling U grades and distribution. The fundamental information gained will underpin intense on-going research aimed at discovering new OD-style orebodies and at creating new ore-processing technology that are environmentally sustainable and able to access lower-grade ores.  
*ARC funding:* $285 000 over three years