Australian Laureate Fellowships

Three members of the Society, listed below, have recently been awarded Laureate Fellowships by the Australian Research Council.

The Australian Laureate Fellowships scheme reflects the Commonwealth's commitment to support excellence in research by attracting world-class researchers and research leaders to key positions, and creating new rewards and incentives for the application of their talents in Australia. The scheme encourages proposals involving Australian or international researchers by providing eligible Australian Laureate Fellows with Project Funding in addition to a salary supplement and salary-related (on-cost) support. For details of all 15 new recipients of Australian Laureate Fellowships, see http://arc.gov.au/media/releases/Minister_FL23June15.htm. Our congratulations to all of them!

Professor Ben Andrews (Mathematical Sciences Institute, Australian National University)

Geometric analysis of eigenvalues and heat flows

This fellowship project aims to build on Australia's leading position in the areas of nonlinear partial differential equations and geometric analysis to exploit new and highly innovative mathematical methods. It is expected that the methods will affect a range of related fields including stochastic modelling and finance, image processing, and the basic sciences. The project seeks to serve as a focal point for a developing community of Australian researchers in this field, providing a training ground for young researchers and students at the forefront of a vigorous and internationally active area of research, and bringing top international researchers to Australia to interact with the local research community.

Professor Kerrie Mengersen (Mathematical Sciences School, Queensland University of Technology)

Bayesian learning for decision making in the big data era

This fellowship project aims to develop new techniques in evidence-based learning and decision-making in the big data era. Big data has arrived, and with it a huge global demand for statistical knowledge and skills to analyse these data for improved learning and decision-making. This project will seek to address this need by creating a step-change in knowledge in Bayesian statistics and translating this knowledge to real-world challenges in industry, environment and health. The new big data statistical analysts trained through the project could also create much needed capacity at national and international levels.

Professor Trevor McDougall (Department of Applied Mathematics, University of New South Wales)

Ocean mixing processes and innovation in oceanographic models

This fellowship project aims to develop new oceanographic tools and thermodynamic variables to support a new generation of accurate ocean models more suitable for the prediction of changes in a warming world. The ocean's role in the climate system is predominantly to store and to transport heat and carbon dioxide, and the ocean's ability to do this is sensitive to the strength of mixing processes, which are quite uncertain. This project hopes to distinguish the vital role of vertical mixing from that of horizontal mixing by (i) developing algorithms to construct neutral density surfaces in climate models, (ii) formulating new inverse techniques to deduce the amount of vertical mixing in various ocean regions, and (iii) incorporating new approaches to ocean mixing processes and thermodynamics into ocean models.