Australian Academy of Science Fellows

On 25 May 25, the Australian Academy of Science announced the election of 21 new Fellows for their outstanding contributions to science and scientific research. Amongst them were three practitioners of mathematics. Our congratulations to all of them! Visit https://www.science.org.au/fellows-elected-2015 to see interviews with the new Fellows.

Professor Peter Bartlett FAA (Professor in Mathematics, Faculty of Science and Engineering, Queensland University of Technology)

Peter Bartlett is a pioneer in statistical learning theory, which is at the interface of computer science and statistics, and is focused on the science behind large, complex statistical decision problems. He has created the theoretical foundations for many key advances in statistical machine learning. Peter's contributions include analysing large margin classifiers (a successful family of computationally efficient methods for classifying patterns), developing and analysing statistical learning methods based on convex optimisation, and developing new techniques for analysing the performance of prediction methods.

Professor Geoffrey McLachlan FAA (Vice-Chancellor's Senior Research Fellow, Department of Mathematics, The University of Queensland)

Mixture models play a central role in statistical science, and Geoffrey McLachlan's pioneering work in this field has been especially influential. His research on mixture models for inference and clustering is of particular note, as is his work on applications of the EM algorithm, especially to complex multivariate problems. Geoffrey has also made major contributions to error-rate estimation for classifiers and to new techniques in analysing gene expression data, including techniques for clustering tissue samples containing thousands of genes, and for controlling the false discovery rate.
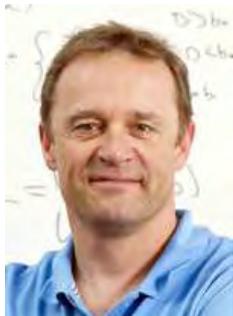
Professor Malcolm Sambridge FAA (Head of Seismology and Mathematical Geophysics, Research School of Earth Sciences, The Australian National University)

Malcolm Sambridge has made lasting fundamental contributions to the understanding of the Earth and its internal processes through new mathematical approaches to analysing complex geophysical datasets. His robust approaches to modelling diverse observational data — including statistically meaningful estimates of uncertainty — has had wide-ranging impact in geoscientific research. Malcolm's work has changed the way in which we analyse seismic waves for the structure of the Earth's interior, model landscape evolution, understand populations of mineral ages from isotopic microanalysis, and interpret infrared absorption spectra associated with hydrous crystal defects in silicate minerals.