RAS prize-winners 1995 and 1996

Alan Pickwick of the Education Committee announces the RAS Astronomy and Blackwell Prize-winners.

Stephen Hancock, 1995 Astronomy Prize-winner, left, and John Sleath, the 1996 winner, centre, with Malcolm Longair at the A&G Meeting, December 1997.

Stephen Hancock, (University of Manchester), now at the Space Telescope Science Institute, Geraint Lewis (University of Cambridge) now at the University of Victoria, Canada, Keith Lipton (University of Cambridge), and Geoffrey Taylor (University of Central Lancashire), now at Integrated Radiological Services, Liverpool

The winner of the RAS Astronomy Prize (1995) is Stephen Hancock (University of Manchester) for his thesis on 'Detections of structure in the cosmic microwave background'. Stephen will receive £1000 donated jointly by our sponsors, Cambridge University Press and the Particle Physics and Astronomy Research Council. He will also discuss with CUP the possibility of publishing his thesis in book form.

The identification of structure in the cosmic microwave background (CMB) has become a prime goal of recent observational cosmology. Direct microwave searches at the highest sensitivities have been conducted over the past 20 years in an attempt to detect these very weak signals. Stephen's thesis describes one of the first successful detections of hot and cold spots in the CMB structure on scales of 5° to 15° using the Tenerife radiometers. The thesis also describes a comparison of the Tenerife data at 10, 15 and 33 GHz with COBE Differential Microwave Radiometer data at 31, 53 and 90 GHz which clearly demonstrates structure having the spectrum expected in this frequency range for the CMB.

Following his thesis work, Stephen continued working in astronomy as a Fellow at St John's College, Cambridge, before becoming involved in financial consulting. He has recently taken a position in an investment bank.

One of his most recent papers made the science pages of the Guardian newspaper. It presented the first measurement of the density of the universe using the position of the CMB Doppler Peak. The runners-up, who will each receive £100 worth of books from Cambridge University Press are: Michael Good (University of London), now at the Space Telescope Science Institute, Geraint Lewis (University of Cambridge) now at the University of Victoria, Canada, Keith Lipton (University of Cambridge), and Geoffrey Taylor (University of Central Lancashire), now at Integrated Radiological Services, Liverpool.

The winner of the RAS Astronomy Prize (1996) is John Sleath (University of Manchester) for his thesis on 'A new model of spiral galaxies based on propagating star formation'. John will receive £1000 donated jointly by our sponsors, Cambridge University Press and the Particle Physics and Astronomy Research Council. He will also discuss with CUP the possibility of publishing his thesis in book form.

His thesis is concerned with the modelling and interpretation of star formation in galaxies. The approach is a particle simulation that identifies the basic physics required to address this problem. An efficient code simulates gas clouds and stars, with the number of gas clouds comparable to the number of giant molecular clouds in the Galaxy.

The model isolates the important physical properties of the interstellar medium: the clouds form a dissipative, collisional gas, in which they are able to accrete material and undergo star formation. This enables star formation to be modelled on a galactic scale with a realistic model for the interstellar medium. It also enables physical processes to be investigated that would not be feasible to investigate by other methods.

Important results include the prediction of the observed Galactic star formation rate from measured input parameters, the prediction of a Schmidt-like law for the star formation process in excellent agreement with the current best observational estimates, and progress towards understanding the relationship between the usual observational tracers of spiral patterns and any underlying spiral density wave. He is now working at the University of Wales, Cardiff.

The runners-up, who will each receive £100 worth of books from Cambridge University Press are: Robert Fender (University of Sussex), now at Astronomical Institute “Anton Pannekoek”, University of Amsterdam, Carole G Mundell (University of Manchester), now at the University of Maryland, and Steven Tobias (Trinity College, Cambridge), now at the University of Colorado.

The winner of the RAS Blackwell Prize (1996) is Tim Horbury (University of London) for his thesis on ‘Ulysses observations of magnetic field fluctuations in the heliosphere’. Tim will receive £1000 donated by our sponsor, Blackwell Science Limited.

His research made extensive use of new results from the Ulysses spacecraft which is in polar orbit round the Sun. The thesis contained one of the first investigations of plasma turbulence in that region.

The analysis of turbulence is one of the most challenging physics problems to tackle. In addition, solar data have been complicated by the presence of the planets in the solar wind. Fortunately, Ulysses data collected from the polar regions of the Sun are unaffected by other Solar System bodies and this offers a unique opportunity. Tim used modern, generalized techniques, such as structure functions, to reveal more information than normally obtained from power spectra alone.

Tim is continuing his work on the Ulysses data at Imperial College by taking a critical look at sources of error that affect higher order structure functions and by adding magnetic field measurements to the plasma data.

A 17th century laundry list

Almanacs were sold cheaply and were regarded as ephemeral, having little or no value after the year to which they applied. For this reason they are often omitted from lists of books in library lists, valuations, and inventories; individual almanacs may exist in very few copies. For the same reason they are often heavily annotated with interesting lists or revealing personal notes by the owner.

One of the most improbable is in the Society’s copy of William Lilly’s Mercurius Anglicus for 1677, where an unknown hand has recorded a list of items “[given] to Silvester the Washer Woman ... Linnen to wash May 7th 1677”. The list is quite long and includes such items as “8 pare of Rutells”, “24 Night Quais’es”, “11 aprons”, “2 blew aprons”, etc. The heading of the figures columns is difficult to read but probably records the cost in pence and farthings, rather than shillings and pence. The volume also includes other manuscript notes such as lists of expenditures on milk, ale and cordials, chimney sweeping, and items which probably should not be featured in a respectable scientific journal, such as horoscopes for Ann Spilwater, and “Deborah”, whoever they were.

Peter D Hingley is the Librarian of the Royal Astronomical Society at Burlington House.

The winner of the RAS Astronomy Prize (1995) is Stephen Hancock (University of Manchester) for his thesis on ‘Detections of structure in the cosmic microwave background’.