



The Royal Society of New South Wales Bulletin and Proceedings 323

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March 2009

Future Events 2009

Lectures in Sydney are held in Lecture Room 1, Darlington Centre, University of Sydney at 7 pm on the first Wednesday of the month with drinks available from 6 pm.

Wednesday 1 April 2009 7pm
Annual General Meeting
including Presidential Address
and the Studentship Presentation

Saturday 4 April 2009 2pm
National Trust Heritage Festival
Royal Society of NSW in conjunction with the City of Sydney presents:
'Stars in the City' Dr Peter Tyler
Customs House Library, 31 Alfred St, City

Thursday 30 April 2009 6.30pm
Pollock Memorial Lecture
The Universe from Beginning to End
Professor Brian Schmidt
Eastern Avenue Auditorium, University of Sydney, Camperdown

Southern Highlands Branch
Meetings are held on the third Thursday of each month in the Drama Theatre at Frensham School, Mittagong (enter off Waverley Parade), at 6.30pm.
next talk
Thursday April 16, at 6.30pm
Mining the Deep Ocean Floor – A New Frontier
Speaker: Dr Ray Binns

Acting editor, this issue, Bruce Welch

Reminder

Donations are Tax Deductible

We remind members that donations over \$2 to the Library Fund and the Scholarship Fund are tax deductible.

Annual General Meeting of the Royal Society of NSW Wednesday 1 April 2009 Conference Room 1, Darlington Centre, University of Sydney Presidential Address: 'Constancy amid Chaos: defining our place in the world'

Following on from last year's address and its focus on innovation, this year I will attempt to draw a picture of the environment we as a Society find ourselves in and outline some of the opportunities we have to make a difference for science and the world at large.

Our 2009 AGM will also include the presentation of our Studentship Award for 2008 and a presentation by the winner of his work.

John Hardie, President of the Royal Society of NSW

John Hardie is a Chief Learning Design Officer in the Centre for Learning Innovation, a unit within the NSW Department of Education and Training. He has spent the last 6 months on leave, focusing instead on the work of the Society, in particular on our 'Science for Science House' initiative. During this period he has been appointed a Director of the Royal Societies of Australia and an inaugural Director of Science House Sydney Limited.



Originally trained as a geologist, John has spent most of his working life in the field of education, particularly distance education and open learning. John has been an active member of several educational professional associations, including the Australian Society for Educational Technology and the Open and Distance Learning Association of Australia. His involvement with the Royal Society of NSW dates back to 1972 when he joined as an Associate Member while still a student. He has served on Council for many years, as Councillor then Hon Secretary and Vice-President for several years. He served previously as President in 1994/5.

Pollock Memorial Lecture The Universe from Beginning to End Professor Brian Schmidt

Astronomers believe our Universe began in a Big Bang, and is expanding around us. Brian Schmidt will describe the life of the Universe that we live in, and how astronomers have used observations to trace our Universe's history back more than 13 billion years. With these data a puzzling picture has been pieced together where 96% of the Cosmos is made up of two mysterious substances, Dark Matter and Dark Energy.



These two mysterious forms of matter are in a battle for domination of the Universe, and Schmidt will describe new experiments that are

Patrons

Her Excellency Ms Quentin Bryce AC

Governor-General of the Commonwealth of Australia

Her Excellency Professor Marie Bashir AC CVO Governor of NSW

Annual Dinner Friday 13 March 2009

The Society held a very successful Annual Dinner at the Forum Restaurant, Darlington Centre at the University of Sydney on 13 March. The Guest-of-Honour was His Honour Justice James Allsop, President of the NSW Court of Appeal who replaced our Chief Patron, the Governor-General at relatively short notice. The Society thanks His Honour for his attendance and for his very insightful Occasional Address, which touched on the relationship between the Society and the legal profession.



Justice James Allsop



Dr Adam Micolich (left) with our other medal winner, Prof Brad Potts



Edgeworth David Medal



Clarke Medal

The other highlight of the evening was the presentation of our Awards for 2008. His Honour presented the Clarke Medal (this year it was for botany) to Professor Bradley Potts from the University of Tasmania and the Edgeworth David Medal for a young scientist to Dr Adam Micolich of the University of NSW. Associate Professor Bill Sewell read the citations which were followed by very generous remarks by the recipients in accepting the Awards.



Prof Potts (left), Justice Allsop and the President, John Hardie

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monitoring the struggle between Dark Energy and Dark Matter, trying to better understand these elusive pieces of our Universe, and predict the ultimate fate of the Cosmos.

Professor Brian Schmidt is a Federation Fellow at The Australian National University's Mount Stromlo Observatory. Brian was raised in Montana and Alaska, USA, and received undergraduate degrees in Physics and Astronomy from the University of Arizona in 1989. Under the supervision of Robert Kirshner, he completed his Astronomy masters degree (1992) and PhD (1993) from Harvard University. In 1994 he formed the High-Z SN Search team, a group of 20 astronomers on 5 continents who used distant exploding stars to trace the expansion of the Universe back in time.

This group's discovery of an accelerating Universe was named Science Magazine's Breakthrough of the Year for 1998.

Brian Schmidt joined the staff of the Australian National University in 1995. His list of awards includes; Australian Government's inaugural Malcolm McIntosh award for achievement in the Physical Sciences (2000); the Australian Academy of Sciences Pawsey Medal (2001); the Astronomical Society of India's Vainu Bappu Medal (2002); Australian Research Council Federation Fellowship (2005); jointly awarded the Shaw Prize for Astronomy (2006), and shared the 2007 Gruber Prize for Cosmology with his High-Z SN Search Team colleagues.

In 2008 he was elected a Fellow of the Australian Academy of Sciences, a Fellow of the United States National Academy, and Foreign Member of the Spanish Royal Academy of Sciences.

Brian is continuing his work using exploding stars to study the Universe, and is leading Mt Stromlo's effort to build the SkyMapper telescope, a new facility that will provide a comprehensive digital map of the southern sky from ultraviolet through near infrared wavelengths.

Venue: Eastern Avenue Auditorium,
University of Sydney, Camperdown
Time: 6.30pm onwards
Date: 30 April, 2009
RSVP: 9351 3383 or
outreach@physics.usyd.edu.au

Winner of the 2008 Studentship/Scholarship Gerard Kaiko

Our winner of the 2008 studentship/scholarship is Gerard Kaiko, an immunologist from Newcastle University.

He will be presented with the Award and will deliver a 20-30 minute presentation on his work at the forthcoming AGM on 1 April.





HERITAGE
FESTIVAL
2009

Our place in space: Under the Southern Cross

Historian Peter Tyler will be presenting

Seeing Stars in the City – A history of early astronomy in Sydney, and Heritage specialist Tony Smith will talk on Heritage buildings through the lens of star gazing.

This delightful afternoon of history, architecture and music is jointly sponsored by the City of Sydney and the Royal Society of NSW for Stars in the City.

A National Trust Festival Event, 2.00 pm - 5.30 pm • Saturday 4 April 2009, Customs House Library • Barnet Long Room, Level 1 • 31 Alfred Street • Sydney. Cost: \$10 including refreshments, Bookings essential: 02 9242 8555, Numbers limited, max 130 – book now! An early supper of fine wines and gourmet sandwiches will provide sustenance for the chamber music concert to follow. Wheelchair access available.



From the President

On Friday 27 February I represented the Society at the launch of the first publication of the Royal Societies of Australia: Dr Phillip Garth Law: his extraordinary Life and Times. As the President of the most senior Royal Society in Australia, I was invited to be the Master-of-Ceremonies for the evening. Former Vice-Chancellors and Chancellors of Victorian universities and other distinguished guests saw the sprightly 96 year-old accept the praise lavished on him for his work, as recorded in the book. The event included a live telephone hook-up with Mawson Base in the Antarctic.



Last Friday night's Annual Dinner of our Society has proved to me again how important it is to keep up the Society's traditions. Members and friends who gathered for the evening were treated to a quiet celebration of scientific achievement with the presentation of two of our major Awards. The medalists were of the highest standard in their respective fields and yet felt extremely honoured by having these awards bestowed on them.

His Honour Justice James Allsop, President of the NSW Court of Appeal and our guest-of-honour standing in for our Chief Patron, the Governor-General Ms Quentin Bryce, was impressed by the calibre of the award winners and by the Society generally. He noted in his Occasional Address that our Society had its foundations established two years before the Supreme Court of NSW so was indeed a force to be reckoned with. He has offered to help increase the links we already have with the legal world.

This week is an extremely busy one. Through the good offices of the Chairman of the Royal Institution of Australia, Mr Peter Yates, we have a seat at the table at the 'Science meets the Parliament' dinner being held this week in Canberra. This will be an opportunity to make our work known to a wider audience, especially at a Federal level. We will also have an opportunity to participate in a dinner for the RiAus at which the Director of the Royal Institution of Great Britain, Baroness Professor Susan Greenfield will speak.

I will be participating in the AGM of the Southern Highlands Branch of the Society on Thursday this week. The Branch is very important for the Society as a whole and I take great pride in their work and am always honoured to participate in their events.

John Hardie

Next Southern Highlands Branch talk

Thursday April 16, at 6.30pm. in the Drama Theatre at Frensham School, Mittagong (enter off Waverley Parade)
Mining the Deep Ocean Floor – A New Frontier

Speaker: Dr Ray Binns

Honorary Research Fellow, CSIRO Exploration and Mining

Since CSIRO's successful research on seafloor mineral deposits rich in copper sulfides and gold in Papua New Guinea, commercial interest has developed rapidly. Four companies based in Australia have pegged vast areas of territorial waters in the south-western and western Pacific Ocean – the "Pacific Ring of Fire". Two have conducted significant exploration programs involving large vessels and robot submarines for geological mapping and environmental studies. With drilling rigs deployed in water depths from 1,000 to 2,500 metres, they have established viable resources leading to applications for mining leases from the PNG and New Zealand authorities. Several national organisations, particularly in Russia, are surveying mineral deposits on the even deeper mid-ocean ridges with the intention of exploitation, despite restrictive conditions imposed by the United Nations Law of the Sea Treaty. CSIRO and Geoscience Australia have prepared a map of varied mineral occurrences in Australia's EEZ and are investigating societal implications of seafloor mining there.

Dr Binns, a resident of the Southern Highlands, was Chief Research Scientist in CSIRO Division of Exploration and Mining, retiring in 2002. His research career has involved



investigations at a variety of Australian mineral deposits, and in 1986 he commenced a major program of exploration and research on seafloor mineral deposits, the success of which was recognised by Fellowship of the Australian Academy of Technological Sciences and Engineering, and the award of the CSIRO Chairman's Gold Medal. He is a member of the Scientific Advisory Board of Nautilus Minerals Inc, the major player in this new industry frontier.

New Members

Three new members were announced at the February meeting of the Society.

Mark Moskvitch - Full member

Edward Milne - Student

Lisa Cawthen - Student

We welcome them into the Society.

Probus Club Talk

During February, Robyn Stutchbury was invited to address the Hunters Hill Probus Club on the work of the Royal Society of NSW. She chose to talk on 'Stirring Science', using the ambiguity to explain that in its heyday, the Royal Society of NSW was the presenter of 'stirring science', science that captured the imagination of massive audiences whereas today that interest has declined. Robyn suggested that it should be up to the Society to 'stir' or arouse that interest again.



She spoke of the 1880s when the front pages of the tabloid press would cover the Royal Society's Conversaciones; gala events held in the Great Hall of the University of Sydney where the latest scientific discoveries were exhibited. One paper reported: 'The conversazione [was more than] merely for the amusement of the visitors, for no one could walk around the room without being impressed by the achievements of science.'

How can we stir this interest again? In her vote of thanks to Robyn, the President of the club admitted that she did not have anything against science, she had just not really thought about it. Perhaps it is apathy we should be tackling?

Four Societies Meeting

The French sense of generosity and co-operation came to the fore when Australian theoretical physicist Selena Ng, with her Cambridge PhD, representing AREVA, the French state enterprise for nuclear power reactors, delivered her lecture for the four societies, the Royal Society of New South Wales, the Australian Institute of Physics, the Nuclear Panel of Engineers Australia, and the Australian Nuclear Association. The large Engineers Australia Lecture Theatre in Chatswood was packed for the event which was held on 25 February.

Dr Ng summarised how nuclear energy is the second largest energy source in the world after fossil fuels. Countries worldwide are committing to nuclear power as an integral part of their future energy mix, as they struggle to meet increasing electricity demands in a competitive and secure way while reducing their carbon emissions. Here in Australia, nuclear power, uranium mining, nuclear weapons and radioactive waste, to name a few, do make appearances on the public and political agenda from time to time, although the issues are sometimes confused, and often clouded by conflicting 'facts'. Dr Ng was able to set the record straight from an industrial perspective with her very clear, well defined arguments. She covered some of the long-argued topics such as proliferation, safety and waste, as well as risk comparisons.



Australia was mentioned for its developments based on Synrock waste

storage technology which uses ceramics rather than glass, and the Silex laser-based advanced isotope separation technology which will become commercial in 2011 in cooperation with Mitsubishi.

The 1168th meeting of the Royal Society of NSW followed the lecture.

Heinrich Hora

Australian Institute of Physics NSW Branch



Public Talk 1:

Tuesday 24 March 2009 @ 5:30pm
'First Scientific Results from OPAL, the new Australian Research Reactor'

Dr Robert Robinson
Australian Nuclear Science & Technology

Location of talk: Slade Lecture, School of Physics, University of Sydney

Public Talk 2:

Tuesday 24 March 2009 @ 7:00pm
'Terahertz Science and Technology'

Professor Roger Lewis
University of Wollongong
Location of talk: Slade Lecture, School of Physics, University of Sydney
Dinner to follow at Buon Gusto Restaurant, Abercrombie St.
Please contact Dr Fred Osman on 0418 444 477 to book.

RACI News

Weekly E-News
(including forthcoming events)
of The Royal Australian Chemical Institute Inc. NSW Branch are obtainable on their web site at <http://www.chem.unsw.edu.au/raci/News.html>



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