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The Royal Society of New South Wales

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February 2014

Wednesday 5 March 2014

Big Data Knowledge Discovery: Machine Learning meets Natural Science

Professor Hugh-Durrant-Whyte FRS

Union, University & Schools Club, 25 Bent St, Sydney City

Future Events

Wednesday 5 March 2014

**Big Data Knowledge Discovery:
Machine Learning meets Natural Science
Delivered by:**

Professor Hugh Durrant-Whyte FRS
CEO of NICTA
Union, University & Schools Club
25 Bent St, Sydney
6:00 pm

Thursday 3 April 2014

**The Jameson Cell (Mining)
AGM & 1220th OGM**

Delivered by:

Laureate Professor Graeme Jameson AO
Union, University & Schools Club
25 Bent St, Sydney
6:00 pm

Wednesday 7 May 2014

**Annual Dinner, presentation of Awards
and Royal Society of NSW Distinguished
Fellows Lecture**

Speaker:

Professor Barry Jones AO
Union, University & Schools Club
25 Bent St, Sydney
6:00 pm

SOUTHERN HIGHLANDS BRANCH

Thursday 20 March 2014

Building Sustainability

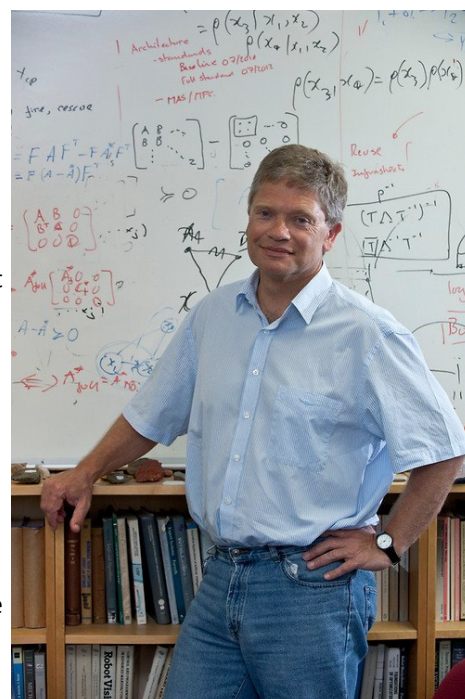
Delivered by:

Professor Paul Cooper
The Performing Arts Centre,
Chevalier College, Bowral
6:30pm

For more upcoming events see website
www.royalsoc.org.au

Increasingly it is data, vast amounts of data, that drives scientific discovery. At the heart of this so-called “fourth paradigm of science” is the rapid development of large scale statistical data fusion and machine learning methods. While these developments in “big data” methods are largely driven by commercial applications such as internet search or customer modelling, the opportunity for applying these to scientific discovery is huge.

NICTA is currently leading a major Science and Industry Endowment Fund (SIEF) project, in collaboration with the University of Sydney and Macquarie University, looking to apply machine learning techniques to discovery in the natural sciences. This talk will look at the key methods in machine learning that are being applied to the discovery process, especially in areas like geology, ecology and biological discovery.



Hugh Durrant-Whyte is the CEO of National ICT Australia (NICTA). He was previously a Professor and ARC Federation Fellow at the University of Sydney, Director of the ARC Centre of Excellence for Autonomous Systems and of the Australian Centre for Field Robotics (ACFR). He has published over 350 research papers and founded four successful start-up companies. He has won numerous awards and prizes for his work, including being named the 2008 Professional Engineer of the Year by the Institute of Engineers Australia Sydney Division and the 2010 NSW Scientist of the Year. He is a Fellow of the Australian Academy of Science (FAA), and a Fellow of the Royal Society (FRS).

\$5 members and \$20 non-members **Dress code: Jacket and tie.**

Dinner after the meeting is \$75 per head. Please book in advance using the following form. http://www.royalsoc.org.au/meetings&events/imagesanddocs/Dinner_booking_sheet.pdf

Patrons of The Royal Society of NSW

Her Excellency Ms Quentin Bryce AC CVO, Governor-General of the Commonwealth of Australia

Her Excellency Professor Marie Bashir AC CVO Governor of NSW

Joint meeting with Australian Academy of Forensic Sciences

Held on Wednesday, 19 February 2014 at the
Union, University and Schools Club

Searching for Clues: Unmasking Art Fraud & Fraudsters

There is a critical need to have properly established methods for assessing art fraud with at least 10% of art work in the Australian market deemed to be “problematic”, and with forgers demonstrably active. The difference between a work being valued at millions of dollars or at the price of the materials used in its production depends on the ways in which evidence is amassed and assessed in the development of an art fraud or art attribution case.

Significant factors in establishing a chain of evidence that will indicate whether a work is legitimate or not include what is selected as a reference data set, which processes and tools are used for examination, and the methodology and terminology used to collate the report.

Professor Sloggett’s talk included examples of Australian art works that were questioned, famous overseas fakes (the Getty Kouros), and famous overseas fakers (Wolfgang Beltracchi).

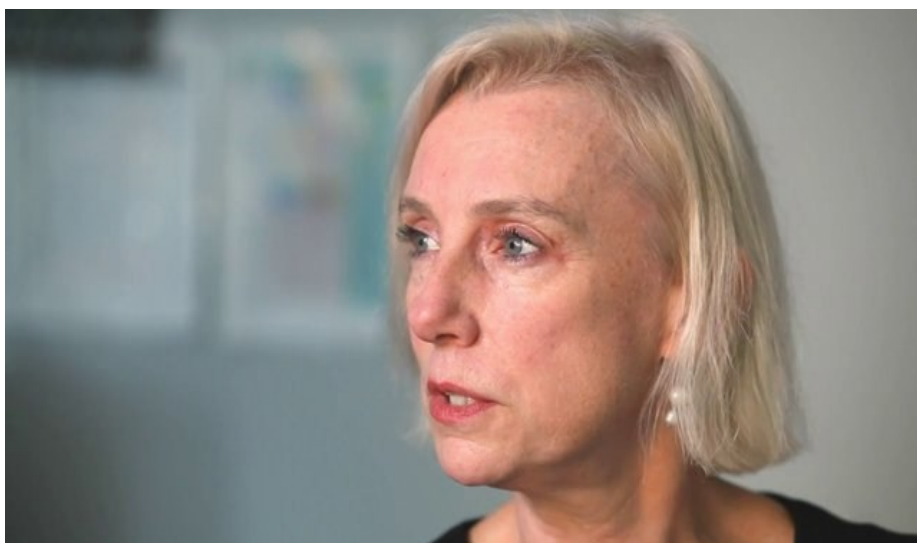
In a coda to her talk Professor Duncan

Chappell of the Institute of Criminology, The University of Sydney, described how only now was a specialist unit on art fraud being set up by the NSW Police, and millions of dollars were being defrauded with only passing interest from society.

During questions, famous Sydney artist Pamela Griffiths, recounted how thefts of her works from galleries had resulted in unrecovered losses.

At the dinner, the traditional toast to the Australian Academy of Forensic Sciences was given by Vice President Emeritus Professor Brynn Hibbert (also a member of Council of the AAFS). He recounted the similarities in intent of the two Societies and suggested future themes for joint meetings, including the public autopsy of the President of the RSNW by a past President of the AAFS, Professor John Hilton. The present state of the SI units, particularly the kilogram was announced.

Brynn Hibbert



Associate Professor Robyn Sloggett is the Director of the Centre for Cultural Materials Conservation, The School of Historical and Philosophical Studies, University of Melbourne.

2013 Scholarship Winners



Irene Kelly presenting Xavier Zambrana-Puyalto with his 2013 Jak Kelly Award on December 18 2013.



John Chan delivering his presentation on February 5.



Jessica Stanley discussing her research at the Society’s OGM on 5 February.

Not pictured—scholarship winner Jiangbo (Tim) Zhao’s presentation was delivered by A/Prof. Judith Dawes.

News & Events from other Societies

Australian Institute of Physics NSW Branch

“Graphene: deep physics from the all-surface material”

Professor Michael S. Fuhrer

School of Physics, Monash University

Tuesday, 18th March 2014 @ 6.30PM

At the Macquarie University,

Department of Physics and Astronomy, Herring Road, North Ryde

Building E6B, Room E6B2.300 (Second Level)

(Please use access from E6A and upstairs on second level)

Entrance is FREE

Membership Renewals

Coming soon...

Let's keep in touch

Details changed?

Please let us know.

royalsoc@royalsoc.org.au



Royal Australian Chemical Institute

NSW Branch President's Dinner and 'Insight Radical' Event

Grand Pittwater Function Centre

25/41 Magdala Rd (cnr Pittwater Rd), North Ryde 2113

6.00 pm for 6.30 pm, Wednesday **19 March 2014**

Special Invitation

Non-members \$100; RACI members and partners \$80

A night of celebration at which we will mark the achievements of member through awards and, on this occasion, hear about the innovation “Insight Radical,” project from Dr Renee Beale, Community Awareness Programme Manager, ARC Centre of Excellence for Free Radical Chemistry and Biotechnology, Melbourne.

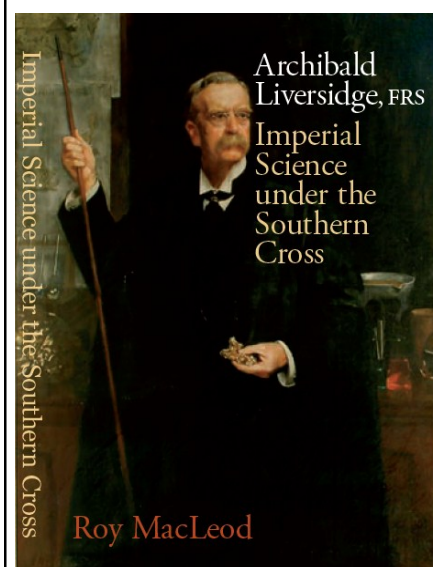
RSVP February 28 2014 www.raci.org.au/events/event/nsw-presidents-dinner

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ANSTO

The Australian Synchrotron in the
International Year of Crystallography

Tour and Lecture starts at the ANSTO Discovery Centre, New Illawarra Rd, Lucas Heights

6.00 pm Tuesday **13 May 2014**

RSVP by Wednesday 7 May by calling 02 9717 3090 or emailing tours@ansto.gov.au

Please see separate flyer for details.— This event is supported by the RSNSW.

From the President



What a great start to 2014! At our first meeting in Sydney on Wednesday 5 February, we were fortunate to hear presentations from three of our 2013 scholarship winners. (You may remember that the fourth, who was also the Jak Kelly Award winner, presented at the December meeting last year.) These were three very different topics and reflected both the breadth and depth of the entries that were received last year. On Wednesday 19 February we had our first joint meeting with the Australian Academy of Forensic Sciences. The subject was the detection of art fraud and was well attended by nearly 100 people. The discussion continued over dinner afterwards and was a most enjoyable evening. We intend to develop alliances with like-minded organisations, including various academies and other institutions. We are in advanced discussions with a number of these and there is significant interest in joint activities and making each other aware of interesting events.

The third event in February is the annual Four Societies lecture that we hold each year in conjunction with the Australian Nuclear Association, the Energy Panel, Engineers Australia and the Australian Institute of Energy. This year's lecture will be delivered by Professor Mary O'Kane, NSW Chief Scientist and Engineer who will discuss various energy options for the State of New South Wales. (Note that this meeting will be held at the MLC Centre – see the website for details.)

The full speakers programme for 2014 for both Sydney and the Southern Highlands branch has taken a little longer than we expected to be finalised but we expect that the full schedule for the year will be available on the website within the next week or so, so members can plan their diaries.

In the next couple of weeks, you will receive subscription notices for

2014. With the introduction of the new fellowship category, we have rationalised subscription rates somewhat, with the consequence that the Full Member subscription will stay the same as 2013, at \$115. There have been some minor changes to some other rates. Please try to pay the subscriptions before the end of March, as to be able to vote at the AGM that will be held in April, members must be financial for the year.

If there are any issues you would like to raise with me, I am easily contacted by e-mail at president@royalsoc.org.au and would like to hear from you.

Donald Hector

For information about membership please contact the Society's office or visit the Society's website or contact Emma at royalsoc@royalsoc.org.au

We encourage members to introduce new members to the Society.

Contact your office bearers

Dr Donald Hector President	02 9484 9007	Em. Prof Heinrich Hora Vice President	02 4627 7769
Mr John R Hardie Vice President	02 9036 5282	Em. Prof D. Brynn Hibbert Vice President	02 9398 9134
Mr Colin Bradley Hon. Secretary	0421 478 670	Prof. Michael Burton Hon. Secretary (Editorial)	02 9036 5282
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Mr Brendon Hyde	02 9498 3520	Mr Hub Regtop (SHB rep)	02 4872 4713
Professor Richard Banati	0408 121 362	Mr David Beale	02 9036 5282
Em. Professor Roy MacLeod	02 9036 5282		

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121 Darlington Rd, Building H47, UNIVERSITY OF SYDNEY NSW 2006 Australia

Office hours: 11:00am - 4:00pm Mon - Wed and Fridays. www.facebook.com/royalsoc

Executive Officer: Emma Dallas t: 02 9036 5282 e: royalsoc@royalsoc.org.au w: www.royalsoc.org.au