The Royal Australian Chemical Institute, NSW

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Weekly E News –NSW

Feb 11th 2009

NSW RACI to have a representative at the SmP

The NSW branch Office was very excited to learn of the acceptance of Joseph Bevitt (NSW Branch Secretary and NSW Young Chemists Chairperson) as one of the RACI's Representatives at the forthcoming Science Meets Parliament meeting in March.

Science Meets Parliament (SmP) is an annual event organised by the Federation of Australian Scientific and Technological Societies (FASTS). SmP brings up to 200 scientists from around Australia for face-to-face meetings and forums with Parliamentarians in Canberra.

Science meets Parliament (SmP) will be on Tuesday 17th and Wednesday 18th March 2009. There will be a dinner in the Great Hall on Tuesday evening, 17th March.

We congratulate Joseph on his nomination and acceptance as a participant to the event and trust it will be a most beneficial experience

It is very likely that other NSW members have also been accepted as participants – please let us know so we can follow your progress as you attend the event.

Sustainability news for Chemists

(Thanks to John Zavras for providing the following information and links)

Business and industry sustainability

Link http://www.environment.gov.au/settlements/industry/

The Department of the Environment, Water, Heritage and the Arts works to recognise and accelerate the efforts of Australian industries and business to improve their environmental performance in the

following areas.

· **Building & construction**
<http://www.environment.gov.au/settlements/industry/construction/index.html>
· Energy **efficiency & buildings**
<http://www.environment.gov.au/settlements/energyefficiency/buildings/index.html>
· ESD **design guide for office and public buildings**
<http://www.environment.gov.au/settlements/government/publications/esd-design/index.html>
· **Small Business Climate Change Action Initiative**
<http://www.environment.gov.au/minister/garrett/2008/pubs/mr20080424a.pdf>
· **Publications and resources**
<http://www.environment.gov.au/settlements/industry/publications/index.html>

Corporate sustainability

Corporate sustainability encompasses strategies and practices that aim to meet the needs of stakeholders today while seeking to protect, support and enhance the human and natural resources that will be needed in the future. Business and industry has a crucial role to play in helping Australia to become more sustainable and competitive. As a result, many Australian organisations and industries are responding by reducing their environmental impacts and risks through improved environmental management practices and efficient use of natural resources.

Corporate sustainability reporting

Organisations and industries around the world are recognising the value of demonstrating transparency and accountability beyond the traditional domain of financial performance. This trend has come about through increased public expectations for organisations and industries to take responsibility for their non-financial impacts, including impacts on the environment and the community.

Related programs

· **CO2 Capture and Storage**
<http://www.environment.gov.au/settlements/industry/ccs/index.html>
· **Greenhouse Challenge Plus**
<http://www.environment.gov.au/settlements/challenge/index.html>
· **Greenhouse gas abatement**
<http://www.environment.gov.au/settlements/industry/ggap/index.html>
· **Generator efficiency standards**
<http://www.environment.gov.au/settlements/ges/index.html>
· **Low Emissions Technology and Abatement**
<http://www.environment.gov.au/settlements/programs/leta/index.html>
· **Renewable energy**
<http://www.environment.gov.au/settlements/renewable/index.html>
· **Solar Cities** <http://www.environment.gov.au/settlements/solarcities/index.html>
· **Supervising Scientist** <http://www.environment.gov.au/ssd/index.html>

RACI WESTERN SYDNEY SECTION

How to hit a moving target

When: Tuesday 10th March 2009
Venue: University of Western Sydney
Campbelltown Campus
(Building 22, Conference Room 5)

Programme:

6.00 Wine & Cheese
6.30 Special Guest Speaker: **Associate Professor Renate Griffith** *(UNSW)*

Proteins are important targets for pharmaceutical agents. Proteins are not static, they "move" in a variety of ways. These movements include induced fit upon the binding of a small molecule, and conformational changes upon activation. Some small-molecule binding sites are buried, or do not even exist in the absence of a small molecule. Proteins are also frequently mutated, and mutated proteins are often involved in disease states and in drug resistance.
Crystal structures of proteins provide only static snapshots of moving proteins. For various studies, such as drug design and development, the flexibility and the effects of mutations need to be considered. This seminar will present various computer-aided modelling methods able to consider "moving protein targets".

Associate Professor Griffith is currently with the Department of Pharmacology with the School of Medical Sciences developing new methods of computer-aided molecular design with the ultimate goal of developing new pharmaceuticals. She is currently working on many projects including the design of novel anti-HIV-SIDS agents, molecular shape and conformations of heterocyclic molecules, and drug-DNA interactions through collaborations with several universities.

Everyone is welcome to join the speaker and committee for dinner (own expense) at a local restaurant after the presentation.

For additional information please contact:

Dr Robyn Crumbie
Tel. 4620 3201
Email: r.crumbie@uws.edu.au

The 2009 Honours prize (RACI Western Sydney Section)

YOUR HONOURS STUDENTS have had a break since finishing their thesis - NOW is a good time to consider their eligibility for the 2009 Honours prize (Western Sydney Section) if they reside, or have done their research, in Western Sydney. ALL WE NEED IS AN EXTRA COPY OF THEIR THESIS. NO NEED to wait for examiners' reports. Deadline 31st March, 2009; earlier submissions encouraged. Contact Deidre Tronson, deidre@bowtie.com.au **Please pass this information on to any colleagues in other departments who have Hons students who may be eligible**

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The 2009 Honours prize (RACI Western Sydney Section) will be awarded for the best Honours thesis produced in 2008 by a student who is resident and/or has studied or undertaken research in western Sydney[1] throughout the year.

The RACI Western Sydney Section Honours Prize is now open to ..... eligible applicants enrolled in ANY University, within ANY department/school/faculty. The project must include either 'pure' or 'applied' chemistry. This could be applied to fields such as agriculture, horticulture material science, nanotechnology, pharmacy, neuroscience, medicine, biochemistry, biology, environmental analysis, forensics, or any other discipline.

The winner will give an oral presentation at a meeting of the Royal Australian Chemical Institute Western Sydney Section during 2009 (date to be determined). This is an opportunity to showcase the research to a range of RACI members and other students.

The prize will be awarded to a project that demonstrates a high level of innovation, creativity and contribution to chemical knowledge. If more convenient, the thesis may be spiral- or 'perfect'-bound and may be submitted prior to examination because the final grade is not a determining factor.

Students should forward a copy of the thesis plus a covering letter containing personal details (including student's email address) to one of the contacts below. The thesis will be returned.

DEADLINE: MARCH 31ST 2009. Earlier submission is encouraged

Enquiries and submission to:
Dr Deidre Tronson (FRACI), 21 Eagle Creek Rd, Werombi, 2570.
Ph 02 4653 1430; email: deidre@bowtie.com.au.
OR leave the thesis, clearly marked "WSS Honours Prize", at the RACI office, UNSW.

[1] "Western Sydney" is defined by the following postcodes: 2076-2077; 2111-2126; 2128; 2133; 2140-2168; 2170;2171; 2173; 2174; 2176; 2177; 2190-2200; 2205-2214; 2216-2234; 2558-2560; 2563-2579; 2745; 2747-2768; 2770; 2773-2787; 2790

RACI MEMBERSHIP RESTRUCTURE

In the February issue of "Chemistry in Australia" there will be a position paper describing the proposed changes to membership. Members are encouraged to send their comments to the President, Bob Watts, email rowatts@bigpond.net.au,

Wiley Book Offer

Did you know that being a RACI member entitles you to discounts on Wiley Books when you order the books through the NSW RACI Branch Office? The offer applies to Wiley's range of Professional Books. To enquire contact Edwina racinsw@chem.unsw.edu.au

Chemical drink breathes life into damaged hearts

(Thanks to John Zavras for providing the following story)

Link http://www.newscientist.com/article/dn16564-chemical-drink-breathes-life-into-damaged-hearts.html?DCMP=OTC-rss&nsref=online-news <http://www.newscientist.com/article/dn16564-chemical-drink-breathes-life-into-damaged-hearts.html?DCMP=OTC-rss&nsref=online-news>

After drinking a chemical dissolved in water, mice with damaged hearts turn from couch potatoes into treadmill tearaways, researchers say. The finding raises hopes that the same substance can invigorate patients weakened from heart attacks by increasing the supply of oxygen to damaged cardiac muscle.

Designed to make haemoglobin release more of its oxygen than normal, the drug, *myo*-inositol trispyrophosphate (ITPP) boosted exercise levels in the ailing mice by 35% when given dissolved in water. When given by injection into the abdomen, exercise levels rose a massive 60%.

"ITPP doesn't deliver oxygen itself, but makes haemoglobin able to release a larger amount of oxygen to tissues," explains Jean-Marie Lehn <http://www-isis.u-strasbg.fr/supra/> of the University of Strasbourg in France.

Normally, he says, haemoglobin releases only 25% of its oxygen cargo during one circuit of the body. But when ITPP binds to haemoglobin, it releases 35% more than usual, boosting supplies of oxygen to tissues without people having to inhale any extra air.

Upcoming RACI Meetings

Feb 16th

NSW ChemEd Group Meeting 5pm for a 5.30pm start. Room 418 School of Chemistry University of Sydney. When you enter the building, there will be an after-hours sign-in and sign-out book near the front office. After signing in take the lift to the floor 4 and we will be there.

Feb 20th

NSW RACI Branch Meeting 5.30pm start. Prior to the Presidents Dinner. (If any member has concerns ideas for the Branch to Discuss – please forward your ideas etc to the Branch (racinsw@chem.unsw.edu.au).

Feb 26th

NSW Industrial Chemistry Group and Industrial Division meeting Club City Central (Sydney RSL Club) 565 – 567 George Street, Sydney Level 3 Function Room **4.30 – 5.30** ***RACI Industrial Chemistry Division Meeting*** **-** ***For ICD committee only*****, 5.45 – 6.15** ***NSW Industrial Chemistry Group Meeting*** **–** ***For ICG committee only*****, 6.30** ***Chemistry in Australia Focus Group*** **– NSW ICG + invited guests. (Reminder to NSW ICG + invited guests to RSVP by the 19th to Gary.)**

Free public talk by NSW AIP

TITLE: ***An industry update on global nuclear power and the opportunities for Australia***

SPEAKER: Selena Ng, Areva NC

When Wednesday 25 February, 5.30pm, Sydney

VENUE: Engineers Australia Lecture Theatre, 8 Thomas St, Chatswood

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. Selena will set the record on nuclear power straight from an industry perspective, covering some of the long-argued topics such as proliferation, safety, and waste. It will also look at projected industrial developments over the coming decades, and the opportunities for Australia to get involved.

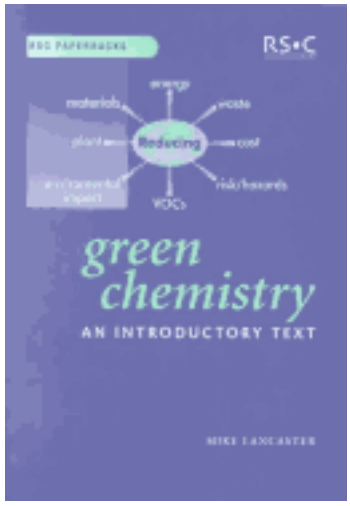
More information: http://www.nsw.aip.org.au/

RACI Focus Groups

Attention all RACI Members
The Editorial committee of the *Chem in Aus* is currently making plans to do some research about reading of and attitudes towards Chemistry in Australia.

To find out more about members and potential members across Australia, it is hoped that some focus groups can be organised.

Chemistry and Sustainability Text Book Review



(Thanks to John Zavras for providing the following information)

Green Chemistry: An Introductory Text

*Colin Raston**
Mike Lancaster
Royal Society of Chemistry,
Cambridge, U.K.
2002, 310 pp.
ISBN 0-85404-620-8
Softcover, 25 GBP.

Green chemistry is an important emerging interdisciplinary field, with links into engineering, biochemistry, physics, materials science, and other areas. The 310 page book is an attempt to cover most of the areas, a difficult task as acknowledged by the author, and it is thus by no means comprehensive. Rather it is an attempt to introduce the area, without over simplification or bias, and at the same time without complication. The target audience is chemists who are attempting to develop new processes and products, which meet the demands of society, and have lower financial and environmental impact. The book will also make an excellent advanced undergraduate textbook, with review questions at the end of each chapter, along with key reference material.

Website of the Week

10 Science Experiments That Changed the World
http://science.howstuffworks.com/10-science-experiments.htm

Thanks to John Zavras who suggested the site.

Olle' Prize

The NSW Branch invites nominations for the **Archibald D Ollé Prize.**

Archibald Ollé was very active in the chemical and scientific life of NSW in the first 40 years of the twentieth century, and his wife, who outlived him, left a bequest to the RACI NSW Branch to his name with an annual prize. It is awarded to a member of the Institute who submits the "best treatise, writing or paper" on any subject relevant to the Institute's interests. Examples of previous winners include books and book chapters on key areas of chemistry, as well as critical scientific and technical reviews.
The NSW Branch Committee controls the Prize and has established the following conditions:

1. Nominations are invited from candidates themselves or from persons knowing suitable candidates and must be members of the RACI.

2. Each nominee shall submit a single scientific work published during the period 1st January 2008 until December 2008.

3. Nominations must be in writing, setting out the name, address, academic qualifications and present position of the nominee and be signed by the nominee and nominator.

4. Where the work involves more than one author, the nominator should arrange for **all** the other authors to send an indication of the contribution of the nominee. Though submission of multi-authored works is not discouraged, authors should be aware that in the past the adjudicators have found it very difficult to establish the relative merits of single and multi-authored works in terms of making an award to an individual.

5. Nominations should be addressed to:
The President
The Royal Australian Chemical Institute Inc. NSW Branch
School of Chemistry
UNSW
Sydney 2052
And must be lodged on or before Friday 27th March 2009

6. In all matters relating to this Prize, the decision of the NSW Branch Committee shall be final, and the Committee may not make an award if, in the opinion of the assessors, the submissions are not of a sufficiently high standard.

The result will be communicated to all entrants and will be published in "Chemistry in Australia"

The Royal Australian Chemical Institute Incorporated

New South Wales Branch

INVITATION

All NSW RACI members and their partners

The President of The Royal Australian Chemical Institute Incorporated. NSW Branch,
Prof. Mary Collins cordially invites you to attend the

2009 Presidents Dinner

'Celebrating Achievements and Excellence in Chemistry'

Presentation of the various awards including RACI FELLOWSHIPS, Citations, the "PRESIDENTS AWARD" and recognition of our 50 year members. We will also hear from some of NSW members their outstanding work they have done.

Come and be part of our celebration of Chemistry at an exciting venue;
The GreenGate Hotel, Cnr Pacific Highway & Greengate Road, Killara
Friday,20th February 2009, 7.00pm for 7.30pm start

RSVP by Thursday 12th February 2008
Edwina Hine
School of Chemistry, UNSW NSW 2052
Ph. (02)9663 4960, Fax (02)9385 6141
E-mail: racinsw@chem.unsw.edu.au
Dress semi formal (Jacket and Tie)

RACI member and partner $60.00 per person (includes GST)
3 course meal, beer, wine & soft drinks

Non Member $70.00 per person (includes GST)

BOOKING FORM

Names of People Attending:
1._____ 2._____

Please find enclosed credit card details/cheque (payable to The RACI) for $____

Cheque, Cash, M/C, Visa. (Circle)	Credit Card No.															

Cardholders Name:_____ Signature: _____ Expiry Date:_____

Return to The Royal Australian Chemical Institute Inc. New South Wales Branch, School of Chemistry, UNSW, NSW 2052

Nominations for RACI Awards are now open

Like last year we will feature a detailed description of one award each week during the nominations period. This week we feature ***Centenary of Federation Teaching Awards in Chemistry***

Centenary of Federation Teaching Awards in Chemistry

The Royal Australian Chemical Institute Inc. has established a series of annual awards for the recognition and reward of outstanding excellence in the teaching of chemistry in Australia at both primary and secondary school levels.

The award will consist of $500 and an inscribed certificate.

The Primary and Secondary Award (administered by the Branch) will be offered on the basis of one per state annually, with applicants in the Northern Territory being considered with South Australia and those in the Australian Capital Territory with New South Wales. Candidates whose teaching is only partly chemical and teachers of general science (with some chemistry) are also encouraged to apply. There is no RACI membership requirement in this category.

Applications (four copies) for the Primary and Secondary Award should be forwarded to the Branch Office of the RACI in your State capital prior to the closing date of 30 April.

The Tertiary Award shall be made nationally to an applicant who is a financial member of the Institute of at least one year's standing.

There is no application form, but candidates should provide:

1. **contact details - postal and email addresses, phone and fax numbers**
2. **a brief curriculum vitae focusing on those aspects which will support your application**
3. **a statement (1-2 pages) of your overall approach to teaching and learning**
4. **information / examples from your practice which illustrate and support your approach**
5. **names, addresses, email and phone numbers of no more than three referees**
6. **supporting letters (5 copies) from the referees, which may be forwarded directly to the Institute. The Institute may seek other opinions and candidates should indicate any persons they do not wish to be contacted.**

Applications (4 copies) should be forwarded to The RACI, National Office, 1/21 Vale Street, North Melbourne, Vic, 3051. No award will be made in any category if, in the opinion of the Institute, no suitable candidate nominates. In all matters relating to these awards, the decision of The RACI Board shall be final.

The closing date for applications (4 copies) is 5 pm Eastern Standard Time on 30th April. Receipt by National Office of each nomination will be acknowledged.

Important Dates in Chemistry's History Feb 13-19

13

b. 1672 Etienne-Francois Geoffroy, published first table of chemical affinities; early supporter of phlogiston theory.

b. 1858 Henry C. Pearson, rubber scientist & editor.

14

b.1878 Julius Nieuwland, "Father of Acetylene Chemistry"; discoverer of neoprene.

b.1889 Evan J. Crane, editor, *Chemical Abstracts*, 1915-1958.

b.1917 Herbert A. Hauptman developed methods for determination of crystal structures; Nobel Prize (1985) with Jerome Karle for their outstanding achievements in the development of direct methods for the determination of crystal structures.

- Dennis Searle, Dennis & E. M. Skillings discovered deposits of borax & other soluble salts in San Bernadino, California, 1873.
- Lawrencium (Lr, 103) produced at University of California, Berkeley, 1961.

15

b. 1873 Hans K. A. S. von Euler-Chelpin, researcher on enzymes & fermentation; Nobel Prize (1929) with Arthur Harden for their investigations on the fermentation of sugar and fermentative enzymes.

b. 1900 Charles Thomas received many awards including Priestley medal.

16

b. 1826 (Hans Peter Jörgen) Julius Thomsen, tabulated the amount of heat released or absorbed in 3,500 chemical reactions; prepared the first table of the relative strengths of acids; fabrication of soda from the mineral cryolite (patented in 1853); established a factory in St. Petersburg capable of producing two tons per day; designed the modern format of groups and periods on the long form of the Periodic Table of the Elements (1895).

b. 1886 Robert R. Williams, Jr., member Hall of Fame of Inventors for Process for Obtaining Vitamins Patent Number(s) 2,049,988; a telephone company researcher who in his spare time developed ways to synthesize vitamins; isolated thiamine in crystalline form in 1933 and synthesized vitamin B.

- F. P. Bundy, H. T. Hall, H. M. Strong & R. H. O. Wentoff announced synthesis of diamonds at GE Research Laboratories, 1955.

17

b. 1838 Friedrich K. Beilstein published standard reference work on organic chemistry, 1880-83, updated ever since.

18

b. 1745 Alessandro G. A. A. Volta, invented the voltaic pile *vota pila*; observed the bubbling of methane in swamps; In 1776-77 studied the chemistry of gases, discovered methane, and devised experiments such as the ignition of gases by an electric spark in a closed vessel; unit of electric potential, the volt, is named in his honor.

b. 1894 Aleksandr Oparin, studies on the origin of life from chemical matter; extended the Darwinian theory of evolution backward in time to explain how simple organic and inorganic materials might have combined into complex organic compounds.

- Frederick Soddy coined the phrase "isotopic elements" for elements that share the same place in the periodic table, 1913.

19

b. 1764 Gottlieb Siqismund Kirchhof, applied the first controlled catalytic reaction to produce glucose from starch (1811); developed a method for refining vegetable oil & established a factory in St. Petersburg capable of producing two tons per day; experimented with brewing and fermentation.

b. 1799 Ferdinand Reich codiscovered indium (In, 49) with Hieronymus T. Richter, 1863.

b. 1859 Svante A. Arrhenius devised a theory of electrolytic dissociation; researcher in viscosity & reaction rates; Nobel Prize (1903) in recognition of the extraordinary services he has rendered to the advancement of chemistry by his electrolytic theory of dissociation.

- One atom of mendelevium (Md, 101) was produced by He bombardment of one billion atoms of ^{253}Es, 1955.

Ref: Monthly Historical Events In Chemistry by Leopold May, The Catholic University of America
http://faculty.cua.edu/may/Chemistrycalendar.htm