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News from F10NA

The Newsletter of the School of Chemistry UNSW

Welcome to a New Era

Welcome to 'News from F10NA', the newsletter from the School of Chemistry at UNSW. The newsletter will appear quarterly and keep you updated on the activities of the School. The time is now right for the newsletter as this year the School is experiencing dramatic change. We have a new Head of School, A/Prof Barbara Messerle and a brand new building (see the header of this newsletter and opposite for images of our new home). We said goodbye to Heffron and the old Dalton building and in late 2006 said hello to the refurbished Dalton, which houses our offices. Our new state of the art laboratories are housed in the building known as F10 New Annex or Fiona to her occupants. F10NA promotes close ties with the newly established Analytical Centre with which we co-reside. The Analytical Centre is an outstanding University facility that is designed to support and expand our research productivity by placing the majority of the University's large instrumentation under one roof. The School continues to promote its three areas of research strength – Molecular Devices, Bioactive Molecules and Biological and Chemical Catalysis. With new students and funding in all of these areas, the School looks forward to doing some exciting new Chemistry in the next few months. F10NA will keep you informed!!

- Barbara Messerle and Justin Gooding

A Major New Facility on our Doorstep

OPAL, Australia's new nuclear reactor was officially opened by the Prime Minister John Howard on 20 April. The day rounded off a week of presentations and celebrations for the new reactor which will provide Australia with essential short-lived medical radio-isotopes, high-purity Si-based semiconductors and a suite of world class neutron scattering instruments for scientific investigations. UNSW Chemistry enjoys a close relationship with the Bragg Institute, the scientific arm of the OPAL facility housed on the ANSTO site at Lucas Heights. Having one of only three joint appointments, Dr. John Stride (the Bragg Lectureship), the Head of School, A/Prof. Barbara Messerle and the Vice Chancellor for Research, Prof. Les Field were all in attendance on Thursday's Science and Business Induction to OPAL. The instrumentation at the new reactor will allow chemists to investigate the structure and dynamics of materials ranging from magnetism through to polymers, surfaces, colloids, biochemical and nano-structured materials. Lucas Heights is only 30 minutes from UNSW campus, which places UNSW Chemistry in an ideal position to fully capitalize on Australia's biggest single scientific investment.

- John Stride

Who is John Stride?

Dr. Stride is the most recent appointment to UNSW Chemistry and holds the Bragg Lectureship, which is a joint appointment with the Bragg Institute. He holds a PhD and BSc (Hons.) from the University of East Anglia, UK and worked extensively in neutron scattering facilities in Europe before coming to Australia in 2005. His research interests are focused on molecule-based magnetic materials, structural and dynamic properties in the solid state and nano-structured materials. He has published over 50 scientific articles to date. He lives in Sydney's eastern suburbs with his wife, Lucy, and two young children, Oskar (4) and Heidi (1). We were very lucky to secure John's services. Since arriving he has been very active, having already built a research team of 4 people and won a number of grants. He has also taken on the important task of being our post-graduate coordinator after spending a few months as the seminar coordinator.

- Justin Gooding

Grant Success

"Chemistry staff attracted more than $3 million dollars in new research funding commencing in 2007."

The beginning of 2007 has seen a number of new grants commencing which include:

ARC Discovery grants

Prof. Roger Bishop 2007-2009 ($240 K), Control of the enantiomeric self-resolution process.

Prof. J. Justin Gooding with Dr. K. Gaus (Medicine) 2007-2009 ($370K) Surface Chemistry meets Cell Biology: Molecular Level Control of Surface Architecture for Cell Adhesion and Migration

Other grants

Prof. J. Justin Gooding with S. Iyengar (AgaMatrix Inc.) ARC Linkage 2007-2009 ($336 K) Solving the problem of detecting small molecules in complex samples: A Label-Free Electrochemical Immuno-biosensor for drugs and pesticides

Prof J. Justin Gooding is a CI in the successful renewal of the ARC Centre of Excellence in Functional Nanomaterials directed by Prof. Max Lu at UQ assisted by Prof. Rose Amal at UNSW for 2008-2010 at $1600 K per annum.

Prof. J. Justin Gooding, as part of a large team, 2007 ($1000K), ARC LIEF, High-Resolution Transmission Electron Tomographic Facility for Nanoanalytical Characterisation in the Life and Material Sciences

Dr. Graham Ball with Prof. Larry Wakelin (Medicine), 2007 ($75K), Cure Cancer Australia Structural studies of the DNA complexes of novel antitumour agents to aid better drug design

A/Prof. Barbara Messerle, 2007 ($4400) RSC Travel Grant, Title.

Dr. John Stride, 2007 ($40K) UNSW Goldstar, The Development of Porous Materials with Functionality Enhanced by Form and Design: From Chemistry to Applications

Dr. Graham Ball, 2007 ($11.4K) UNSW Faculty Research Grant, Complexes of alkanes and xenon: New structural motifs and their use as synthetic reagents

Dr. Jason Harper, 2007 ($10K) UNSW Faculty Research Grant, Understanding Organic Processes in Ionic Liquids

Dr. John Stride, 2007 ($10) UNSW Early Career Research Grant, Nano-structured materials from the solvothermal route.

Comings and Goings

This has been a period of significant change in staff and students at the School of Chemistry. Most notable departures are our Head of School for the last 6 years Professor Rob Lamb. Rob has sadly left UNSW after 15 years to take up a Professorship at his alma mater, Melbourne University, as well as becoming Scientific Director of the new Synchrotron.

Another stalwart of our School's upper management for the last six years, and the master builder of F10NA, A/ Prof Grainne Moran has taken up a new position as Director of the Analytical Centre.

We also wish our recently graduated Ph.D students, Dr. Diako Ebrahimi (Hibbert group), Dr. Alison Chou (Gooding group) and Dr. Siew Wei Goh (Lamb group) every success with their future endeavours.

A number of new graduate students have arrived at the School in last three months and include Mohammad Choucair (John Stride), Taj Khan (Naresh Kumar), Leo Lai (Justin Gooding/Rose Amal - Chem Eng), Albert Ng (Justin Gooding/Jason Harper) Meera Ramachandran (Justin Gooding/Jason Harper), Ivan Taylor (Steve Colbran), Kasey Woods (Naresh Kumar) and Ruanan Zhang (Naresh Kumar).

2007 has also seen our biggest Honours year intake that anybody here can remember. There are now 29 new undergraduate research students in the School. The primary supervisors and the students they supervise are:

Graham Ball: Henry Li, Chee Hong Thoo

Steve Colbran: Peter Gray

Justin Gooding: Alex Dalgliesh, Josh Ginges, Zhi-Jun Lim, Will Rouesnel

Margaret Harding: Pamela Golamco

Jason Harper: Susan Ireland, Maggie Ng Camille Rosella, Honman Yau

Brynn Hibbert: Danielle Blackmore, Matthew Dore, Catherine Warbey

Naresh Kumar: Daniel Chan, Ren Chen, Shari Jessica

Rob Lamb: Jacky Cho, Eugene White Thomas Huddle

Barbara Messerle: Zheng Li, Oanh Nguyen, Katherine Sage

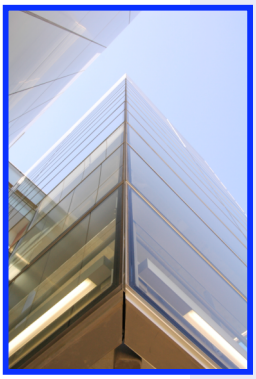
Grainne Moran: Jacob Coffey

Roger Read: Michael Huang

John Stride: Eugene Lai, Christian Paras, Truong Tuong

We hope for a very successful time for all our new students. Welcome!

"This year is our biggest Honours class in living memory."



Where our new students do their research

Visitors from Foreign Lands

The School is very enthusiastic about hosting visiting academics and students. Currently there are three visiting academics on sabbatical leave in the school.

A/Prof. Hamid Zare, from Yadz University in Iran, is being hosted by Prof. Gooding's group where he is researching into modified electrodes.

Prof. Yakup Baran from Mart University in Turkey is visiting Dr Steve Colbran where he is investigating mechanistic aspects of Cytochrome *c*

Prof. Howard Miles from Central Florida University in Orlando is visiting A/Prof Roger Read. He has been with us since December 2006 working on fluorous chemistry.

We welcome all our visiting researchers and hope their visits are a great success.

From Molecular Devices cluster

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[2] Bocking T, Salomon A, Cahen D, Gooding JJ Thiol-terminated monolayers on oxide-free Si: Assembly of semiconductor-alkyl-S-metal junctions, *Langmuir*, **23**, 3236-3241 (2007).
[3] Chow E, Wong ELS, Pascoe O, Hibbert DB, Gooding JJ Extending the dynamic range of electrochemical sensors using multiple modified electrodes, *Anal. Bioanal. Chem.*, **387**, 1489-1498 (2007).
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[6] Hill MR, Russell JJ, Roberts NK, Lamb RN Novel monomeric barium complexes as volatile precursors for chemical vapour deposition, *Polyhedron*, **26**, 493-507 (2007).
[7] Ilyas S, Bocking T, Kilian K, Reece PJ, Gooding J, Gaus K, Gal M Porous silicon based narrow line-width rugate filters, *Opt. Mat.*, **29**, 619-622 (2007).
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From Bioactive Molecules

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[16] Brophy JJ, Goldsack RJ, Forster PI, Copeland LM, O'Sullivan W, Rozefelds AC Chemistry of the Australian gymnosperms. Part IX. The leaf oils of the Australian members of the genus Callitris (Cupressaceae), *J. Essential Oil Res.*, **19**, 57-71 (2007).
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From Chemical and Biological Catalyst cluster

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[25] Maharaj FJD, McDonagh AM, Colbran SB The instructive redox behaviour of 4-ferrocenylcatechol on nanocrystalline titanium dioxide electrodes, *Appl. Organom. Chem.*, **21**, 73-75 (2007).

Other publication

[26] Lam JKC, Postle R Stepwise regression studies on fabric mechanical blocks in wool/wool blend fabrics, *J. Textile Inst.*, **98**, 163-167 (2007)

Beyond our Walls

Dr. Jason Harper has delivered a series of six lectures organized through the Higher Education Commission of Pakistan entitled "Green Chemistry: Not Different, Just Smarter" to a number of Universities via satellite link from UNSW.

Prof. Roger Bishop has been active as an invited speaker at international conferences in Japan and Singapore, as well as co-organising another symposium in Japan. Fortunately, during his invited lecture series in Japan, special exemption from lecturing in Japanese was granted.

A/Prof. Roger Read toured France and Germany with the aim of attracting new research students. Immediate success was achieved with Paris 7 University arranging a joint PhD student between the ITODYS laboratory and Prof. Gooding.

A/Prof. Messerle was invited to the Institute of Chemical and Engineering Sciences (ICES) in Singapore to promote collaborative research. This was also a successful trip as a PhD. Student in the Messerle Group, Joanne Ho, was invited to spend 6 weeks at ICES.

Prof Gooding was an invited speaker at the RACI joint Physical and Organic Chemistry conference in Adelaide and also attended The Keystone conference on Nanotechnology in Biomedicine in Lake Tahoe, USA.

A/Prof. Messerle and four members of her group attended the RACI conference on Inorganic Chemistry in Tasmania.

Perhaps most exciting of all is that Prof. David Black and A/Prof. Roger Read are co-organising the forthcoming International Congress for Heterocyclic Chemistry from 15-20 July, 2007 at UNSW. Stay tuned for more news on this exciting event as it unfolds.

Roger Bishop soaking up Japanese culture

Students of Chemistry Society

The first half of session 1 has been busy for SOCS in 2007. Our trivia night was a great success, the teams came up with some very original names, and it seems that the postdocs and PhD. students know their wine best - funny that.

Soccer is also going well this year. We have one team in the Wednesday 12-1 lunch time indoor soccer competition, and we are currently sitting 4th.

Orders for the SOCS t-shirts are almost ready to be taken, so keep an eye out for emails requesting orders.

A BBQ will be held shortly, and planning for the Ball is well under way.

- Callie Fairman, SOCS President

"The social hub of our School, SOCS continues to ensure not all the fun occurs in the labs "

Profile on Jodee Anning

Jodee joined the School in October 2006, having previously worked at various other Schools and administrative departments within UNSW.

Jodee is an experienced editor and her skills will be put to good use assisting me in preparing F10NA. She worked for many years as a facilitator in both private enterprise and government initiatives and also taught English as a second language in Japan for three years.

We welcome her to the School and hope for a long and happy relationship!

- Justin Gooding

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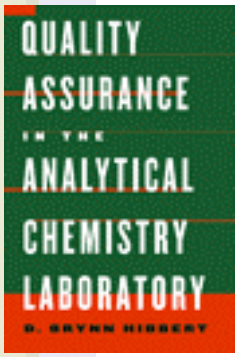

Want to know more!

See us at:

www.chem.unsw.edu.au

Significant Posting

Professor Brynn Hibbert was the IUPAC nominee on the Joint Committee on Guides for Metrology – Working group 1. This means he is one of the 14 people world wide responsible for the Guide to Measurement Uncertainty. Brynn's role is another example of the School's strong IUPAC representation with Prof. David Black also being the Secretary General of IUPAC.

In March, Brynn also completed his lecture commitments associated with his 2006 award as the RSC Australasian lecturer.

Congratulations to Brynn.

New Book

Our very own Prof. Brynn Hibbert authored a new textbook entitled "Quality Assurance for the Chemistry Laboratory". The book is published by Oxford University Press and is Brynn's second text book in two years, following 2006's "Data Analysis for Chemists" with Justin Gooding also published by OUP

Student scholarships

The start of 2007 has seen due recognition for some of our top students. Katherine Sage was placed on the Deans list and won Prize for outstanding performance in the 3rd Year Advanced Science Program 3972 Dean's Honours' Year Scholarship while David Davis won a Dermot O'Neil scholarship. On the post-graduate front Kasey Woods and Callie Fairman were awarded this years postgraduate teaching scholarships.

Congratulations to all!

Citation Milestones

A number of papers involving author's from the School have passed significant citation milestones in the last three months

Over 200 citations:

Bott G, Field LD, Sternhell S Steric Effects - a Study of a Rationally Designed System, *J. Am. Chem. Soc.*, **102**, 5618-5626 (1980).

Over 100 citations:

Bishop R Designing new lattice inclusion hosts, *Chem. Soc. Rev.*, **25**, 311-& (1996).

Gooding JJ, Wibowo R, Liu JQ, Yang WR, Losic D, Orbons S, Mearns FJ, Shapter JG, Hibbert DB Protein electrochemistry using aligned carbon nanotube arrays, *J. Am. Chem. Soc.*, **125**, 9006-9007 (2003).

Hentzer M, Wu H, Andersen JB, Riedel K, Rasmussen TB, Bagge N, Kumar N, Schembri MA, Song ZJ, Kristoffersen P, Manefield M, Costerton JW, Molin S, Eberl L, Steinberg P, Kjelleberg S, Hoiby N, Givskov M Attenuation of Pseudomonas aeruginosa virulence by quorum sensing inhibitors, *Embo J.*, **22**, 3803-3815 (2003).