SPONSORS
Agilent Technologies
Australian Nuclear Science and Technology Organisation
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Australian Synchrotron
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Dairy Innovation Australia Ltd
Dulux Australia
Huntsman Corporation Australia Pty Ltd
Melbourne Water
National Health and Medical Research Council
PerkinElmer
Peter MacCallum Cancer Institute
Stawell Gold Mines

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FRONT COVER IMAGE
From work by Sonali Wickremasinghe, Christian Gunawan, Jonathan White and Mark Rizzacasa. *X-ray structure of a key iodide intermediate in the synthesis of the complex natural product spirangien A.*
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It is once again my pleasure to introduce the Annual Report for the School of Chemistry and to showcase our contributions to society during 2013 in research, learning and teaching, and engagement.

The reputation of the School of Chemistry remains strong both nationally and internationally and is supported by the outcomes of the 2013 QS World University Ranking with the University of Melbourne placed highest in Australia for study of chemistry.

The School performed strongly in research during 2013, particularly in the Australian Research Council (ARC) grant schemes. Staff members Dr Paul Donnelly, Associate Professor Spencer Williams, and Dr Wallace Wong all received ARC Future Fellowships, whilst Dr Lars Goerigk was successful with an ARC Discovery Early Career Award. In addition, Professor M. Ashokkumar was successful as a chief investigator on two ARC Industry Transformation Research Hub grants. The School also took much pride as Dr Brett Patterson accepted one of the prestigious Victorian Postdoctoral Research Fellowships through the State Government of Victoria.

The excellence of researchers from the School of Chemistry was acknowledged through several peer recognition awards in 2013: Dr Colette Boskovic and Dr Angus Grey-Weale were both awarded Royal Australian Chemical Institute (RACI) Lectureships, whilst Associate Professor Michelle Gee was recognized with the Mcaulay-Hope Prize for Original Biophysics by the Australian Society for Biophysics. School of Chemistry staff were also successful with University of Melbourne awards: Dr Brett Patterson was the recipient of the Kaye Merlin Brutton Bequest grant; Dr Chris Ritchie received the Selby Research Award; and Professor Spas Kolev was awarded the Grimwade Pride in Industrial Chemistry. During 2013 Jonathan White was promoted to Professor and Professor Andrew Holmes became President-elect of the Australian Academy of Science, which is a wonderful achievement that acknowledges Andrew’s remarkable contribution to science in Australia.

To maintain the research excellence of the School of Chemistry, we have committed to a long term plan for refurbishing the teaching and research labs in the Chemistry Building. The last phase of the plan commenced in 2013 with the labs in Level 2 East. An official opening of this wing is planned for mid-2014. Upon completion, all research groups in the School of Chemistry will be equipped with state-of-the-art research laboratories.

During 2013 School of Chemistry staff were again busy with outreach activities that continued on campus and at schools throughout Victoria. Professor Paul Mulvaney and Dr Tich-Lam Nguyen presented the RACI 2013 Hartung Youth Lectures. It was very rewarding that the Melbourne University Chemical Society (MUCS) launched the book, ‘From Chalk & Talk to Powerpoint’, a history of MUCS written by the late Dr Valda McRae.

The performance of the School during 2013 is briefly summarized in the following pages, and reflects another memorable year for all staff and students of the School of Chemistry.
OUR PEOPLE

ACADEMIC

Head of School
Frances Separovic

Professors
Muthupandian Ashokkumar
Evan Bieske (APF)
Ken Ghiggino
Franz Grieser (APF)
Spas Dimitrov Kolev
Richard Alfred O’Hair
Mark Antony Rizzacasa
Carl Herbert Schiesser

Associate Professors and/or Readers
Brendan Francis Abrahams
Michelle Louise Gee
Jonathan Michael White
Uta Wille
Spencer John Williams

Senior Lecturers
Stephen Peter Best
Colette Boskovic
Paul Donnelly

Lecturers
Angus Anthony Gray-Weale
Alessandro Soncini

ARC Laureate Fellow and Professor
Paul Mulvaney

Laureate Professor
Andrew Bruce Holmes

Future Fellows
Rachel Caruso
John Gehman
Georgina Such

ARC Research Fellow
George Khairallah

ARC Australian Postdoctoral Fellows
Linda Feketeova
Christopher Ritchie (DECRA)

Tutors
Penelope Commons
Sonia Horvat
Michael Moylan (Outreach Fellow)

Research Associates
Sneha Abraham
Klaus Boldt
Gojko Buncic
Nahid Chalyavi
Maryline Chee Kimling
Dehong Chen
James Cochrane
Jade Cottam
Christopher Dean Donner
Augustine Doronila
Viktoras Dryza (ASI ARENA Fellow)
Alex Duan
Maria Ines Gameiro SA Almeida
Catrin Goeschen
Amber Hancock
Xiaotao Hao
Clare Henderson
James Hickey
Timothy Hudson
David John Jones
Yvonne Kavanagh
Shea Fern Lim
Marco Lista (McKenzie Fellow)
Tich-Lam Nguyen
Adabelle Ong
Brett Paterson
Christopher Ritchie
Tatiana Pinedo Rivera
Marc Antoine Sani
Colin Skene
Willem Van den Huevel (McKenzie Fellow)

Chemistry Staff & PhD students enjoying the end of year get together at The Fairfield Boathouse, Melbourne.
HONORARY APPOINTMENTS

Emeritus Professors
Donald William Cameron
Francis Patrick Larkins

Professorial Fellows
Robert Cattrall
Roger Francis Martin
Ezio Rizzardo
Richard Robson
Peter Robert Taylor
John Desmond Wade
Robert Oliver Watts
John Webb
Anthony Gordon Wedd

Principal Fellows
Christopher Burns
William David McFadyen
Ian Mc Kelvie

Fellows
Richard David Harcourt
Akhter Hossain
John Lambert
Alessandro Martucci
Anastasios Polyzos
Suzanne Reichman
Denis Scanlon
Gerard Wilson

Visitors
Peter Baeuerle
Philip Blower (Wilsmore)
Daryl Bornhop
Adelia Maria Lima da Silva
Michael Grunze (Wilsmore)
Terry Lybrand
Patrick Masset
Christine Masset
Elena Mena-Osteritz
Cathal O’Connell
Ron Steer
Hermin Sulistyarti

Ken Suslick (Wilsmore)
Regine von Klitzing
Gerhard Wagner (Harvard Fellow)

PROFESSIONAL

West Precinct Manager
Eugene Fredericks

West Precinct Facilities Manager
Paul Beardsley

Renee Beale
Vicki Burley
Gregory Ellis
Robert Gable
Sue Hickey
Ross Lineham
Jenny Long
Brendan Mangan
Bryan McGowan
Alf Meilak
Elizabeth Mills
Peter Mills
Des Odgers
Jennifer Scott
Alexandra Strich
Doug Taylor
Joe Tyler
Sioe See Volaric

Laureate Professor Paul Mulvaney’s group
NEWS

From time to time, School of Chemistry staff and students make the news! Below are excerpts from, and links to news stories and articles from 2013 about the School of Chemistry, from print and electronic media.

MELBOURNE RESEARCHER GRANTS AWARDED TO CHEMISTRY

Congratulations to Dr Colette Boskovic, Assoc. Prof. Rachel Caruso and Assoc. Prof. Uta Wille who were successful in the MRGSS this year. Their grants will fund the following projects in 2014:

Colette Boskovic, “Smart materials for sensors, displays and nanoscale devices”

Rachel Caruso, “Solution based printable mesostructure solid-state thin film solar cells”

Uta Wille, “Oxidative damage of airway surfaces: understanding the synergistic effects arising from exposure to the air pollutants, nitrogen dioxide and ozone”

AINSE FUNDING FOR ANALYTICAL CHEMISTRY

Congratulations to the Kolev Lab on the success of their AINSE application for 2014 entitled “Cellular localisation of mercury (Hg) and gold (Au) in selected plant species grown in substrates composed of mine tailings and heavy metal contaminated biosolids using micro-PIXE”.

ALAN SARGESON LECTURESHIP FOR COLETTE BOSKOVIC

Congratulations to Dr Colette Boskovic on her receipt of the Alan Sargeson Award from the Inorganic Chemistry Division of the RACI. This prestigious early career researcher award acknowledges significant and innovative individual contributions to the field of inorganic chemistry. The award takes the form of a lecture tour of Australia and New Zealand, which Colette will undertake in 2014.

FEUTRILL AWARDS TO PHD STUDENTS

Congratulations to the following Chemistry PhD students who received Feutrill awards to participate in an international conference related to organic chemistry: Stephanie Bellmaire, Lucie Bradley, John Karas, Vinojini Nair and Sonali Wickremasinghe.

RACI PHYSICAL CHEMISTRY LECTURESHIP TO ANGUS GREY-WEALE

Congratulations to Dr Angus Gray-Weale who received the RACI Physical Chemistry Division Lectureship, which is awarded to an outstanding early- and mid-career physical chemist to travel around Australia and present the results of their research work.

MMI GRANTS TO TICH-LAM NGUYEN AND WALLACE WONG

Congratulations to: Dr Tich-Lam Nguyen who received funding for her work with nanocrystals for upconversion laser chips; and Dr Wallace Wong for his work with fullerene molecular peapods as organic semiconductors.

YOUNG INVESTIGATOR AWARD TO JOHN KARAS

Chemistry PhD student, John Karas, was the recipient of a young investigator award at the recent RACI Peptide Users’ Group symposium for his oral presentation entitled: “2-Nitroveratryl as a novel thiol protecting group for directed synthesis of insulin and other cysteine-rich bioactive peptides”.

EDDIE NAGUL RECEIVES HOPE TRAVEL AWARD

PhD student Edward (Eddie) Nagul, from the Kolev lab, has been nominated by the Australian Academy of Sciences to participate in the Sixth HOPE Meeting with Nobel Laureates in Tokyo in March 2014. The Japan Society for the Promotion of Science has approved Eddie’s nomination. Eddie is one of six Australian young researchers who will participate in this meeting.
ASB 2013 POSTER PRIZE
PhD student, Anna Mularski, was awarded the student poster prize at the Australian Society for Biophysics conference held at RMIT in November. Well done Anna!

MCAULAY-HOPE PRIZE FOR ORIGINAL BIOPHYSICS
Congratulations to Assoc. Prof. Michelle Gee who was awarded the McAulay-Hope Prize for Original Biophysics. Michelle was given the award by the Australian Society for Biophysics at its recent annual meeting where she presented a talk entitled, ‘The Mechanobiology of Bacteria’.

MMI INDERDISCIPLINARY SEED GRANT TO GEE LAB
Assoc. Prof. Michelle Gee, together with Dr Xuehua Zhang and Dr Huabin Wang, were awarded an MMI Inderdisciplinary Seed Funding grant for their project ‘Graphene thin films with tailored nano-architectures – a new class of antibacterial coating’.

FRONTIERS IN CHEMICAL BIOLOGY EDITORIAL BOARD
Assoc. Prof. Michelle Gee has been appointed to the editorial board of the new journal, Frontiers in Chemical Biology. Congratulations also to the new editor, Professor John Wade, who is an honorary member of the School of Chemistry.

ARC GRANT SUCCESS
Researchers in the School of Chemistry were successful in the recent Australian Research Council (ARC) grant schemes. Future Fellowships were awarded to Dr Paul Donnelly, Assoc. Prof. Spencer Williams and Dr Wallace Wong and Dr Lars Goerigk received a DECRA fellowship. Discovery Project grants were awarded to Assoc. Prof. Craig Hutton, Prof. Mark Rizzacasa, Prof. Carl Schiesser and Prof. Frances Separovic, who also was lead investigator on a LIEF grant.

FELLOWSHIP PROGRAM BACKS HARVARD INNOVATORS
Innovation is front and centre of Australia-Harvard Fellowship grants. In the latest round of applications, Harvard Club Australia (HCA) Foundation makes it very clear that they favour applicants whose collaborative research can “demonstrate strong potential for break-through impacts”, and value highly projects which will use the funding as ‘seed capital’. Incoming Fellow for 2013, Professor Gerhard Wagner, is a world expert in the field of biomedical research using nuclear magnetic resonance (NMR) and will be working at the School of Chemistry, University of Melbourne with Professor Frances Separovic in determining protein structure that can lead to new drug discoveries. Earlier this week, Professor Wagner gave a lecture entitled “A structural approach to inhibit protein interactions in transcription and translation for targeting human cancer” at the Bio21 Institute and will be here until 20 December 2013.

PORE ME ANOTHER: HOW TOXINS TARGET & OVERCOME MEMBRANES
Chemistry researchers, Professor Frances Separovic (Melbourne) and Professor Terry Lybrand (Vanderbilt), discuss the biology of membranes, how toxins interact with membranes, and how these processes can be modelled. Presented on Up Close by Dr Shane Huntington.
PEPTIDE DIMERS: DOUBLE THE EFFORT FOR DOUBLE THE EFFECT

Research led by Assoc. Prof. Craig Hutton (Chemistry, Bio21 Institute) and Assoc. Prof. Kevin Barnham (Bio21 Institute, Florey Institute, Pharmacology) has culminated in the synthesis of dityrosine cross-linked amyloid-β peptide dimers and investigation of the possible role of these peptides in Alzheimer’s disease. The findings were recently published in Chemical Science.

MNI ID SEED FUNDING TO HOSSAIN & SEPAROVIC

Dr Akhter Hossain, Professor Frances Separovic and Dr Joe Cicotosto were awarded funding in the recent Melbourne Neuroscience Institute Interdisciplinary Seed Funding Scheme for their project entitled, “Correlating membrane binding and toxicity of amyloid beta peptide from Alzheimer’s disease.”

ANDREW HOLMES - PRESIDENT AUSTRALIAN ACADEMY OF SCIENCE

Congratulations to Professor Andrew Holmes, Laureate Professor of Chemistry, who has been elected as the next President of the Australian Academy of Science (AAS). Andrew will assume the role after the next Annual General Meeting of the AAS in May 2014. The current President of the Australian Academy of Science, Professor Suzanne Cory said, “Professor Holmes will lead our Academy with great distinction, energy and integrity. As Foreign Secretary, he has worked tirelessly on behalf of the Academy and its programs, with the deep conviction that Australia’s future prosperity depends on strong research and education in science and mathematics and in further developing international science linkages.”

CHEMISTRY MSC STUDENT PROFILED IN CHEMISTRY IN AUSTRALIA

Andrew Ryan, former MSc student in Chemistry, was featured in the November issue of the RACI magazine, Chemistry in Australia. The article, “Sampling a cross-section of chemistry”, can be viewed here.

PROFESSORIAL PROMOTION FOR J WHITE

Associate Professor Jonathan White has been promoted to Professor as of January 1st 2014. The School of Chemistry appreciates Jonathan’s many contributions and achievements, particularly in terms of research and teaching. Please congratulate Professor White on this well deserved recognition of his achievements as a scholar and teacher.

CHEMISTRY PHD STUDENT FEATURED IN RACI MAGAZINE

Michael Leeming, PhD student in the O’Hair lab, was recently featured in the October issue of the RACI magazine, Chemistry in Australia.

BEST POSTER PRIZE

Daniel Dias (formerly School of Chemistry, now Metabolomics Australia), Geoff Scollary (Honorary Principal Fellow) and co-authors from Charles Sturt University received the ‘Best Poster Award’ at the 2013 In Vino Analytica Scientia conference held in Reims (France) in July for the poster entitled ‘A novel glutathione-hydroxycinnamic acid product generated in oxidative wine conditions’.

IN VINO ANALYTICA SCIENTIA CONFERENCE SERIES

Geoff Scollary (Honorary Principal Fellow) has accepted the invitation to the position of President of the Presidium for the In Vino Analytica Scientia (IVAS) conference series. The IVAS conferences are established under the auspices of the EuCheMS Divisions of Analytical Chemistry and Food Chemistry. The Presidium is composed of the elected president as well as the chairs of the two EuCheMS divisions. Geoff is the first person outside Europe to hold the position of President.

DIAGNOSTIC IMAGING AGENTS FOR ALZHEIMER’S DISEASE

Work of James Hickey, Paul Donnelly and colleagues aimed at making new imaging agents to aid the clinical diagnosis of Alzheimer’s disease has been published in the Journal of the American Chemical Society. The article has also been highlighted in the “News” section of Chemical & Engineering News.
NMR PRACTICALS IN UNDERGRADUATE CHEMISTRY

The new bench top NMR which was trialled in our higher level undergraduate practical classes was a resounding success and will continue into the future. A description of the program was published in ‘Lab Asia’ recently A article in ‘Putting NMR in the hands of the undergraduate chemistry student’.

SETAC PRIZE TO CHEMISTRY PHD STUDENT

Edward (Eddie) Nagul, a PhD student in the Kolev group, has been awarded the prize for best research presentation by a PhD student or early career researcher in environmental chemistry at the SETAC (Society for Environmental Toxicology & Chemistry) 2014 conference in Melbourne.

DEVELOPMENT OF THERAPY FOR PARKINSON’S DISEASE

The University of Melbourne has entered an agreement with US start-up company Procypra Therapeutics LLC to develop a class of drugs for treating neurological diseases such as Parkinson’s disease. The research was led by Dr Paul Donnelly (School of Chemistry, Bio21 Institute), Assoc. Prof. Kevin Barnham (Bio21 Institute, Florey Institute of Neuroscience & Mental Health, Department of Pharmacology) and Assoc. Prof. Anthony White (Department of Pathology).

HEALY AWARD TO ERWIN TOLAVA

Congratulations to Erwin Rodriguez Tolava, PhD student with Rachel Caruso’s research group, who was awarded a T.W. Healy Travel Award to attend the 7th Asian Conference on Electrochemical Power Sources in Osaka, Japan, in November 2013.

CASS FOUNDATION TRAVEL GRANT TO VIK DRYZA

Congratulations to Dr Viktornas Dryza who was awarded a CASS Travel Grant to enable him to attend the 6th International Conference on Hybrid Inorganic-Organic Photovoltaics being held at Swiss Tech Convention Centre, Ecole Polytechnique Federale de Lausanne, Switzerland, in May 2014.

PHD STUDENT FEATURED IN ‘CHEMISTRY IN AUSTRALIA’

Caroline Kyi, PhD student in the Schiesser group, was recently featured in the September issue of the RACI magazine, Chemistry in Australia in the article, “Putting culture into chemistry”.

NATURE COMMUNICATIONS PAPER BY ALESSANDRO SONCINI

Congratulations to Dr Alessandro Soncini for his publication in Nature Communications, in collaboration with an experimental inorganic chemistry group from the University of Manchester. The article (Chilton et al., Nat. Commun. 4, 2551 (2013), doi: 10.1038/ncomms3551) reports a theoretical model based on classical electrostatics that is capable of predicting the direction of the magnetic easy axis in low-symmetry dysprosium complexes. The direction of the magnetic axis in complexes with little or no symmetry is a crucial piece of information for the design of efficient single-molecule magnets. Before this work, magnetic axes could only be determined by means of intricate and time consuming high-level ab initio calculations, providing little insight into structure-properties relationship. Dr Soncini and his Manchester collaborators managed to map the intricate ab initio quantum chemistry problem into a back-of-the-envelope classical electrostatic energy minimization procedure, which takes seconds to run, and provides a clear and chemically intuitive link between atomic charges on the ligands as determined by pencil-and-paper resonance Lewis structure arguments and the direction of the magnetic axis in the complex. These results will prove useful to devise synthetic strategies to control the axis direction and engineer efficient lanthanide-based single molecule magnets.
VICTORIAN RESEARCH FELLOWSHIP TO BRETT PATTERSON

Six early career researchers have been awarded a Victorian Postdoctoral Research Fellowship, to study overseas and bring their expertise back home. Announcing the Fellowships, Minister for Innovation, Services & Small Business, Louise Asher said the Victorian Government’s Postdoctoral Research Fellowships program aims to strengthen Victoria’s innovation capability and global networks. The three-year Fellowships program involves Fellows spending two years abroad as guest researchers in leading research institutes or universities and a year working with their Victorian host organisations, applying their learning and expertise. Dr Brett Paterson from the School of Chemistry will work at University of Melbourne and Kings College London to develop radiopharmaceuticals for detection and treatment of cancer.

XINGZHAO WEI AT METAMATERIALS 2013 CONFERENCE

Dr Xingzhan Wei of the Nanoscience Research Lab (NSL) met Professor Victor Veselago, who firstly proposed the negative refractive index material. Dr Wei represented the NSL at the 7th International Congress on Advanced Electromagnetic Materials in Microwaves & Optics, ‘Metamaterials 2013’, in Bordeaux, France.

IAN POTTER TRAVEL AWARD TO INES ALMEIDA

An Ian Potter Travel Grant was awarded to Dr Ines Almeida to participate in the 18th International Conference on Flow Injection Analysis in Oporto, Portugal, from 15 to 20 September 2013. Ines will present a talk entitled, ‘Paper-based microfluidic device using a polymer inclusion membrane as sensor’.

CAMPUS REVIEW TOP 5 INNOVATORS: ‘REINVENTING SOLAR POWER’

Dr David Jones is producing extra-large solar cells that have the potential to make solar power much cheaper. David is leading a team of researchers from the University of Melbourne, CSIRO and Monash University in producing the largest flexible solar cells ever to be printed in Australia. He is the project coordinator of the Victorian Organic Solar Cell Consortium (VICOSC) – a partnership of research and industry Associates. After six years of working on the development of printed organic solar cells, David and his team discovered a way to print organic photovoltaic cells the size of an A3 sheet of paper.

ANGEW CHEM JOURNAL COVER ON MASS SPECTROMETRY WORK

Angew Chem journal cover introduces a new superhero, Mass Spectrometry Man: The O’Hair, Donnelly and White Labs have had a paper published in Angew Chem where they have used mass spectrometry to direct the synthesis of a novel silver hydride cluster that was isolated and fully structurally characterized.

VC STAFF ENGAGEMENT AWARD TO AUGUSTINE DORONILA

Congratulations to Dr Augustine Doronila who was awarded a Vice-Chancellor’s Staff Engagement Grant for a phytoremediation project in the Philippines.

CCIF AWARD FOR HIGH PERFORMANCE MATERIALS

Congratulations to Dr David Jones on his success with the Carlton Connect Initiatives Fund (CCIF) – Facilitation stream. His submission entitled “Smart Selection of High Performance Materials for Organic Photovoltaics” has been approved for funding.

PUBLICATION IN SCIENCE FOR GEORGINA SUCH

Congratulations to Dr Georgina Such for her publication in Science with Frank Caruso’s Nanostructured Interfaces & Materials Science Group. The article (Ejima et al., Science (2013) 341: 154-157) reports on a new surface assembly technique based on the one-step coating of various interfaces with complexes of natural polyphenols, most notably tannic acid, with Fe(III) ions. The film formation is initiated by the absorption of the polyphenol and stabilised by pH-dependent, multivalent coordination bonding by the Fe ions. This assembly technique can be performed on a range of templates and is extremely rapid, requiring less than 10 seconds for film formation. The ease, low cost and scalability of this process make it attractive for biomedical and environmental applications.

GEE PUBLICATION ON BIOFILMS IN PNAS

Congratulations to Assoc. Prof. Michelle Gee and Dr Huabin Wang from the Soft Matter & Cell Biophysics group on publication with their collaborators in Proc Natl Acad Sci USA, which shows that the self-organisation of bacteria during cell migration when forming biofilms is facilitated by extracellular DNA.
SUPERBUG BREAKTHROUGH FEATURED IN THE AGE -

Work published in *Nature Scientific Reports* earlier this year was featured in an interview with Assoc. Prof. Michelle Gee in *The Age*. Michelle’s team showed how a class of antimicrobial peptides get into bacterial cells using experiments with live bacteria.

PAUL MULVANEY APPOINTED ASSOCIATE EDITOR OF ACS NANO

Congratulations to Paul Mulvaney who has been appointed Associate editor of the journal ACS Nano. Published monthly, ACS Nano is an international forum for the communication of comprehensive articles on nanoscience and nanotechnology research at the interfaces of chemistry, biology, materials science, physics and engineering. Moreover, the journal helps facilitate communication among scientists from these research communities in developing new research opportunities, advancing the field through new discoveries, and reaching out to scientists at all levels. ACS Nano received the 2008 Association of American Publisher’s Award for Best New Journal in the category of Science, Technology & Medicine.

CTRL+P: PRINTING AUSTRALIA’S LARGEST SOLAR CELLS

VICOSC project co-ordinator and University of Melbourne researcher, Dr David Jones, discusses printing of organic photovoltaic cells the size of an A3 sheet of paper in *The Voice*.

VLSCI RESOURCE GRANT TO CHEMISTRY

Congratulations to Daniel Weber, PhD student, and Frances Separovic who were awarded computer time on BlueGene Q for their project, Membrane structure of equinatoxin II.

EMBL TRAVEL GRANT & NH SCHUSTER SCHOLARSHIP AWARD

Congratulations to PhD student, Quinn Besford, who received two prestigious scholarships for his work on glycogen and highly branched polymers. One of these, the 2013 EMBL Australia Travel Grant, will support a trip to the European Molecular Biology Laboratory in Hamburg. The other is the 2013 Norma Hilda Schuster (nee Swift) Scholarship for outstanding research into biochemistry.

GETTING CHEMISTRY RIGHT BETWEEN RESEARCHERS & REGULATORS

Marine biofouling is a major environmental and economic problem costing the shipping industry alone $60 billion/annum. A highly successful workshop on biofouling management was held at the Melbourne Convention Centre, 6-9 May 2013. It brought together over 120 key stakeholders from Australia, New Zealand and across the Pacific who are involved in identifying, promoting and developing effective and practical biofouling management strategies. The first two days centred on risk, requirements and regulations with the final half of the workshop focusing on the science and technology of biofouling management and in

CHEMISTRY HOSTS ART MYSTERY EVENT

On June 6, the School of Chemistry hosted a ‘Chemistry Art Mystery’ evening presented by the ARC Centre of Excellence for Free Radical Chemistry & Biotechnology and Quantum Victoria. The event was attended by around 50 University of Melbourne alumni who donned detective coats for the evening to solve an art forgery mystery with chemistry experiments and information about the history of the paintings in question. The event was modelled on a program developed by the Free Radical Centre and Quantum for secondary school students.
particular the ecology and chemistry of marine antifouling coatings. The unique mix of presentations were delivered by an international line up of speakers and rounded off with panel discussions featuring some amazingly productive discussions and debate. Ensuring shipping and other maritime industries in the region can continue to underpin trade, security and economic development with minimal environmental impact is critical. This meeting has laid the foundations for what will become a major interdisciplinary biennial forum. Major sponsors included the University of Melbourne, Office of Naval Research (Washington DC) and the Institutes of Defence Science (Melbourne) and Marine Engineering, Science and Technology (London). Further details from the co-organisers: Dr Alex Wu and Prof. Rob Lamb, School of Chemistry.

JOURNAL OF AMERICAN CHEM SOC PAPER FOR BOSKOVIC LAB

Congratulations to Kerwyn Alley of the Boskovic Group for publication of some of his PhD research in the Journal of the American Chemical Society. The article entitled, Redox Activity and Two-Step Valence Tautomerism in a Family of Dinuclear Cobalt Complexes with a Spiroconjugated Bis(dioxolene) Ligand, provides important insights into the molecular origins of two-step valence tautomeric transitions, which has implications for the design of switchable molecules for display devices and molecular electronics.

MUCS BOOK LAUNCH OF ‘FROM CHALK & TALK TO POWERPOINT’

The 1020th MUCS meeting was a huge success, with excellent attendance from both current and previous members of the School of Chemistry. Dr Valda McRae’s book, “From Chalk and Talk to Powerpoint”, was launched by the Provost, Prof. Margaret Sheil. The books were on sale after the meeting, and Valda spent much of the evening signing! The President of MUCS, the atomically smooth Professor Rob Lamb, spoke about the challenges of turning science into technology, and the development of non-stick and self-cleaning surfaces. The talk generated considerable interest and will be written up in the science press.

SELBY RESEARCH AWARD TO CHRIS RITCHIE

Congratulations to Dr Chris Ritchie who has been awarded the 2013 Selby Research Award for his project entitled, ‘Photoresponsive Polyoxometalate Diarylethen Hybrids’.

JOURNAL COVER FOR CARUSO GROUP

Postdoctoral fellows Andreas Ide and Jon Choi from the Caruso group have had their research images featured on the cover of the Journal of Materials Chemistry A. Their article describes the preparation of webs of fibrous titanium zirconium oxide using an electrospinning technique; the fibres were studied for the adsorption of heavy metal ions in water.
MATERIALS FOR ENERGY - PRINTABLE, FLEXIBLE SOLAR PANELS

*The Age* featured the work of Dr David Jones (Chemistry, Bio21) as part of his collaboration with Dr Scott Watkins at the CSIRO. The collaboration, which includes more than 50 researchers from Melbourne, Monash and CSIRO, has enabled for the first time the large scale printing of flexible solar panels.

CHEMISTRY IN TOP 25 QS WORLD RANKING

The 2013 QS World University Ranking for Chemistry lists the best universities in the world to study chemistry. University of Melbourne comes in highest in Australia and at 23 in the world.

LEARNING & TEACHING INITIATIVES: ROUND 2 GRANT OUTCOME

Congratulations to Stephen Best, Colette Boskovic and Michelle Gee, who were successful in obtaining funding in the latest Learning & Teaching Initiative grant round for their project: ‘ChemBytes Back – LabDots: Empowering students in the Lab.’ This will see the creation and on-demand delivery of skills-based video materials to support self-paced progress through the undergraduate laboratories.

GEOFF SCOLLARY - ASSOC. ED, AUST JOURNAL GRAPE WINE RESEARCH

Geoff Scollary (Honorary Principal Fellow) has been appointed as an Associate Editor with the Australian Journal of Grape & Wine Research, which is the highest impact factor journal in the wine science field. Geoff’s appointment is to provide expertise in grape and wine chemistry, areas which are expanding with increasing submissions to the Journal. Geoff left the School in 1997 to take up the dual roles of foundation Professor of oenology and foundation director of the National Wine & Grape Industry Centre at Charles Sturt University. He returned to the School in honorary capacity in 2008 following his retirement from CSU. If you haven’t done so already, check out Geoff’s monthly wine column in Chemistry in Australia.

INDUSTRY TRANSFORMATION RESEARCH HUB: TWO AWARDED

Prof. M. Ashokkumar is a chief investigator on two ITRH (Industry Transformation Research Hub) grants totalling more than $10M awarded to the University of Melbourne. The ARC introduced this new research grant scheme late last year in order to encourage collaborative R&D projects to address challenging industry issues. *Dairy Innovation Hub: transformational research to underpin the future of the Australian dairy manufacturing industry* is with industry partner, Dairy Innovation Australia Ltd; and *Unlocking the food value chain: Australian food industry transformation for the Association of Southeast Asian Nations (ASEAN) markets*, is with Kraft Foods.

KAYE MERLIN BRUTTON BEQUEST GRANT TO BRETT PATERSON

Congratulations to Brett Paterson who was awarded funding from the Kaye Merlin Brutton Bequest for ‘Metal complexes as molecular imaging agents of cancer’.

TW HEALY TRAVEL AWARD TO PHD STUDENTS

The T.W. Healy Travel Award 2013 (round 1) has been jointly awarded to PhD students: Quinn Besford from the Gray-Weale group, and Lu Cao from the Caruso group. Quinn will attend the 11th International Conference on Biology & Synchrotron Radiation in Germany, Sep 2013; and Lu will go to the 7th International Conference on Materials for Advanced Technologies in Singapore, Jul 2013.

CHEMISTRY COLLABORATION PUBLISHED IN CELL

Congratulations to Assoc. Prof. Michelle Gee, whose collaboration with researchers at WEHI has resulted in a recent publication in the journal, *Cell*, entitled Cell-Cell Communication between Malaria-infected Red Blood Cells via Exosome-like Vesicles.

NH SCHUSTER AWARD TO VINÖJNI NAIR

Congratulations to Vinojini Nair, PhD student with Prof. John Wade and Prof. Frances Separovic, who was awarded a 2013 Norma Hilda Schuster award.

W EVANS VISITING FELLOWSHIP TO MARK RIZZACASA

Professor Mark Rizzacasa has been awarded the William Evans Visiting Fellowship from the University of Otago. Mark will take up the fellowship in Sep - Oct this year.
ADVANCE GLOBAL AUSTRALIAN AWARD TO RUSSELL HOWARD

Science alumnus, Russell Howard, was awarded an Advance Global Australian Award and was the overall winner for his global impact on the biotechnology field and green chemistry. The 2013 Advance Global Australian Awards Forum and Ceremony was held at the Museum of Contemporary Art in Sydney on 21 March 2013. Russell, Founder and CEO of Oakbio Inc., has selected Chemistry student, Peter Hall, to be his mentee as part of the Advance Mentoring Program.

JOURNAL COVER FOR BOSKOVIC GROUP

Congratulations to Susanna Mandic, Merinda Healey, Jan Gotthardt, Kerwyn Alley, Robert Gable, Chris Ritchie and Colette Boskovic for their artwork featured on the cover of a special issue of the European Journal of Inorganic Chemistry dedicated to Polyoxometalates. The article communicates studies of an unusual polyoxometalate-based coordination polymer.

SCIENCE NATIONAL SCHOLARSHIPS FOR CHEMISTRY MSC STUDENTS

Congratulations to Tessa Evans and Stacey Rudd each of whom has been awarded a Science National Scholarship in recognition of outstanding results. Both are undertaking MSc (Chemistry): Tessa with the Lamb group and Stacey with the Donnelly group.

SCIENTIFIC REPORTS ARTICLE ON ANTIMICROBIAL PEPTIDES

Congratulations to Michelle Gee and Matthew Burton of the Soft Matter & Cell Biophysics group for their paper published on 27 March in Scientific Reports on imaging the action of antimicrobial peptides on living bacteria. The work shows the mechanism by which antimicrobial peptides disrupt the cell membrane of bacteria leading to cell death.

2013 HARTUNG YOUTH LECTURE SERIES

Professor Paul Mulvaney and Dr Tich-Lam Nguyen presented the RACI 2013 Hartung Youth Lectures. The lectures were attended by ~350 students in years 9-12 and held at La Trobe University in Albury-Wodonga, Bendigo and Bundoora campuses.

CHEMISTRY ‘IDEAS THAT COULD CHANGE YOUR LIFE’

The Age Melbourne Magazine (March issue) and online on 22 March - David Jones and the VICOSC team’s work to produce thin, flexible solar cells featured in the news. The Bio21 Institute was also included in The Age Melbourne Magazine’s Profile of institutes within the Parkville Precinct along with ‘Top Toys’, the OMX Blaze and 800 NMR.

MICHAEL LEEMING AWARDED 2013 E & V PUZEY SCHOLARSHIP

The School of Chemistry congratulates PhD student Michael Leeming from the O’Hair research group on being the Faculty of Science recipient of the prestigious Elizabeth and Vernon Puzy Scholarship for 2013. The scholarship aims to ‘retain the services of well qualified citizens of Australia from leaving Australia’ and is in honour of the late Elizabeth and Vernon Puzy of Toorak.

GRIMWADE PRIZE IN INDUSTRIAL CHEMISTRY

The Faculty of Science 2012 Grimwade Prize in Industrial Chemistry has been awarded to Professor Spas Kolev for his research on “The development of novel polymer inclusion membranes (PIMs) and their application in chemical analysis, industrial separation and the manufacturing of monolayers of metallic nanoparticles”. Congratulations Spas!

ASI POSTDOCTORAL FELLOWSHIP TO VIK DRYZA

Congratulations to Dr Viktoras Dryza, who has been awarded a postdoctoral fellowship from the Australian Solar Institute. His research project, entitled ‘Guiding the rational design of organic dye sensitisers for solar cell technologies’, aims to isolate organic dye molecules in the gas phase and investigate their spectroscopy and photophysics using advanced laser-based techniques.
CHEMISTRY POSTGRADUATE SOCIETY 2013

President: Nicholas Kirkwood
Treasurer: Luke Gamon
Secretary: Alessandra Bestetti

General Committee: Alex McDonald, Rebecca Szabadai, Chris Kingsbury, Sarah Jaber, Sean Collins, Gautam Jain, Rob Johnston, Paul Ionescu, Liz Mills

PRESIDENT’S REPORT

Throughout 2013 the CPS continued to organise social events for postgraduates and staff to engage with each other outside of the lab environment. Several “Friday Frothies” drinks, two barbeques, an ultimate Frisbee championship and a trivia night were run. In addition the CPS helped out the MUCS committee with drinks following each MUCS lecture.

The Friday Frothies were very well attended this year, probably because they were less frequent and advertised well in advance. They remain the simplest but most effective event the CPS runs. The integration with MUCS was an interesting concept but most CPS committee members felt that the groups serve very different functions and should be kept separate, as the time commitment required to run MUCS events detracted from our ability to run CPS events.

Despite being a huge success in 2012, the 2013 Ultimate Frisbee Championship failed to attract large numbers and as a result the teams were set as “Mulvaney vs The Rest”. “The Rest” won 6-3. To ensure a good turn-out this year team leaders will be chosen in advance to prepare their teams.

Free food once again proved to be a winner with both CPS barbeques in 2013 generating large crowds, and the Trivia Night was a huge success with well over a hundred people attending. The Clyde proved very easy to work with but in future I would suggest setting a cap at around 80 people (8 tables) as there were too many people to fit into the pub!

Last but not least the “Homebrew Showcase” has been discussed for a long time but not yet run. The idea is an event where chemists show off their beer-brewing skills. Perhaps the 2014 committee can realise this idea and we wish them all the best!

MELBOURNE UNIVERSITY CHEMICAL SOCIETY (MUCS)

Program of Events for 2013

President: Dr. Angus Gray-Weale
Secretary: Dr Wallace Wong
Student Representatives: Nick Kirkwood, Quinn Besford, Luke Gamon

March 27th
(Lecture 1019) 5.15 pm; Cuming Theatre, Chemistry Building
Professor Prof. Philip Blower
King’s College London
The nuclear chocolate box: the periodic table in nuclear medicine

May 29th
(Lecture 1020) 5.15 pm; Cuming Theatre, Chemistry Building
109th President’s Address: Prof. Rob Lamb, University of Melbourne
Making non-stick coatings out of thin air: Guiding science through to technology with the Australian Synchrotron

July 31st
(Lecture 1021) 5.15 pm; Masson Theatre, Chemistry Building
Stranks Lecture: Prof. Cameron Kepert
University of Sydney
Shrinking crystals - achieving extreme thermomechanical properties through a molecular materials approach

November 23rd
(Lecture 1022) 5.15 pm; Masson Theatre, Chemistry Building
Feutrill Lecture: Dr David Jones
University of Melbourne
Printed Power – The development of printed organic solar cells in Victoria
CHEMISTRY BUILDING REDEVELOPMENT

These new laboratories will house the Kolev and Gee research groups and also include a major general instrumentation laboratory. Photos of the refurbished laboratories on this level before occupation by the research groups in early 2014 are appended to this report. The completion of these works marks an important milestone in the building program as all teaching and research laboratories in the Chemistry Building will have been redeveloped as envisaged in the original Chemistry Building Plan initiated in 2007. While a final phase of the program will involve renovations of offices and general usage building spaces, the initial vision to refurbish the Chemistry Building complex for modern laboratory teaching and research has largely been achieved.

4 levels of the East Wing of the Chemistry Building now house School of Chemistry research groups while teaching activities (teaching laboratories, lecture theatres and multipurpose learning spaces) have been consolidated into the redeveloped Chemistry West Building. Services to provide power, heating and chilled water together with required gas reticulation and fumehood infrastructure to all levels has also been installed. A continually updated record of the progress of the building refurbishments from 2007 is available on the School website at http://www.chemistry.unimelb.edu.au/chemistry-building-redevelopment.

A new Chemistry Master Plan developed during 2012/2013 in conjunction with Property and Campus Services will guide future development of the Chemistry building. This will include the update of several areas in the Chemistry West Building including office, public access areas and some teaching spaces so the building continues to provide appropriate facilities for modern teaching and research in chemistry. The Chemistry Building Working Group has met regularly throughout 2013 to provide guidance and feedback to Property and Campus Services personnel on the building works and maintenance issues within the building.

The membership of the Chemistry Building Working Group in 2013 was: Stephen Best, Ken Ghiggino, Franz Grieser, Spas Kolev, Bryan McGowan, Frances Separovic, Paul Beardsley (Faculty of Science Precinct Facilities and Operations Manager, West), Laurence Sugar (Property and Campus Services).

Ken Ghiggino
Chair, Chemistry Building Working Group
STUDENT PRIZES AND AWARDS

AGILENT AWARD FOR EXCELLENCE
Calvin Lee
Awarded to the student with the highest marks in the third year Chemistry research subject, with preference for student projects related to spectroscopy.

J S ANDERSON PRIZE
Claire Baillie
Awarded to the student enrolled in the BSc (Honours), MSc or Postgraduate Diploma Chemistry, who is majoring in Chemistry and displays the greatest aptitude and potential for research.

JAMES CUMING MEMORIAL SCHOLARSHIP
Major: - Scott Fletcher
Minor: - Marcus GianSiracusa
Awarded to students who have fulfilled the requirements of the Bachelor of Science and who are enrolled to undertake further studies in the School of Chemistry through the BSc (Honours), MSc or Postgraduate Diploma Chemistry.

DULUX AUSTRALIA PRIZE
Tessa Young
Awarded by a selection committee to a Chemistry student who has completed the BSc. and is in the final year of the BSc (Honours), MSc or Postgraduate Diploma Chemistry.

DWIGHT PRIZE
Wenxiao Yue
Awarded annually to the student with the highest aggregate marks in first year Chemistry subjects.

EXHIBITION PRIZE
Stephanie Quah
Awarded annually to the student with the highest aggregate marks in first year Chemistry subjects.

THE THOMAS HEALEY AWARD
Lu Cao, Quinn Besford & Erwin Rodriguez
These PhD travel awards are given to enable students to attend a conference of international standing, at which the student will present the results of their research.

THE HUNTSMAN AUSTRALIA PRIZE
Liselle Atkin
Awarded for an outstanding performance by a second year chemistry student proceeding to a major in 3rd year Chemistry.

THE ANDREW KIRBY AWARD FOR RESEARCH EXCELLENCE
Athanasios Zavras
Awarded to a Chemistry student entering a PhD in the School of Chemistry who has demonstrated excellent research potential in the BSc (Honours), MSc, MPhil or Postgraduate Diploma Chemistry who are continuing on to a higher degree in the School of Chemistry.

THE MONICA ELIZABETH REUM MEMORIAL PRIZE
JiaYing Linda Chan
Awarded to a PhD student who submits for assessment an outstanding thesis in an area of Organic Chemistry.

RONALD RISEBOROUGH PRIZE
Ognjen Belic
Awarded for the best research report in field of Applied Chemistry based on results achieved in BSc (Honours), MSc or Postgraduate Diploma Chemistry.

FRED WALKER SCHOLARSHIP
Joses Grady Nathanael
Awarded to a 3rd year student majoring in chemistry based on their averaged weighted third year results in Chemistry subjects, and who are continuing on in a BSc (Honours), MSc or Postgraduate Diploma in Science in the School of Chemistry.

C A TAYLOR PRIZE
Luke Wilson
Awarded to the most outstanding student in 2nd year Chemistry who is intending to major in Chemistry.

THE DR REX WILLIAMSON & FAMILY SCHOLARSHIP
Anton Zalewski
Awarded to a 3rd year student for academic merit as determined by the highest third year BSc results in Organic Chemistry.
CHEMISTRY OUTREACH

This year we worked with just over 22,000 students from Prep – Year 12, engaging these students in chemistry and supporting 1,609 of their teachers with interesting curriculum-relevant activities and professional development sessions.

Highlights this year included being asked by the producers of *Masterchef* to put together a demonstration on food science and acid base indicators for use at the beginning of one of their episodes. As part of the National Youth Science Forum, we also hosted students who came into Chemistry for sessions on identifying chemical elements and the behaviour of gases.

The biggest outreach events of the year are the *Analytical Instrument Workshops*, where Year 12 students travel in to the University to study and use some of our instrumentation and detect and measure components of food. This year they measured the amount of salt in soy sauce, the caffeine concentration of coke and the calcium content of seawater.

The workshops are invaluable experience for students, allowing them the chance to see and use instruments that they would otherwise only read about and are especially useful for small and regional schools. We had schools travel in from all over Victoria including Portland Secondary College, Wodonga Secondary College, Swan Hill College and Barnsdale College. We had three classes with only 1 student visit from each of Kaniva Secondary College, Tyrrell College (Sea Lake) and Rushworth P-12 College.

The year finished with a *demonstration-a-thon* that trained teachers to perform spectacular (but safe) classroom demonstrations. Chemical examples can give teachers fabulous and attention-grabbing ways to illustrate concepts.

The session provided an exciting opportunity for inexperienced teachers to develop classroom skills that they can take back to their schools to engage their students.

RACI HARTUNG YOUTH LECTURES – MARCH & OCTOBER 2013

*Chemistry at the Nanoscale: The Next Ten Years*

In the tradition of lectures given by Professor Hartung over 60 years ago, this year Professor Paul Mulvaney and Dr Tich-Lam Nguyen presented the Hartung Youth Lecture Series to more than 400 regional students. With the topic, Chemistry at the Nanoscale: The Next Ten Years, they aimed to inspire students in years 9-12 in an engaging and educational experience.

The lectures discussed the central role of chemistry in nanoscience and nanotechnology. In particular, they talked about some of the applications expected to appear over the next decade. Students were shown how certain materials, such as quantum dots, platinum and liquid magnet, are used. They also saw how gold colloids were synthesized, played with NiTinol memory wires and magic sand. Students also took home with them book marks illustrating applications of nanomaterials, brochures on nanotechnology and a bucky ball origami with facts about nanoscience, sponsored by TechNYou.

With coordination by the RACI and universities, the lectures were presented at La Trobe University Albury-Wodonga, Bendigo and Melbourne campuses, Monash University Clayton campus and Deakin University Warrnambool campus. Students and teachers attending the lectures were from Penola Catholic College, Whittlesea Secondary College, Northcote High School, Trinity Grammar School, Swan Hill College, Victory Lutheran College, Marian College Myrtleford, Numurkah Secondary College and Beechworth Secondary College.

Feedback from a teacher: “Many thanks for the exciting presentation yesterday at the Hartung Youth Science Lecture. I was fascinated to see and learn so much..... Thanks so much for the package of goodies - my students are loving them. I really enjoy telling them about coal, graphite, diamond, graphene..............and then BUCKY BALLS! I love the chemistry and I also love the structural implications.”
In mid-November, our Honours, Masters and PhD Alumni from the 1980s came together for a reunion dinner, which was a wonderful occasion and a delight that former Department Heads as well as many past staff from that era were able to participate.

The feeling of camaraderie was strong, even after all these years. The atmosphere during the night was convivial and the fond reminiscences of bygone days were entertaining. Thank you to those who attended the event at University House and shared their memories.
SUBJECTS

FIRST YEAR

Director: Stephen Best
Lab Director: Alice Lamb

CHEM10003 Chemistry 1
Stephen Best

CHEM10004 Chemistry 2
Stephen Best

CHEM10006 Chemistry for Biomedicine
Stephen Best

CHEM10007 Fundamentals of Chemistry
Stephen Best

SECOND YEAR

Director: Mark Rizzacasa

CHEM20011 Environmental Chemistry
Spas Kolev

CHEM20018 Reactions and Synthesis
Mark Rizzacasa

CHEM20019 Practical Chemistry (Lab)
Colette Boskovic

CHEM20020 Structure and Properties
Mark Rizzacasa

THIRD YEAR

Director: Trevor Smith

CHEM30012 Analytical and Environmental Chemistry (Lab)
Spas Kolev

CHEM30013 Chemical Research Project
Richard O’Hair

CHEM30014 Specialized Topics in Chemistry B
Trevor Smith

CHEM30015 Advanced Practical Chemistry
Michelle Gee

CHEM30016 Reactivity and Mechanism
Trevor Smith

CHEM30017 Specialized Topics in Chemistry A
Trevor Smith

HIGHER YEAR LEVELS

Honours, MSc and PG Diploma in Chemistry
Craig Hutton

PhD and MPhil
Brendan Abrahams
KEY TEACHING AND LEARNING STATISTICS

RESEARCH COMPLETIONS BY YEAR

2013 SES

The SES survey provides feedback from undergraduate and postgraduate coursework students on their perceptions of the quality of teaching and learning experience for each subject in which they are enrolled.

Students are asked whether they strongly agree (5); agree (4); agree nor disagree (3); disagree (2); or strongly disagree (1) with 10 questions regarding the subject.

TEACHING LOAD

*EFTSL refers to Effective Full-Time Student loan
RESEARCH HIGHER DEGREE STUDENT COMPLETIONS

Kerwyn Graham ALLEY
Towards valence tautomerism in polynuclear complexes

Julia BALDAUF
The effects of external fields on the optical properties of nanocrystals

Steven James BARROW
Single particle spectroscopy of self-assembled gold nanostructures

Erika BICCIOCCHI
Donor-acceptor block copolymers for photovoltaic applications

Stephen Lonsdale BIRKETT
Total synthesis of the deshydroxyajudazols A and B

JiaYing Linda CHAN
Structure-function relationship studies on human relaxin-2 leading to the development of novel RXFP1 receptor-selective analogues

Zhengfei CHEN
Protic ionic liquids as solvents for amphiphile self-assembly and the preparation of nano-structured inorganic materials

Young Soo CHO
Removal of thiocyanate and cyanide from gold mine tailings water using a polymer inclusion membrane

Leena Chandhi DHARMARATHNE
Ultrasound initiated radical formation and electron transfer reactions in aqueous solutions

Marilena Antonina GIARRUSSO
Ultrasound initiated radical formation and electron transfer reactions in aqueous solutions

Ben Leigh HARRIS
Structural investigation of organic donor orbitals and their effects on reactivity in cubane, Beckmann fragmentation and seleniranium systems

Emma Nicole HOOLEY
Ensemble and single molecule spectroscopy of conjugated polymers

Lilian HOR
Structural and functional characterisation of diaminopimelate epimerase from Escherichia coli

Brandon Ian MACDONALD
Solution-processed CdTe nanocrystal solar cells

Benjamin ROBOTHAM
Ultrafast photochemistry of photosynthetic reaction centre mimics

Jesse ROTH-BARTON
Design, synthesis and characterisation of diketopyrrolopyrrole derivatives for organic photovoltaics

Shan SUN
Synthesis of novel amino acid-appended cavitands

Paul Douglas SYLVESTER
Assessment of perylene-based Prof. fluorescent nitroxides for monitoring polyester degradation upon weathering

Tu Anh Xuan TRAN
A computational investigation into homolytic addition reactions of acyl radicals with alkynes, acetonitrile and ethenimine

Nicholas Man Kei TSE
Nanostructured nanoparticulate contrast agent for medical imaging

Jing-Yi Wyvette WEE
Synthesis and X-ray crystallographic studies of novel radioprotectors derived from Hoechst 33258

Rohan James WILLIAMS
Investigating the mechanism of mannosidases: synthesis of novel inhibitors and substrates
The School of Chemistry at the University of Melbourne is one of Australia’s leading research centres in the chemical sciences, with an excellent international research reputation and an outstanding record in attracting research funding. The School performed strongly in nationally competitive grant schemes with new successful ARC Discovery Projects, Linkage, Future Fellowships, Discovery Early Career Awards, LIEF equipment infrastructure grants, NHMRC Project, and Industry Transformation Research Hub Grants.

The School hosts the ARC Centre of Excellence for Free Radical Chemistry and Biotechnology and is a participant in the ARC Centre of Excellence in Coherent X-Ray Science. The School is a major part of the Bio21 Institute and has strong links with the Melbourne Materials Institute, Centre for Aquatic Pollution Identification & Management (CAPIM), and the Particulate Fluids and Processing Centre. The Surface and Chemical Analysis Network (SCAN) is a School of Chemistry facility for materials and environmental analysis connecting industry with University researchers. Several academic staff are also members of the Australian Synchrotron Sciences Network.

The quality of our researchers is recognized by awards for research excellence including:
- The Alan Sargeson Award from the RACI Inorganic Chemistry Division to Dr Colette Boskovic;
- The RACI Physical Chemistry Division Lectureship awarded to Dr Angus Gray-Weale;
- McAulay-Hope Prize for Original Biophysics awarded to Assoc. Prof. Michelle Gee;
- ARC Future Fellowships to Dr Paul Donnelly, Assoc. Prof. Spencer Williams and Dr Wallace Wong;
- ARC DECRA Fellowship to Dr Lars Goerigk;
- Victorian Postdoctoral Research Fellowship to Dr Brett Patterson;
- ASI Postdoctoral Fellowship awarded to Viktoras Dryza;
- Selby Research Award to Dr Chris Ritchie;
- The Kaye Merlin Brutton Bequest Grant awarded to Brett Paterson.
- Grimwade Prize in Industrial Chemistry awarded to Prof. Spas Kolev;
- William Evans Visiting Fellowship award to Prof. Mark Rizzacasa;
- Two Industry Transformation Research Hub Grants awarded to Prof. M. Ashokkumar (co-CI);
- Melbourne Neuroscience Institute Interdisciplinary Seed Funding awarded to Dr Akhter Hossain, Prof. Frances Separovic and Dr Joe Ciccotosto;
- MMI Grant awarded to Dr Tich-Lam Nguyen and Dr Wallace Wong;
- Melbourne Researcher Grant Support Scheme awards to Dr Colette Boskovic, Assoc. Prof. Rachel Caruso and Assoc. Prof. Uta Wille;
- CASS Foundation Travel Grant awarded to Dr Viktoras Dryza;
- Ian Potter Travel Award to Dr Ines Almeida;
- Vice-Chancellor’s Staff Engagement Grant awarded to Dr Augustine Boronila;
- Carlton Connect Initiatives Fund (CCIF) – Facilitation stream awarded to Dr David Jones.

The School currently conducts research in the following areas:

**Advanced Materials and Nanoscience which includes:** complex fluids, nanoporous materials, nanotechnology, organic electronic materials, photovoltaics, polymers, quantum dots, solar cells, surface coating

**Analytical and Environmental Chemistry which includes:** environmental fate of pollutants, phytoremediation, flow analysis methods, paper-based microfluidic devices, passive sampling, green chemistry, membrane separation, trace element analysis

**Biological and Medicinal Chemistry which includes:** biological macromolecules, biophysics, biotechnology, metalloenzymes and model complexes, molecular nutrition, pharmaceutical chemistry

**Inorganic Chemistry which includes:** bioinorganic chemistry, catalysis, coordination chemistry, inorganic materials, metal ion dynamics, organometallic chemistry, transition metal chemistry

**Molecular Design and Synthesis which includes:** catalyst design, computational chemistry, free radical chemistry, ligands and metal complexes, macromolecules, supramolecular chemistry, templates

**Organic Chemistry which includes:** bioorganic chemistry, carbohydrate and peptide chemistry, free radical chemistry, natural product synthesis, physical organic chemistry, structural organic chemistry

**Physical Chemistry which includes:** photochemistry, sonochemistry, spectroscopy, surface science, theoretical and quantum chemistry

**Spectroscopy and Molecular Characterisation which includes:** atomic force microscopy, fluorescence, mass spectrometry, NMR and EPR, optical microscopy, photochemistry, single particle and ultrafast spectroscopy, structural chemistry, X-ray and synchrotron research

The School of Chemistry receives research funding and grants from a variety of sources, including the Australian Research Council (ARC), the National Health and Medical Research Council (NHMRC) and other Government and Industry bodies.
We also have a wide range of sponsors who offer prizes and scholarships and collaborate on research and infrastructure projects.

The School of Chemistry was awarded several new ARC and NHMRC projects commencing in 2013, including

Prof. Spas Kolev
The pollution potential of mercury in legacy biosolids and possibilities for its minimisation by phytoremediation and phytostabilisation approaches

Dr Georgina Such
Advanced bio-inspired polymer assembly: tools for diagnostics, imaging and therapies

Prof. Frances Separovic
Targeting the bacterial membrane

Assoc. Prof. Uta Wille
Prof. Anthony Wedd
Extending frontiers of structural chemistry and biology through high resolution pulsed electron paramagnetic resonance

Assoc. Prof. Spencer Williams
Defining the biosynthesis and immunological properties of mycobacterial glycolipids

Prof. Evan Bieske
Assoc. Prof. Trevor Smith
Prof. Ken Ghiggino
Supercontinuum fibre laser consortium for the chemical and materials sciences

Prof. Ken Ghiggino
Assoc. Prof. Trevor Smith
Time-resolved microspectroscopy of conjugated polymer films for organic photovoltaic applications

Prof. Carl Schiesser
Prof. Peter Taylor
Developing and Applying Free Radical Quantum Dots and Diamonds: Improving the performance of modern artists paint

Prof. Paul Mulvaney
Quantum Dot Energy Transfer-The chemistry of blinking

Prof. Anthony Wedd
How does Redox Cycling Drive the Metabolism of the Essential Metals Iron and Copper

Dr Christopher Ritchie
Rational Design and Fabrication of Polyoxometalate Based Nanodevices

Dr James Hutchison
Molecules and mirrors: new directions in chemistry and organic optoelectronics using hybrid light/ matter states

Dr Viktoras Dryza
Guiding the Rational Design of Organic Dye Sensitisers for Solar Cell Technologies

Assoc. Prof. Jonathan White
Synthesis of new DNA Binding Radioprotectors

RESEARCH GROUPS

Assoc. Prof. Brendan Abrahams
Coordination Networks

Prof. Muthupandian Ashokkumar
Sonochemistry and Sonoluminescence

Dr Stephen Best
Spectroelectrochemistry

Prof. Evan Bieske
Radical and Ion Spectroscopy

Dr Colette Boskovic
Inorganic Molecular Materials

Assoc. Prof. Rachel Caruso
Fabrication of Porous Inorganic Structures

Dr Paul Donnelly
Metals in Medicine and Radiopharmaceuticals

Assoc. Prof. Michelle Gee
Surface Forces and Surface Spectroscopy

Prof. Ken Ghiggino
Ultrafast Spectroscopy and Photochemistry

Dr Angus Gray-Weale
Mathematical Models in Chemistry, Biophysics and Soft Matter

Prof. Franz Grieser
Colloid and Surface Chemistry

Prof. Andrew Holmes
Applications of Synthesis to Problems in Materials & Biology

Assoc. Prof. Craig Hutton
Bio-organic Chemistry

Dr George Khairallah
Mass Spectrometry, Fundamental and Applied

Prof. Spas Kolev
Chemical Sensors and Membranes in Environmental Monitoring

Prof. Robert Lamb
Surface Science and Technology

Prof. Paul Mulvaney
Quantum Dots and Nanoparticles

Prof. Richard O’Hair
Fundamental and Applied Mass Spectrometry

Prof. Mark Rizzacasa
Asymmetric Synthesis of Biologically Active Natural Products

Prof. Richard Robson
Crystal Engineering of Infinite 2D and 3D Frameworks

Prof. Carl Schiesser
Free Radical and Antioxidant Chemistry

Prof. Frances Separovic
NMR and Biophysical Chemistry of Membranes

Assoc. Prof. Trevor Smith
Laser Spectroscopy, Microscopy and Photophysics

Dr Alessandro Soncini
Theoretical and Computational Chemistry

Dr Georgina Such
Smart polymeric materials: synthesis and application

Prof. Tony Wedd
Metal Chemistry in Catalysis and Biology

Prof. Jonathan White
Structural Organic Chemistry

Assoc. Prof. Uta Wille
Organic and Physical Organic Chemistry

Assoc. Prof. Spencer Williams
Biological Organic Chemistry and Carbohydrates

Dr Wallace Wong
Organic Electronic Materials
ASIA-OCEANIA SONOCHEMICAL SOCIETY (AOSS 2013)

1st Meeting of the Asia-Oceania Sonochemical Society (AOSS 2013) was organised by Prof. Ashokkumar in Melbourne during 10-12 July 2013. Leading sonochemists around the world attended the meeting including Prof. Ken Suslick, Prof. Aharon Gedanken and Prof. Shinobu Koda who delivered the Plenary Lectures. The meeting was well attended by more than 100 participants with about 60 international participants from 20 countries. The meeting programme included contributions from almost all areas of ultrasonics and sonochemistry: General Sonochemistry, Sonoluminescence, Nano- and biomaterials, and Sonoprocessing including food and dairy processing. The meeting was sponsored by a number of ultrasonic reactor manufacturing companies. The School of Chemistry was one of the sponsors of this meeting.

Photographs (top to bottom): Group photo of the participants. The conference dinner was held at Melbourne Aquarium
## CONFERENCES 2013

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<th>Name</th>
<th>Month</th>
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<td>Prof. Brendan Abrahams</td>
<td>July</td>
<td>International Conference on Materials for Advanced Technologies 2013</td>
<td>Singapore</td>
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<td></td>
<td>December</td>
<td>IC13 – RACI Inorganic Chemistry Divisional Conference</td>
<td>Brisbane</td>
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<td>Dr Graeme Allinson</td>
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<td>SETAC Australasia Conference 2013</td>
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<td></td>
<td>November</td>
<td>24th Conference of Residue Chemists</td>
<td>Melbourne</td>
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<tr>
<td>Prof. Muthupandian Ashokkumar</td>
<td>July</td>
<td>1st Meeting of the Asia-Oceania Sonochemical Society</td>
<td>UoM - Chair</td>
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<tr>
<td>Dr Stephen Best</td>
<td>July</td>
<td>VUVX Conference (Vacuum UV and X-ray Spectroscopy (VUVXI))</td>
<td>Hefei, China</td>
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<td>Prof. Evan Bieske</td>
<td>January</td>
<td>17th East Asian Workshop on Chemical Dynamics</td>
<td>Fukuoka, Japan</td>
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<td>June</td>
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<td></td>
<td>July</td>
<td>31st International Symposium on Free Radicals</td>
<td>Potsdam, Germany</td>
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<td>December</td>
<td>RACI PhysChem 2013</td>
<td>Hobart</td>
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<tr>
<td>Dr Colette Boskovic</td>
<td>December</td>
<td>IC’13 - RACI Inorganic Chemistry Divisional Conference</td>
<td>Brisbane</td>
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<tr>
<td>Assoc. Prof. Rachel Caruso</td>
<td>February</td>
<td>International Symposium on Energy and Environmental Materials</td>
<td>Gold Coast</td>
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<td>April</td>
<td>Materials Research Society Spring Meeting</td>
<td>San Francisco USA</td>
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<td>August</td>
<td>8th Pacific Rim International Congress on Advanced Materials and Processing</td>
<td>Waikoloa USA</td>
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<td>November</td>
<td>CSIRO OCE Science Leader Symposium</td>
<td>Black Mountains, ACT</td>
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<tr>
<td>Dr Dehong Chen</td>
<td>July</td>
<td>7th International Conference on Materials for Advanced Technologies (ICMAT)</td>
<td>Singapore</td>
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<tr>
<td>Mrs Penny Commons</td>
<td>February</td>
<td>STAV Chemistry Teachers Conference</td>
<td>La Trobe University</td>
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<td>November</td>
<td>CEA November Lectures</td>
<td>Bio21</td>
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<td>Dr Augustine Doronila</td>
<td>February</td>
<td>XIX International Conference of the Society for Human Ecology</td>
<td>ANU</td>
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<td>November</td>
<td>2nd Philippine National Conference and Workshop on Environmental Science</td>
<td>Los Banos, Laguna, Philippines</td>
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<tr>
<td>Dr Paul Donnelly</td>
<td>July</td>
<td>International Conference in Bioinorganic Chemistry</td>
<td>Grenoble, Frances</td>
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<td>December</td>
<td>IC’13, RACI Inorganic Chemistry Divisional Conference</td>
<td>Brisbane</td>
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<td>Dr Viktoras Dryza</td>
<td>December</td>
<td>RACI PhysChem 2013</td>
<td>Hobart</td>
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<tr>
<td>Dr Ines Gameiro Sa Almeida</td>
<td>September</td>
<td>18th International Conference on Flow Injection Analysis</td>
<td>Oporto, Portugal</td>
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<td>October</td>
<td>SETAC Australasia Conference 2013</td>
<td>Melbourne</td>
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<td>December</td>
<td>21st Annual RACI Research and Development Topics Conference in Environmental and Analytical Chemistry</td>
<td>Canberra</td>
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<tr>
<td>Assoc. Prof. Michelle Gee</td>
<td>February</td>
<td>Australian Colloid and Interface Science Symposium</td>
<td>Noosa</td>
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<td>September</td>
<td>Chemeca</td>
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<td>September</td>
<td>14th International Conference on Pseudomonas</td>
<td>Lausanne, Switzerland</td>
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<td>13th Conference on Methods and Applications of Fluorescence</td>
<td>Genoa, Italy</td>
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<td>November</td>
<td>Australian Society for Biophysics Conference</td>
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<td>November</td>
<td>Statistical Mechanics of Soft Matter</td>
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<tr>
<td>The Future of Dynamic Structural Science, Erice Crystallography School</td>
<td>May</td>
<td>Erice, Sicily</td>
<td>Prof. Ken Ghiggino</td>
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<td>26th International Conference on Photochemistry</td>
<td>July</td>
<td>Leuven, Belgium</td>
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<tr>
<td>12th European Conference on Molecular Electronics</td>
<td>September</td>
<td>London, UK</td>
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<td>13th Conference on Methods and Applications of Fluorescence</td>
<td>September</td>
<td>Genoa, Italy</td>
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<td>RACI PhysChem 2013</td>
<td>December</td>
<td>Hobart, Australia</td>
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<td>4th Asian Spectroscopy Conference</td>
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<td>Australian Colloid and Interface Symposium</td>
<td>February</td>
<td>Noosa, QLD</td>
<td>Dr Angus Gray-Weale</td>
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<td>International Congress on Acoustics</td>
<td>June</td>
<td>Montreal, Canada</td>
<td>Prof. Franz Grieser</td>
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<td>ANZAAS</td>
<td>July</td>
<td>Melbourne</td>
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<tr>
<td>14th Conference on Physics of Light-Matter Coupling in Nanostructures</td>
<td>January</td>
<td>Hersonissos, Crete</td>
<td>Prof. Andrew Holmes</td>
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<tr>
<td>26th International Conference on Photochemistry</td>
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<td>Leuven, Belgium</td>
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<td>12th International Conference on Frontiers of Polymers and Advanced Materials</td>
<td>December</td>
<td>Auckland, New Zealand</td>
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<td>15th International Symposium on Aromatic Compounds</td>
<td>July</td>
<td>Taipei, Taiwan</td>
<td>Dr James Hutchison</td>
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<tr>
<td>“Solar Cells for Peace”</td>
<td>August</td>
<td>Istanbul, Turkey</td>
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<td>SynthCon2</td>
<td>April</td>
<td>Yarra Glen, Victoria,</td>
<td>Assoc. Prof. Craig Hutton</td>
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<td>6th Heron Conference on Reactive Intermediates and Unusual Molecules (HERON6)</td>
<td>July</td>
<td>Heron Island, Queensland,</td>
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<tr>
<td>8th Australian Peptide Conference</td>
<td>September</td>
<td>Penang, Malaysia</td>
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<td>International Conference on Natural Products and Health</td>
<td>September</td>
<td>Singapore</td>
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<tr>
<td>61st American Society for Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Allied Topics</td>
<td>June</td>
<td>Minneapolis, USA</td>
<td>Dr George Khairallah</td>
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<tr>
<td>Gordon Research Conference on Physical Organic Chemistry</td>
<td>June</td>
<td>Holderness NH, USA</td>
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<td>Reactive Intermediates &amp; Unusual Molecules (Heron6)</td>
<td>July</td>
<td>Heron Island, QLD</td>
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<td>1st Annual Conference on Chemistry, Chemical Engineering and Chemical Process</td>
<td>February</td>
<td>Singapore</td>
<td>Prof. Spas Kolev</td>
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<td>Collaborative on Oceanographic Chemical Analysis</td>
<td>March</td>
<td>Honolulu, USA</td>
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<td>July</td>
<td>Xian, China</td>
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<td>18th International Conference on Flow Injection Analysis</td>
<td>September</td>
<td>Porto, Portugal</td>
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<td>Society of Environmental Toxicology and Chemistry - Australasia Conference</td>
<td>October</td>
<td>Melbourne</td>
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<td>International Membrane Science &amp; Technology Conference 2013</td>
<td>November</td>
<td>Melbourne</td>
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<td>ANZPAC 2013</td>
<td>May</td>
<td>Melbourne</td>
<td>Prof. Robert Lamb</td>
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<td>AVS 60th International Symposium and Exhibition</td>
<td>October</td>
<td>California, USA</td>
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<td>Prof. Paul Mulvaney</td>
<td>February</td>
<td>ACIS</td>
<td>Noosa, Queensland, AU</td>
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<td>February</td>
<td>Artificial Photosynthesis and ARENA Workshop</td>
<td>Wollongong, NSW</td>
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<td>May</td>
<td>Nanotechnology - The Next Ten Years, The Royal Society of Victoria</td>
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<td>Semiconductor Sensitized &amp; Quantum Dot Solar Cells, NanoGe QuantumDot 2013</td>
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<td>RSC 11th International Conference on Materials Chemistry</td>
<td>Warwick UK</td>
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<td>International Conference on Photochemistry</td>
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<td>Gordon Conference - Clusters Nanocrystals and Nanostructures</td>
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<td>ChinaNano 2013</td>
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<td>Humboldt Foundation Colloquium</td>
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<td>Bionics Symposium</td>
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<td>Dr Tich-Lam Nguyen</td>
<td>March</td>
<td>RACI Hartung Lectures</td>
<td>Wodonga, VIC</td>
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<td>7th International Conference on Materials for Advanced Technologies</td>
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<td>December</td>
<td>Universitas 21 Early Career Researchers Workshop</td>
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<td>Prof. Richard O’Hair</td>
<td>June</td>
<td>61st American Society for Mass Spectrometry (ASMS)</td>
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<td>Gordon Research Conference on Physical Organic Chemistry</td>
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<td>Ms Adabelle Ong</td>
<td>December</td>
<td>RACI PhysChem 2013</td>
<td>Hobart</td>
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<td>4th Asian Spectroscopy Conference</td>
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<td>Dr Brett Paterson</td>
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<td>Prof. Mark Rizzacasa</td>
<td>April</td>
<td>SynthCon2, Fergusson’s Winery</td>
<td>Victoria</td>
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<td>24th International Congress on Heterocyclic Chemistry (ICHC24)</td>
<td>Shanghai China</td>
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<td>Dr Marc-Antoine Sani</td>
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<td>US Biophysical Society meeting</td>
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<td>APNMR - ANZMAG Conference</td>
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<td>6th Pacific Symposium on Radical Chemistry (PSRC-6)</td>
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<td>6th Heron Island Conference on Reactive Intermediates and Unusual Molecules: Synthesis and Mechanism</td>
<td>Heron Island, QLD</td>
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<td>July</td>
<td>12th International Conference on the Chemistry of Selenium and Tellurium (ICCST-12)</td>
<td>Cardiff, UK</td>
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<td>Dr Geoffrey Scollary</td>
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<td>8th In Vino Analytica Scientia symposium</td>
<td>Reims, France</td>
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<td>Prof. Frances Separovic</td>
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<td>57th Biophysical Society Meeting</td>
<td>Philadelphia, U.S.A</td>
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<td>245th American Chemical Society National Meeting &amp; Exposition</td>
<td>New Orleans, U.S.A.</td>
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<td>18th ISM Meeting</td>
<td>Rio de Janeiro, Brazil</td>
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<td>9th European Biophysical Congress</td>
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<td>9th Australian &amp; New Zealand Society for Magnetic Resonance Conference</td>
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<td>Australia-Japan Neutron Science Workshop</td>
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<td>37th Annual Meeting Australian Society for Biophysics.</td>
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<td>Assoc. Prof. Trevor Smith</td>
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<td>6th International Conference on Advanced Materials and Nanotechnology</td>
<td>Auckland, NZ</td>
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<td>26th International Conference on Photochemistry (ICP 2013)</td>
<td>Leuven, Belgium</td>
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<td>September</td>
<td>13th Conference on Methods and Applications of Fluorescence</td>
<td>Genoa, Italy</td>
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<td>CXS Applications in Microscopy workshop</td>
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<td>National Fluorescence Workshop (FCS2013)</td>
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<td>RACI PhysChem2013</td>
<td>Hobart</td>
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<td>Dr Alessandro Soncini</td>
<td>October</td>
<td>4th European Conference on Molecular Magnetism (ECMM2013)</td>
<td>Karlsruhe, Germany</td>
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<td>Kick-off meeting FP7-ICT-2013-10 network MoQuaS: Molecular Quantum Spintronics</td>
<td>KIT, Germany</td>
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<td>Dr Georgina Such</td>
<td>July</td>
<td>Australasian Polymer Symposium</td>
<td>Darwin</td>
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<td>Prof. Peter Taylor</td>
<td>March</td>
<td>Stampede Launch Event and Symposium</td>
<td>Austin, USA</td>
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<td>June</td>
<td>Very Accurate and Large Computational Approaches Conference</td>
<td>Fevik, Norway</td>
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<td>Assoc. Prof. Peter Tregloan</td>
<td>November</td>
<td>Supercomputing13</td>
<td>Denver, USA</td>
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<td>Willem Van den Heuvel</td>
<td>December</td>
<td>Collaborative Universities Biomedical Education Network conference &quot;Closing the loop&quot;</td>
<td>Canberra</td>
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<td>Prof. John Webb</td>
<td>February</td>
<td>Fair Innovation Conference</td>
<td>Tehran, Iran</td>
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<td>August</td>
<td>12th International conference on Biominaliation</td>
<td>Freiberg, Germany</td>
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<td>December</td>
<td>12th International Symposium on Applied Bioinorganic Chemistry (ISABC12)</td>
<td>Guangzhou, China</td>
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<td>Prof. Anthony Wedd</td>
<td>July</td>
<td>4th International Symposium on Metallomics</td>
<td>Oviedo, Spain</td>
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<td>July</td>
<td>International Conference on Biological Inorganic Chemistry</td>
<td>Grenoble, France</td>
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<td>December</td>
<td>Conference of Inorganic Division of the Royal Australian Chemical Institute (RACI)</td>
<td>University of Queensland</td>
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<td>Dr Xingzhan Wei</td>
<td>September</td>
<td>Metamaterials’2013, The 7th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics</td>
<td>Bourdeaux, France</td>
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<td>November</td>
<td>ANFF Research Showcase 2013</td>
<td>Melbourne</td>
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<td>Assoc. Prof. Jonathan White</td>
<td>July</td>
<td>8th Heron Island Conference on Reactive Intermediates and Unusual Molecules: Synthesis and Mechanism</td>
<td>Heron Island, QLD</td>
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<td>Dr Uta Wille</td>
<td>April</td>
<td>SynthCon2</td>
<td>Yarra Glen</td>
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<td>June</td>
<td>6th Pacific Symposium on Radical Chemistry</td>
<td>Vancouver, Canada</td>
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<td>June</td>
<td>Gordon Research Conference on Physical Organic Chemistry, Holderness School</td>
<td>New Hampshire, USA</td>
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<td>38th Annual Synthesis Symposium</td>
<td>Bio21 Melbourne</td>
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<td>Dr Spencer Williams</td>
<td>September</td>
<td>UWA Glycoscience Workshop</td>
<td>Perth</td>
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<td>December</td>
<td>38th Annual Synthesis Symposium</td>
<td>Bio21 Melbourne</td>
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<tr>
<td>Dr Wallace Wong</td>
<td>July</td>
<td>15th International Symposium on Novel Aromatic Compounds (ISNA15)</td>
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<td>8th International Symposium on Integrated Synthesis (ISIS8)</td>
<td>Nara, Japan</td>
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<td>Dr Xiao Zhiguang</td>
<td>November</td>
<td>RACI Inorganic Chemistry Group (VIC) Symposium, RMIT</td>
<td>Melbourne</td>
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<td>12th International Symposium on Applied Bioinorganic Chemistry (ISABC12)</td>
<td>Guangzhou, China</td>
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<td>Dr Yanlin Zhang</td>
<td>October</td>
<td>Proceedings of SETAC Australia</td>
<td>Melbourne</td>
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INORGANIC AND ANALYTICAL CHEMISTRY SEMINAR PROGRAM
Coordinator: Professor Tony Wedd E: agw@unimelb.edu.au

8 FEBRUARY
Prof. Rhett Kempe
University of Bayreuth
“Bimetallic Catalysts for more Sustainability”

12 MARCH
Dr Andreas Stasch
Monash University
“The chemistry of molecular magnesium(I) compounds”

19 MARCH
Dr Chris Richardson
University of Wollongong
“Post-Synthetic Modification of Metal-Organic Frameworks: Changing for the Better”

26 MARCH
Prof. Philip Blower
King’s College London
“Imaging Tissue Hypoxia with Redox Active Copper Complexes: from Inorganic Chemistry to the Clinic”

16 APRIL
Dr Terry Turney
Monash University
“Zinc Oxide Nano-Particles”

23 APRIL
Dr Zhi guang Xiao
University of Melbourne
“Is Oxidative Stress in Neurodegenerative Diseases Linked to Copper Binding to the Disease Proteins?”

30 APRIL
Dr Mike Grace
Monash University
“The Unexpected Effects of Medicating Our Waterways”

7 MAY
Dr Brett Paterson
University of Melbourne
“Macrocyclic Cage Ligands for Non-invasive Targeted Cancer Imaging”

14 MAY
Dr Colin Scholes
University of Melbourne
“The Challenges of Selectively Separating Carbon Dioxide from Waste Gases”

21 MAY
Dr Christian Doonan
University of Adelaide
“Gas Separations by Molecular Ratchets”

23 JULY
Dr Ayman Nafady
King Saud University
“TCNO/TFAB: Magic anions for electrochemical and synthetic applications”

6 AUGUST
Dr Jie Zhang
Monash University
“Polyoxometalate Electrochemistry and Electrocatalysis”

13 AUGUST
Dr Blaine Roberts
Florey Institute
“Analytical Techniques to Probe the Role of Metalloproteins in Biological Systems”

20 AUGUST
Prof. Frank Caruso
University of Melbourne
“Interfacing inorganic and organic materials for biological outcomes”

27 AUGUST
Dr John Moreau
University of Melbourne
“Geo-Chemistry of Arsenic and Mercury”

10 SEPTEMBER
Dr Vipul Bansal
RMIT University
“Controllable surface functionalisation using polyoxometalates and amino acids: A critical parameter for sandwiched nanomaterial synthesis & applications”

17 SEPTEMBER
Mr David Hayne
University of Melbourne
“Development of a radio tracer specific for Abeta plaques to assist in diagnosis of Alzheimer’s disease” – PhD Completion Seminar

24 SEPTEMBER
Prof. Tadaharu Ueda,
Prof. Kenji Matsumoto,
Prof. Shingo Hadano
Kochi University
Introductions to Research at Kochi University, Japan.
Prof. Tadaharu Ueda:
“Synthesis and characterization of novel polyoxometalates”;
Prof. Kenji Matsumoto:
“Functional metal complexes utilized non-covalent interactions – siderophores, catalysts, luminescent complexes –”;
Prof. Shingo Hadano:
“Synthesis, nanostructures, and thermal properties of ABA-type amphiphilic triblock copolymers”

8 OCTOBER
Ms Jessica Holmes
University of Melbourne
“The Chemistry of 3D Printing”

8 OCTOBER
Ms Saumya Udagedera
University of Melbourne
“The Toxicity of Lead”

22 OCTOBER
Ms Ya Ya Bonggotgetsakul
University of Melbourne
“Extraction of Gold(III) from HCl Solution and Preparation of Precious Metal Nanoparticles using Polymer Inclusion Membranes” – PhD Completion Seminar

23 OCTOBER
Prof. Christine McKenzie
University of Southern Denmark
“Masked non-heme Fe(V)oxo and other interesting reactive models for non-heme metalloenzymes”

12 NOVEMBER
Dr Rahul Banerjee
CSIR-National Chemical Laboratory, India
“Porous [Metal]-Organic [Nano]-Materials: Concept, Construction and Properties”
## ORGANIC CHEMISTRY SEMINAR PROGRAM

Coordinator: Dr Wallace Wong  
E: wwhwong@unimelb.edu.au

<table>
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<tr>
<th>Date</th>
<th>Speaker</th>
<th>Institution</th>
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<tr>
<td>18 JANUARY</td>
<td>Prof. Dr Gilles Gasser</td>
<td>University of Zurich</td>
<td>“In Vitro and In Vivo Evaluation of Metal-Based Anthelmintic and Anticancer Drug Candidates”</td>
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<tr>
<td>15 FEBRUARY</td>
<td>Dr Elena Mena-Osteritz</td>
<td>University of Ulm</td>
<td>“3D-Nanoarchitectures with Thiophene Materials”</td>
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<td>1 MARCH</td>
<td>Prof. Peter Bäuerle</td>
<td>University of Ulm</td>
<td>“Small molecule organic solar cells: With tailored materials on the move to future technology”</td>
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<td>15 MARCH</td>
<td>Prof. Alan C. Spivey</td>
<td>Imperial College London</td>
<td>“Synthesis directed at the disruption of a protein-protein interaction in asthma”</td>
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<td>22 MARCH</td>
<td>Prof. Suzanne A. Blum</td>
<td>University of California, Irvine</td>
<td>“Microscopy for Synthetic Chemists and Dual-Metal Catalysis with Gold”</td>
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<tr>
<td>19 APRIL</td>
<td>Dr Andrew Lawrence</td>
<td>Australian National University</td>
<td>“Biomimetic Total Synthesis of Natural Products”</td>
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<tr>
<td>3 MAY</td>
<td>Prof. Neil R. Cameron</td>
<td>Durham University</td>
<td>“Glycomonomers and Glyconanoparticles”</td>
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<td>17 MAY</td>
<td>Erika Bicciocchi</td>
<td>University of Melbourne</td>
<td>“Donor-acceptor block copolymers for organic photovoltaic applications” – PhD Completion Seminar</td>
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<tr>
<td>24 MAY</td>
<td>Assoc. Prof. Richard J. Payne</td>
<td>University of Sydney</td>
<td>“Synthesis of Therapeutic Glycopeptidylglycoproteins via Novel Chemical Ligation Strategies”</td>
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<td>15 JULY</td>
<td>Prof. Burkhard Koenig</td>
<td>University of Regensburg</td>
<td>“Let there be light – Luminescent Chemosensors and Chemical Photocatalysts”</td>
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<td>31 MAY</td>
<td>Dayna Sturgess</td>
<td>University of Melbourne</td>
<td>“Total synthesis of alkyl citrate natural products” – PhD Completion Seminar</td>
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<td>7 JUNE</td>
<td>Dr Kriste L. Viske</td>
<td>University of Melbourne</td>
<td>“Investigating Palladium-Catalysed Cross-Coupling Reactions by Mass Spectrometry”</td>
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<tr>
<td>14 JUNE</td>
<td>Dr Steven Bull</td>
<td>University of Bath</td>
<td>“Novel Synthetic, Catalysed Cross-Coupling Reactions by Mass Spectrometry”</td>
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<tr>
<td>18 JUNE</td>
<td>Prof. Govindasamy Mugeash Indian Institute of Science</td>
<td>Glutathione Peroxidase Activity of Ebselen and Related Organoselenium Compounds</td>
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<td>21 JUNE</td>
<td>Dr Jason Harper</td>
<td>University of New South Wales</td>
<td>“Getting the reaction outcomes you want in ionic liquids: Towards solvent-controlled reactivity”</td>
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<td>2 JULY</td>
<td>Prof. Stefan Braese</td>
<td>Karlsruhe Institute of Technology</td>
<td>“Small molecular entities for chemical biology”</td>
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<td>5 JULY</td>
<td>Prof. Norbert Jux</td>
<td>University of Erlangen</td>
<td>“Functionalised Porphyrins”</td>
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<td>10 JULY</td>
<td>Prof. Stephen Hashmi</td>
<td>Monash University</td>
<td>“Orthosteric, Allosteric and Bitopic Ligands Acting at G Protein-Coupled Receptors” – PhD swansong</td>
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<td>15 JULY</td>
<td>Prof. George Barany</td>
<td>University of Minnesota</td>
<td>“Reflections on a Half Century of Solid-Phase Peptide Synthesis”</td>
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<td>22 JULY</td>
<td>Dr Matthew Cook</td>
<td>Queens University Belfast</td>
<td>“New allicic rearrangements. Stereoselective sigmatropic and pallylic reactions”</td>
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<td>23 AUGUST</td>
<td>Dr Ullrich Jahn</td>
<td>Institute of Organic Chemistry and Biochemistry Academy of Sciences, Czech Republic</td>
<td>“A journey from organic methodology development to the total synthesis of natural products, their biological investigation and back”</td>
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<td>30 AUGUST</td>
<td>Dr Derek Wilson</td>
<td>York University, Canada</td>
<td>“Structural Disorder in Protein Function and Pathogenic Aggregation”</td>
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<td>15 NOVEMBER</td>
<td>Nicolas Fisk</td>
<td>University of Melbourne</td>
<td>“Towards the Total Synthesis of Aranotin and the Oxpin containing Dithiodiketopiperazines” – PhD Completion Seminar</td>
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<td>12 DECEMBER</td>
<td>Dr Sam Stranks</td>
<td>University of Oxford</td>
<td>“High Performance Solar Cells Incorporating Organo-lead Halide Perovskites”</td>
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<td>16 DECEMBER</td>
<td>Prof. Seth Marder</td>
<td>Georgia Institute of Technology</td>
<td>“Charge injection and collection at electrode interfaces”</td>
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14 JANUARY
Dr Gopalan Rajaraman
Department of Chemistry
Indian Institute of Technology Bombay
“Computational Approach to Lanthanide Molecular Nanomagnets”

11 FEBRUARY
Zhengfei Chen
School of Chemistry,
University of Melbourne
“Synthesis and characterization of nanostructured inorganic materials from ionic liquids” – PhD Completion Seminar

4 MARCH
Prof. Dagmar Gerthsen
Karlsruhe Institute of Technology
“Nanostructure of organic solar cells analysed by electron microscopy”

11 MARCH
Prof. Amitabha Chattopadhyay
Centre for Cellular & Molecular Biology, Hyderabad India.
“Dipole Organization and Membrane Biophysics: A Tale of Two Studies”

25 MARCH
Prof. Mark Gordon
Ames Laboratory, Iowa State University
“Strategies for Accurate Calculation on Large Molecular Systems”

22 APRIL
Brian Adamson
University of Melbourne
“Laser Induced Mobility Modification”

24 APRIL
Prof. Kevin Prince
Elettra-Sincrotrone Trieste, Italy
“Gas phase chemistry of bio molecules: synchrotron radiation studies, and prospects for Free Electron Lasers”

13 MAY
Dr Viktoria Dryza
University of Melbourne
“Investigating the spectroscopy of organic dye-sensitized nanoparticles in the gas phase”

20 MAY
Francesca Cavalieri
University of Melbourne
“Ultrasonic synthesis and characterization of multifunctional microspheres”

6 JUNE
Assoc. Prof. Cynthia Whitchurch
University of Technology Sydney
“Stigmergy, explosions and traffic control during active expansion of bacterial biofilms”

4 JULY
Prof. John P. Maier
University of Basel, Switzerland
“Electronic Spectroscopy of Carbon Chains and Rings of Astrophysical Interest”

8 JULY
Dr Jesus M de la Fuente
Institute of Nanoscience of Aragon
“Engineering Multifunctional Nanoparticles”

15 JULY
Prof. Kenneth S. Suslik, Wilsmore Fellow
University of Illinois at Urbana-Champaign
“The Optoelectronic Nose: An Adventure in Molecular Recognition”

22 JULY
Prof. Kenneth S. Suslik, Wilsmore Fellow
University of Illinois at Urbana-Champaign
“Inside a Collapsing Bubble: Sonochemistry and Sonoluminescences”

26 AUGUST
Dr Patrick Masset
Institut Sulzbach-Rosenberg, Germany
“Challenges in high temperature materials: development of coatings for power generation and aeronautics applications”

14 SEPTEMBER
Prof. Regina v. Klitzing
Stranski-Laboratorium für Physikalische und Theoretische Chemie, TU Berlin
“Stimuli Sensitive Polymer Coatings with different film architectures”

14 NOVEMBER
Prof. Gerhard Wagner
Harvard Medical School
“The benefits of non-uniform sampling (NUS) and software for reconstruction”

19 NOVEMBER
Prof. Gerhard Wagner
Harvard Medical School
“In-cell NMR and molecular crowding”

25 NOVEMBER
Prof. Michael Grunze,
Wilsmore Fellow
University of Heidelberg
“Challenges in the analysis of environmental samples with synchrotron radiation”

2 DECEMBER
Ida Widnersson
University of Melbourne
“Core-shell structures for dye-sensitised solar cells - increasing the light-scattering in the photoelectrode” – PhD Completion Seminar

9 DECEMBER
Gary Beane
University of Melbourne
“Excitation Energy Transfer in semiconductor nanocrystal: organic dye hybrid structures” – PhD Completion Seminar
Research Image by Spencer Williams.
X-ray structure Ag8Cu6 rhombic dodecahedron

Abrahams BF, Maynard-Casely HE, Robson R & White KF. 2013. Copper(II) coordination polymers of imdc(-) II: (2)imdc(-) = the 1,3-carboxymethylimidazolium cation: unusual sheet interpenetration and an unexpected single crystal-to-single crystal transformation. CrystEngComm. 15 (45): 9729-9737.


Makovicky E, Mumme WG & Gable RW. 2013. The crystal structure of ramdohrite, Pb5.9Fe0.1Mn0.1Sn0.1Ca2Ag2.8Sb10.8S24: A new refinement. American Mineralogist. 98: 773-779.


Tappin AD, Mankasingh MA, Batgath ARE, Wade JD, Liu W, Cohen B & Roth B. 2013. Selective ß-opioid receptor antagonists that are able to bind to the similar mechanism of activation utilizing their N-terminal low-density lipoprotein class A modules. Frontiers in Endocrinology. 4: 171.


