



THE UNIVERSITY OF
MELBOURNE

School of Chemistry ANNUAL REPORT 2011



CONTENTS

INTRODUCTION FROM THE HEAD OF SCHOOL	3
OUR PEOPLE	4
HIGHLIGHTS OF 2011	
News	5
Societies	
• Chemistry Postgraduate Society	10
• Melbourne University Chemical Society	10
Chemistry Building Redevelopment	11
Prizes and Awards	12
CHEMISTRY AND THE COMMUNITY	
Chemistry Outreach Program	14
Alumni Function	15
TEACHING AND LEARNING	
Subjects	16
Key teaching and learning statistics	
Quality of Teaching outcomes	17
Research Higher Degree student completions	17
RESEARCH	
Research Funding	18
ARC Centre of Excellence for Free Radical Chemistry and Biotechnology	20
Conferences	21
Organic Seminars	25
Inorganic and Analytical Seminars	26
Physical Seminars	27
Publications	28
SPONSORS	BACK COVER

INTRODUCTION FROM THE HEAD OF SCHOOL



Professor Frances Separovic, Head of School



The International Year of 2011 (IYC 2011) was a worldwide celebration of the achievements of chemistry and its contributions to the well-being of humankind and coincided with the 100th anniversary of Marie Curie's Nobel Prize in Chemistry. In recognition of IYC 2011, the School of Chemistry hosted a number of public lectures and events throughout the year to increase public appreciation and interest of young people in chemistry.

The year began with a public lecture on mass spectrometry by Professor Carol Robinson FRS from Oxford. Mick Moylan travelled to the Castlemaine Farmers' Market and took the market-goers through the process of chocolate making. Also in May, the ARC Centre for Excellence for Free Radical Chemistry and Biotechnology hosted Concept Radical, an art competition and workshop for secondary school students. Queens College was the venue for the 1970s Chemistry Reunion held in July. In August, the Melbourne University Chemical Society (MUCS) celebrated its 100th meeting with the Marie Curie Lecture by Prof. Lynn Francesconi from Hunter College and Graduate Center of City University of New York, USA. The lecture was attended by over 250 people and followed by a reception in the School of Chemistry with a celebratory dinner at University House. The School hosted celebrated British chemist, Dr Peter Wothers, with his 'Just add water' chemistry show. Over 900 people attended the series of lectures in the Masson Theatre in September. Professor Dame Julia Higgins of Imperial College, UK, delivered the 2011 Selby Lecture in November after conferring of the Degree of Doctor of Science (honoris causa) took place at a ceremony held in the Council Chamber. Finally, Professor Martin Chalfie from Columbia University, who was awarded the Nobel Prize in Chemistry 2008, officially opened the new Level 2 & 3 teaching laboratories. After the ceremony, Professor Chalfie presented a public lecture in the Masson Theatre, which was filled for the occasion.

The School performed strongly in Australian Research Council (ARC) grants with seven new Discovery Project grants, three ARC Linkage grants and two ARC Linkage Infrastructure Equipment Funding awards and an National Health and Medical Research Council project grant. The School again rates amongst the most successful in the nation for Category 1 competitive research grant

funding. Additional large grants for 2011 included \$3.5M for the Organic Solar Cells Project from the Victorian Government Department of Primary Industries (DPI) and the Australian Solar Institute (ASI) team located at the Bio21 Institute, University of Melbourne. The School also hosts the ARC Centre of Excellence for 'Free Radical Chemistry and Biotechnology' directed by Professor Carl Schiesser.

Research excellence was recognized by a number of awards in 2011, including: the ANZMS Morrison Medal to Assoc. Prof. Evan Bieske; Selby Research Award to Dr Alessandro Soncini; Newton Abraham Visiting Professorship, University of Oxford, to Professor Andrew Holmes; a Victoria Fellowship to Dr Brett Paterson; RACI Biota Award for Medicinal Chemistry to Dr Paul Donnelly; and ANZMAG Medal awarded to Professor Frances Separovic. The "Prime Minister's Prize for Science" went to Professors Ezio Rizzardo and David Solomon for their development of the RAFT polymerization process. Professor David Solomon is known for the invention of the plastic bank note and was Head of School in the nineties and Professor Ezio Rizzardo is a Professorial Fellow in the School.

We welcomed two new teaching and research members of staff, Dr Angus Gray-Weale and Dr Alessandro Soncini. Meanwhile, building refurbishments of the Chemistry Building go on. The Level 3 teaching laboratories were completed in time for commencement of the 2011 teaching year. Stage 3 East research laboratories were occupied in July 2011. Stage 1 East began in November 2011, which will see new research laboratories on the ground floor of the East Wing of the Chemistry Building.

The School continues to perform very well in teaching, research and engagement and I thank all members of the School for their contribution to our success.

Professor Frances Separovic

OUR PEOPLE

ACADEMIC

Head of School

Frances Separovic

Professors

Muthupandian Ashokkumar
Ken Ghiggino
Franz Grieser
Robert Lamb
Richard Alfred O'Hair
Mark Antony Rizzacasa
Carl Herbert Schiesser

Associate Professors and/or Readers

Brendan Francis Abrahams
Evan Bieske
Rachel Caruso
Michelle Louise Gee
Craig Hutton
Spas Dimitrov Kolev
Trevor Alexander Smith
Jonathan Michael White
Uta Wille

Senior Lecturers

Stephen Peter Best
Colette Boskovic
Paul Donnelly
Spencer John Williams

Lecturers

Angus Anthony Gray-Weale
Alessandro Soncini

ARC Laureate Fellows and Professors

Paul Mulvaney

Laureate Professor

Andrew Bruce Holmes

Future Generation Fellows

Rachel Caruso
John Gehman

ARC Research Fellow

George Khairallah

ARC Australian Postdoctoral Fellows

Linda Feketeova
Elizabeth Krenske
Evan Guy Moore

Centenary Fellow

William 'Alex' Donald
Hadi Lioe

Tutors

Penelope Commons
Sonia Horvat

Chemistry Outreach Fellow

Michael Moylan

Research Associates

Maria Ines Almeida
Neppolian Bernaudshaw
Nahid Chalyavi
Janage Chandrapala
Dehong Chen
James Robert Cochrane
Christopher Dean Donner
Augustine Ignatius Doronila
Viktoras Dryza
Xiaofei Alex Duan
Catrin Goeschen
Xiaotao Hao
James Hickey
Liisa Hirvonen
Andreas Ide
Madhavan Jagannathan
David John Jones
Matthias Karg
Yvonne Kavanagh
Irving Liaw
Phoebe Eleanor MacDougall
Lachlan McKimmie
Anthony Morfa
Dana Morgan
Brett Michael Paterson
Tich Lam Nguyen
Marta Redrado Notivoli
Christopher Ritchie
Saman Sandanayake
Marc-Antoine Sani
Christine Schieber
Colin Skene
Sammi Ghebremedhin Tsegay
Hemayet Udin
Phillip Leigh Van Der Peet
Hung Si Vo
Huabin Wang
James Ward
Xingzhan Wei
Xiaoming Wen
Alex Wu
Zhiguang Xiao
Yanlin Zhang
Meifang Zhou

HONORARY APPOINTMENTS

Emeritus Professors
Donald William Cameron
Francis Patrick Larkins

Professorial Fellows

Robert Catrall
Roger Francis Martin
Ezio Rizzardo
Richard Robson
Peter Robert Taylor
John Desmond Wade
Robert Oliver Watts
Anthony Gordon Wedd

Principal Fellows

Ronald Cooper
William David McFadyen
Ian McKelvie
Peter McTigue
Geoffrey Scollary
Peter Tregloan
Charles Young

Senior Fellows

Robert Craig
Donald Neil Furlong
Valda May McRae

Fellows

Richard David Harcourt
Akhter Hossain
John Lambert
Denis Scanlon

Visitors

Kim Dunbar, Texas A&M University, Texas, USA
Lynn Francesconi, Hunter College of CUNY, New York, USA
Claudia Fontas, University of Girona, Spain
Manuel Miro, University of the Balearic Islands, Spain
Carlos Pecharroman, Institute of Materials Science, Madrid, Spain
Philippe Renaud, University of Bern, Berne, Switzerland
Hermin Sulistyarti, Chemistry Department, University of Brawijaya, Malang, Indonesia

PROFESSIONAL

Marino Artuso
Renee Beale
Vicki Burley
Christine Callahan
Fran Dynan
Gregory Ellis
Jed Fraser
Robert Gable
Les Gamel
Sue Hickey
Ross Lineham
Brendan Mangan
Richard Mathys
Bryan McGowan
Alf Meilak
Elizabeth Mills
Peter Mills
John Nuske
Des Odgers
Marg Ross (Business Manager)
Jennifer Scott
Alexandra Strich
Doug Taylor
Joe Tyler
Sioe See Volaric

NEWS



Secondary College students experiment with glass designed with nanotechnology with the help of University of Melbourne student Alistair Grevis-James.

IN2SCIENCE ROADSHOW IN PORTLAND

As part of the In2science Peer Mentoring in schools program Mick Moylan and chemistry student Alistair Grevis-James presented In2nanotech at Portland Secondary College in early December. The In2science program is aimed at raising the aspirations and engagement of Yr 5-10 students in Science and Mathematics.

SCHIESSER GROUP IN THE NEWS

The Free Radical Centre research featured in a recent episode of the Channel 10 Kids Science TV program, Scope. During the episode, which aired in early December, Melina Glasson, PhD student from the Schiesser group discussed how oxygen can damage paint in artwork, and the research she is conducting to understand this process. The story can be viewed at: http://ten.com.au/videoplayer.htm?movideo_p=41452&movideo_m=143330

FOOD SCIENCE IN SCHOOLS FUNDING FOR THE CHEMISTRY OUTREACH PROGRAM

Mick Moylan was awarded funding for a dairy science program for schools in remote and regional areas. The funding will be used to develop kits of lab equipment that students and teachers in Grade 5 to Year 8 will use to explore the science behind milk processing, yoghurt and cheese making and the bacteria and mould that are involved in these processes. The funding was awarded under the University's Equity Innovation Grant scheme to Mick, who will work on the project with Dr Said Ajlouni from the Department of Agriculture and Food Systems and Ms Helen Hall from Cohuna Secondary College.

A RADICAL CONCEPT

In May, the University's ARC Centre of Excellence for Free Radical Chemistry and Biotechnology hosted Concept Radical, an art competition and workshop for secondary school students.

CHOCOLATE CHEMISTRY AT THE CASTLEMAINE FARMERS' MARKET

Jessica Holmes, Emma Hooley and Mick Moylan travelled to the Castlemaine Farmers' Market on 1 May and took the market-goers through the process of chocolate making – from the fruit of the Cacao tree right through to the finished product. Samples were available for tasting that represented each step and cards were given away that highlighted some of the important molecules involved — such as lactic acid, theobromine, caffeine, triglycerides and vanillin.

FACULTY'S SCIENCE EXPERIENCE PROGRAM A GREAT SUCCESS

Mick Moylan was in the new Chemistry labs with Year 9 & 10 students from 19 secondary schools during Science Experience (11-13 Jan 2011). <http://www.musse.unimelb.edu.au/february-11-53/faculty-science-s-science-experience-program-great-success>.

CARL SCHIESSER FEATURED IN VISIONS PODCAST

The University of Melbourne Visions podcast in December featured Free Radical Centre Director, Professor Carl Schiesser, who discussed his research into how free radicals and oxidative stress cause deterioration of objects of cultural significance, including painted works of art. Together with Assoc. Prof. Robyn Sloggett from the Centre for Cultural Materials Conservation, their work will inform future conservation of 20th century art. The podcast can be viewed at: <http://visions.unimelb.edu.au/episode/127>



OPEN DAY REPORT

Sunday 21st August was the University of Melbourne Open Day. Staff from the School of Chemistry contributed by answering course advice queries and giving career advice throughout the day. There were also guided tours of the School of Chemistry's new facilities. About 800 people were taken on the tour that included a demonstration of interactive technology used in tutorials, a visit to the new undergraduate teaching laboratory and finished with information sessions in the historic Masson Theatre.

NEWS



CHEMISTRY MEETS ART

During the International Year of Chemistry celebrations, Prof. Frances Separovic, Head of School, visited the Periodic Table exhibit at Scienceworks. The element, Cs (the atomic clock), was sponsored by the School. 'Chemistry meets Art' was a travelling exhibition displayed at ScienceWorks until 28 August.



DAME JULIA HIGGINS AWARDED HONORARY DOCTORATE

Professor Dame Julia Higgins, a noted polymer chemist and supporter of the School, was awarded the Degree of Doctor of Science (honoris causa) from the University of Melbourne on 9 Nov 2011.

SELBY LECTURER: PROFESSOR DAME JULIA HIGGINS FRS

Professor Julia Higgins of Imperial College, UK, delivered the 2011 Selby Lecture entitled 'Polymers and neutron scattering: A life in polymer science' on 9 November 2011, Elizabeth Murdoch Theatre, University of Melbourne.



NOBEL LAUREATE OPENS CHEMISTRY TEACHING LABORATORIES

On 30 Nov, Professor Martin Chalfie from Columbia University, who was awarded the Nobel Prize in Chemistry 2008, officially opened the new Level 2 & 3 teaching laboratories. After the ceremony, Professor Chalfie presented a public lecture in the Masson Theatre, which was filled for the occasion. <http://voice.unimelb.edu.au/volume-7/number-12/future-chemists>



JUST ADD WATER – SPECTACULAR LECTURE

The School of Chemistry hosted celebrated British chemist, Dr Peter Wothers, who toured the country with his 'Just add water' chemistry show. Over 900 people attended the series of lectures in the Masson Theatre in September.

MUCS 1000 LECTURE

On August 17th the Melbourne University Chemical Society (MUCS) celebrated its 1000th meeting with the lecture of Prof. Lynn Francesconi from Hunter College and Graduate Center of City University of New York entitled Radiochemistry: benefits to society and challenges to be overcome. The lecture was dedicated to 100th anniversary of the awarding of the Nobel Prize in Chemistry to Madam Marie Curie for the discovery of radium and polonium. This lecture was attended by over 250 people and followed by a reception in the School of Chemistry with a celebratory dinner at University House.

NEWS

MARIE CURIE LECTURE

Congratulations to Paul Donnelly and Mick Moylan who were awarded funding from the University's Cultural and Community Relations initiative to support the "Marie Curie" public lecture to be presented by Prof. Lynn Francesconi. The lecture celebrates the International Year of Chemistry and the 100 years anniversary of Marie Curie winning the Nobel prize in Chemistry.



PUBLIC LECTURE BY PROFESSOR CAROL ROBINSON FRS

A Public Lecture entitled, "Finding the right balance — from rare gases to ribosomes" was given by Professor Carol Robinson FRS, University of Oxford, UK. The lecture attracted a diverse audience and was held in the historic Masson Theatre.

JOINT MELBOURNE-VANDERBILT CHEMISTRY SYMPOSIUM, NASHVILLE, APRIL 2011

Five members of the School of Chemistry presented their research at a joint chemistry symposium held at Vanderbilt University in Nashville, USA, on 30 April 2011. Two years ago, the School hosted a joint symposium at Bio21, and two members of the School have been awarded collaborative grants, which will enhance links between the two departments.

RACI BIOTA AWARD FOR MEDICINAL CHEMISTRY TO PAUL DONNELLY

The Biota Award winner for 2011 is Dr Paul Donnelly for his research into new non-invasive molecular agents to assist in the diagnosis of Alzheimer's disease and guide emerging therapies. See Biota Award for Medicinal Chemistry.

CHEMISTRY ALUMNI, KYLIE VINCENT, RECEIVES WOMAN OF THE FUTURE AWARD

Chemistry 2003 PhD graduate, Dr Kylie Vincent (supervisor Stephen Best) now working at Oxford University, was awarded 'Woman of the Future (Science & Technology)' in London.



FRANCES SEPAROVIC AWARDED ANZMAG MEDAL

At the 2011 conference of the Australian & New Zealand Society for Magnetic Resonance (ANZMAG), Professor Frances Separovic was awarded the ANZMAG Medal. The ANZMAG Medal recognises outstanding contributions to magnetic resonance.

BRETT PATERSON AWARDED 2011 VICTORIA FELLOWSHIP

Synthetic chemist, Dr Brett Paterson, was awarded a 2011 Victoria Fellowship for his research into new diagnostic molecular agents for use in detecting early stage cancer. Dr Paterson is a post-doctoral fellow in Paul Donnelly's group in the School of Chemistry.

PRIME MINISTER'S SCIENCE PRIZE TO PROFESSORS OF CHEMISTRY

On Oct 12, the Prime Minister, the Hon Julia Gillard, awarded the "Prime Minister's Prize for Science" to Ezio Rizzardo and David Solomon for their development of the RAFT (Reversible Addition Fragmentation chain Transfer) polymerization process. RAFT is a free radical polymerization technology that allows excellent control of polymer architecture and has been taken up by a number of significant international companies. Both recipients worked on RAFT during their CSIRO days. Professor David Solomon is known for the invention of the plastic bank note and was Head of Chemistry at the University of Melbourne in the nineties, and Professor Ezio Rizzardo is a Professorial Fellow in the School.

FRANCES SEPAROVIC, FELLOW OF BIOPHYSICAL SOCIETY (USA)

Congratulations to our Head of School who is a 2012 Fellow of the Biophysical Society. Citation from the announcement: "Frances Separovic, University of Melbourne, for her pioneering research using solid-state NMR techniques to study the structure and dynamics of membrane-associated polypeptides."

NEWS



JAFIA AWARD TO SPAS KOLEV

At 17th International Conference on Flow Injection Analysis (ICFIA 2011) held in Krakow, Poland, the Japanese Association for Flow Injection Analysis presented their prestigious FIA Award for Science for 2010 to Spas Kolev, Antonio Rangel, and Norio Teshima.

JONATHAN WHITE AWARDED ERSKINE FELLOWSHIP

Assoc. Prof. Jonathan White was awarded an Erskine fellowship at the University of Canterbury in Christchurch, NZ, from 4 July until 31 August 2011.

ANDREW HOLMES AWARDED NEWTON ABRAHAM VISITING PROFESSORSHIP, UNIVERSITY OF OXFORD

Professor Andrew Holmes, University Laureate Professor, School of Chemistry and Bio21 Institute, Melbourne; CSIRO Fellow; Distinguished Research Fellow, Imperial College, London; Fellow, Clare College, Cambridge and Foreign Secretary, Australian Academy of Science, has been appointed to the Newton Abraham Visiting Professorship in the Medical, Biological and Chemical Sciences at the Department of Chemistry, University of Oxford, from 8 October 2011 to 11 March 2012. Professor Holmes will be a fellow of Lincoln College.

SELBY RESEARCH AWARD TO ALESSANDRO SONCINI

Congratulations to Dr Alessandro Soncini from the School of Chemistry, who was awarded the 2011 Selby Research award for "Electrical control of molecular magnets grafted on carbon nanostructures".

NEW PROFESSORS

The School of Chemistry is delighted to announce that, as of 1st January 2012, we will have two new professors in the School: Professor Evan J Bieske, and Professor Spas D Kolev. Both Evan and Spas were promoted to professor in the recent round. This is recognition of their outstanding achievement in teaching and research, and service to the University and the profession.

FULBRIGHT AWARD FOR JACEK JASIENIAK

Dr Jacek Jasieniak, who has a PhD in Chemistry from the University of Melbourne and won the Chancellor's Prize for best PhD thesis in Science and Engineering, has been named a 2011 Fulbright Postdoctoral Scholar.

EVAN BIESKE AWARDED MORRISON MEDAL

Congratulations to Evan Bieske, Australian Professorial Fellow, on receiving the 2011 Morrison Medal awarded by the Australian & New Zealand Society for Mass Spectrometry at the recent conference in Fremantle, WA.

CENTENARY RESEARCH FELLOWSHIP

Congratulations to Dr William Alex Donald who was awarded the 2011 Centenary Research Fellowship. Alex was undertaking post-doctoral work with the O'Hair group.

RESEARCH PRIZE FOR YA YA BONGGOTGETSAKUL

PhD student Ya Ya Bonggotgetsakul from the Kolev lab was awarded first prize for her oral presentation at the 19th RACI Research and Development Topics Conference in Analytical & Environmental Chemistry.

STUDENT RESEARCH AWARDS TO LINDA CHAN

Congratulations to Linda Chan, PhD student with Prof John Wade, who received the following awards: Young Investigator Award for an oral presentation at the 3rd Modern Solid Phase Peptide meeting; Young Investigator Award for the best poster presentation at the 9th Australian Peptide Symposium; and a Florey Neurosciences Institutes Travel Award (2nd year PhD student prize) in Nov 2011.

RACI ANNUAL SYNTHESIS SYMPOSIUM PRIZES

Congratulations to Jenny Chambers and Shan Sun. Jenny, from Mark Rizzacasa's research group, was awarded the prize for the best student presentation at the RACI Annual Synthesis Symposium. Shan Sun, a PhD student in Craig Hutton's research group, won an award for the best poster.

TOM WHITWELL WINS STUDENT PRIZE AT BIOPHYSICHEM 2011

Congratulations to Tom Whitwell who won a 'best student poster' prize at the joint meeting of the RACI Physical Chemistry division and the Australian Society for Biophysics. Tom is an MSc student in the Separovic research group.



AWARDS AT THE ANNUAL RACI VICTORIAN SYMPOSIUM ON INORGANIC CHEMISTRY

Congratulations to Jessica Holmes and David Hayne. Jessica, from Brendan Abrahams's research group, was awarded the Bruce West prize for the best student presentation at the Annual RACI Victorian Symposium on Inorganic Chemistry. David Hayne, a PhD student in Paul Donnelly's research group, won an award for the best poster.

DULUX PRIZE 2011

The School of Chemistry congratulates Edward Nagul from the Kolev group on being chosen as the Dulux Australia Prize winner. Edward will receive his prize at the 2012 Deans Awards.

CONGRATULATIONS TO OUR ELSEVIER CHEMISTRY CHALLENGE 2011 WINNERS

Congratulations to PhD student Rohan Williams (Williams group) and BSc Honours student James Banal (Ghiggino group) on being awarded joint runner up of the Elsevier Chemistry Challenge 2011. Students from Australia and New Zealand were asked to identify a research challenge and create a mini research proposal to address it.

SIEF AWARDS AT PARLIAMENT HOUSE

Congratulations to chemistry postgraduate student Aaron Song who received his SIEF postgraduate award from Innovation Minister Kim Carr at a function at Parliament House, Canberra on 22 August.

BRIAN ADAMSON AWARDED ANZMS23 POSTER PRIZE

Congratulations to Brian Adamson who won a poster prize at the 23rd biennial Australian and New Zealand Society for Mass Spectrometry (ANZSMS23) meeting in Fremantle, WA.

MELBOURNE-VANDERBILT PARTNERSHIP GRANTS AWARDS

Evan Bieske and Frances Separovic were successful in the inaugural Melbourne-Vanderbilt collaborative grants scheme. Evan's grant is entitled 'Ultrasensitive techniques for photoactive molecules', and Frances's grant is 'Membrane structure and lipid interactions of the pore-forming toxin Equinatoxin II'.

DRYZA AND SONCINI AWARDED UOM EARLY CAREER GRANTS

Congratulations to Dr Viktoras Dryza and Dr Alessandro Soncini on their success in the recent ECR grant round. Vik's project is "Unlocking the secrets of photoactive molecular ions" and Alessandro's is "Spin transport and relaxation dynamics in lanthanide based molecular devices".

RESEARCH COLLABORATION GRANT AWARDED TO LIISA HIRVONEN

Congratulations to Dr Liisa Hirvonen on being awarded a Research Collaborative grant from the University.

NATIONAL GRANT SCHEME SUCCESS FOR CHEMISTRY

Congratulations to the following members of the School who were successful in the 2012 ARC Discovery grant scheme: Brendan Abrahams & Richard Robson, Evan Bieske, Paul Donnelly, Craig Hutton, Robert Lamb, Tony Wedd & Paul Donnelly, and Spencer Williams. In addition, Paul Donnelly was awarded an ARC Linkage grant and was successful as co-applicant in an NHMRC grant. In ARC LIEF this year, the School was a partner with RMIT (John Gehman) and Biochemistry/Bio21 (Frances Separovic).

NEWS



\$3.5M GRANT TO ORGANIC SOLAR CELLS PROJECT

Minister for Energy and Resources Michael O'Brien and his Commonwealth counterpart Martin Ferguson announced the new round of funding for the Organic Solar Cells Project from the Victorian Government Department of Primary Industries (DPI) and the Australian Solar Institute (ASI) at the Bio21 Institute, University of Melbourne. The \$3.5M grant will allow further development of revolutionary plastic solar cells produced by Victorian researchers teamed up with industry partners to expand the activities of the Victorian Organic Solar Cell Consortium (VICOSC). The new grant will allow development of inexpensive, mass produced solar panels printed on plastic and steel substrates. Read the full story at: <http://www.bio21.org/news/cheaper-efficient-solar-power-in-sight-with-funding-boost>

FASTFORWARD GRANT AWARDED FOR DEVELOPMENT OF DRUGS TO TREAT MULTIPLE SCLEROSIS

Dr Spencer Williams (School of Chemistry) and Prof Bevyn Jarrott (Howard Florey Institute) were awarded US\$275,000 to advance the development of compounds that target sodium channels important in neuroprotection. The funding is awarded from the Accelerating Commercial Development Fund, and is co-funded by the American National Multiple Sclerosis Society and Merck Serono.

ARC LINKAGE GRANTS WITH INDUSTRY TO KOLEV AND MULVANEY

Congratulations to Spas Kolev who was awarded an ARC Linkage grant with Melbourne Water Corporation entitled "Development of novel passive sampling devices for ammonia monitoring". Paul Mulvaney was a co-investigator on another grant with the Reserve Bank of Australia, "Nanophotonic metamaterials as anti-counterfeit devices in Australian banknotes".

CHEMISTRY RESEARCHERS DEVELOP PAINT-ON SOLAR CELLS

Research from Brandon MacDonald, PhD Student in the Nanoscience Laboratory in Chemistry has been featured on the ABC News website. Also, an article on Brandon's research, "Printing solar cells", featured in Fresh Science.

KOLEV LAB FEATURED IN JOURNAL OF FLOW INJECTION ANALYSIS

An article about the Kolev research group by Assoc. Prof. S Kagaya, University of Toyama, who spent his sabbatical here in 2010, has been published in the Journal of Flow Injection Analysis.

ANGEWANDTE CHEMIE PUBLICATION FOR DR ALEX DONALD AND PROF. RICHARD O'HAIR

Research by Dr Alex Donald and Prof. Richard O'Hair of the School of Chemistry in collaboration with Melbourne graduate Prof Christine McKenzie (Denmark) has been published in Angewandte Chemie. A new high-valent and high-spin Fe(IV)=O complex is synthesized in the gas-phase, and fundamental insights into the oxidative chemistry of high-valent Fe(IV)=O complexes are obtained.

PHD WORK ON COVER OF CHEMISTRY — A EUROPEAN JOURNAL

Congratulations to PhD student Laura McCormick whose work was recently featured on the cover of Chemistry — A European Journal. Laura's paper describes a pair of unusual nano-sized complexes each containing 21 Cu(II) atoms.

NEWS



WILLIAMS GROUP WORK PUBLISHED IN NATURE IMMUNOLOGY

The work, recently published in the prestigious journal *Nature Immunology*, reports the use of a synthetic mycobacterial glycolipid in defining a new population of cells involved in innate immunity, and involves collaborators from the University of Melbourne, Monash University, Albert Einstein College of Medicine, the Peter MacCallum Cancer Centre, and the University of Birmingham.

ORGANIC LETTERS PAPER FOR RIZZACASA GROUP

The Rizzacasa group recently published in *Organic Letters* (Total Synthesis of 8-Deshydroxyjudazol B). This paper made the top 20 downloaded articles for March 2011.

MENDING BROKEN HEARTS — WITH WATER SOLUBLE FLAVONOLS

A paper from the Williams Group "Water soluble flavonol prodrugs that protect against ischaemia-reperfusion injury in rat hindlimb and sheep heart" has been selected as a "Hot article" in the RSC journal *MedChemComm*. The paper reports the work of a multidisciplinary medicinal chemistry study with colleagues at the Howard Florey Institute and RMIT University.

TW HEALY AWARDS 2011

The School of Chemistry congratulates Kwun Lun Cho and Hannah Lockie who were selected as 2011 recipients. The Award will support their travel to an international conference this year.

FRANCESCA CAVALEIRI AWARDED VICTORIAN SCHOLARSHIP

Ms Cavalieri was one of three recipients of the first Victorian International Research Scholarships awarded earlier this year. The scholarships provide three years' worth of funding to international students conducting specialised doctorate-level research in Victorian universities.

ALEX DONALD AWARDED IUPAC PRIZE FOR PHD THESIS

Congratulations to William 'Alex' Donald from the School of Chemistry who was awarded one of six 2011 IUPAC Prizes awarded to Young Chemists for the best PhD theses in chemical sciences as described in an 1000 word essay. Alex completed his PhD at the University of California in Berkeley CA, USA and joined Chemistry in 2010 as a postdoc with Richard O'Hair's group.

DUPONT AWARD TO BRANDON MACDONALD

Two PhD students in Chemistry were finalists in the "CSIRO Young Innovator" prize at the DuPont awards on 13 May, awarded to Brandon MacDonald, PhD Student in the Nanoscience Laboratory, for "Fabrication of low cost solar cells using nanocrystal inks".

CHEMISTRY AND ART CONSERVATION

Caroline Kyi, a PhD student, and her research into protecting art work from damage by biofilms in the Free Radical Chemistry Centre at Bio21, was featured in *The Age* on February 22. Read more at: <http://www.theage.com.au/national/education/sparing-our-treasures-an-art-attack-20110221-1b2e6.html>

NEWS



2011 DEAN'S AWARDS

Congratulations to the following members of the School who received the following prizes at the Faculty of Science 2011 Dean's Awards:

- Grimwade Prize in Industrial Chemistry: Dr Spencer J Williams
- Dean's Honour List — Honours (Chemistry): Joey Yeo
- Dean's Honour List — Graduate (Chemistry): Zalihe Hakki
- Dulux Australia Prize: Timothy Urquhart Connell
- Huntsman Australia Prize: Merinda Healey
- Huntsman Australia Award for Research Excellence: Zalihe Hakki
- JS Anderson Prize: Thomas Charles Whitwell
- Muriel Ramm Science Bursary: Peter Stuart Dan Robinson
- Prof Kernot Research Scholarship in Chemistry & the Stanley Harvey Prize: Timothy Urquhart Connell
- Wyselaskie Scholarship in Natural Science: Michael Gerard Leeming

RACHEL CARUSO IN TOP 100 MATERIALS SCIENTISTS

Thomson Reuter's top 100 Materials Scientists list came out earlier this year. Three on the list are associated with Australia: two from University of Melbourne, with Associate Professor Rachel Caruso from the School of Chemistry coming in at 21.

WOMEN IN CHEMISTRY — INTERVIEW WITH UTA WILLE

See interview in ChemViews magazine with Assoc. Prof. Uta Wille at: http://www.chemistryviews.org/details/ezone/1022587/Women_in_Chemistry__Interview_with_Uta_Wille.html

UNIVERSITY JOINS WORLD LEADERS IN CHEMISTRY

The University has ranked 23rd for Chemistry in QS latest World University Rankings by Subject.

PROFILING AUSTRALIAN HIGHER EDUCATION POLICY DEVELOPMENTS

Emeritus Professor Frank Larkins's book, "Australian Higher Education Research Policies and Performance 1987 – 2010" was launched by Vice-Chancellor Professor Glyn Davis at International House on 17 February.

PAUL MULVANEY'S WORK HIGHLY READ

Congratulations to Professor Paul Mulvaney, who is an author on three of the top five most-read articles in the ACS journal, Langmuir, from 2010.

SOLAR POWER ON A HOT TIN ROOF

VICOSC's solar cell work continues to be profiled in the media. See the interview with David Jones in the January 2011 issue of COSMOS Online

EZIO RIZZARDO NAMED AMONGST TOP 100 CHEMISTS, 2000-2010 BY THOMSON REUTERS

A special report on ScienceWatch.com about the top 100 chemists 2000-2010 as ranked by the impact of their published research has ranked Professor Ezio Rizzardo, CSIRO, as #18 in terms of citation impact and is the only Australian on the list. Ezio is an Honorary Professor in the School of Chemistry.

SOCIETIES



CHEMISTRY POSTGRADUATE SOCIETY

President: Julia Baldauf

Vice President: Steve Barrow

Secretary: Anneke Ryan

Treasurer: Brian Adams

General Committee members: Sean Collins, Tim Connell, Brendan Dyett, Melina Glasson, Matt Greer, Jessica Holmes, Sarah Jaber, Nick Kirkwood

Presidents report

Previously the main focus of the CPS has been to provide a basis for mingling of chemistry students, academics and staff from both campus and Bio21 precincts. This year the CPS also offered an informative event for postgraduate students.

The year started with one of the most successful Trivia nights in CPS history. Over 100 students, academics and staff attended. The second event was the CPS dinner with over 40 students and academics who dressed in suits and evening dresses, which made for a very enjoyable night.

This year the CPS introduced a "Career Panel Discussion" to provide postgraduate students with an insight into jobs and career paths of former science students in high profile jobs. However, the event was not well attended and CPS will focus mainly on social events next year.

Throughout the year, the CPS organized monthly social drinks in the Masson building. The first few were very well attended by students, academics and staff but attendance faded throughout the year. In future these events will take place less often in order to improve attendance.

Three barbeques also took place during the year. Thanks to funding by the GSA, all of the barbeques were free events which led to a high attendance of students, academics and staff. In summary, the CPS has had a successful year and is planning a novelty event in 2012, the "CPS Frisbee Challenge". We look forward to your participation.

SOCIETIES



MELBOURNE UNIVERSITY CHEMICAL SOCIETY (MUCS) PROGRAM OF EVENTS FOR 2011

President: Assoc. Prof. Spas D. Kolev

Secretary: Dr Paul Donnelly

Treasurer: Dr Elizabeth Krenske

General Committee members: Ya Ya Nutchapurida Bonggotgetsakul, Youngsoo Cho, Badra Jayawardane Kaththotarlalge, Apple Koh, David Hayne, Gary Beane

February 10th

(Lecture 993) 5:00 pm; Masson Theatre, Chemistry **Professor Carol V. Robinson**, University of Oxford, UK

Finding the right balance — from rare gases to ribosomes

February 25th

(Lecture 994) 12:00 pm; Bio21 Lecture Theatre, Bio21 Institute **Professor Amos B. Smith**, University of Pennsylvania, USA

Nondulisporic acid a synthetic studies: application of a novel Buchwald-Hartwig/Heck cascade to unite the eastern and western hemispheres

March 30th

(Lecture 995) 4:15 pm; Cuming Theatre, Chemistry Building **Professor Philippe Renaud**, University of Bern, Switzerland

Boron, a key element in radical reactions

April 6th

(Lecture 996) 4:15 pm; Cuming Theatre, Chemistry **Dr Graeme Allinson**, Department of Primary Industries, VIC

Combining passive sampling with GC-MS-database screening to assess trace organic contamination of rivers in Australia

May 18th

(Lecture 997) 4:15 pm; Cuming Theatre, Chemistry **Professor Lisa McElwee-White**, University of Florida, USA

Adventures in metal-nitrogen bonding: from inorganic materials to organic methodology

June 15th

(Lecture 998) 4:15 pm; Cuming Theatre, Chemistry **Dr Cathy Foley**, CSIRO, Australia

100 years later: has anything changed for women in science?

July 20th

(Lecture 999, Sponsored by F. B. Rice & Co. Patent & Trade Mark Attorneys) 4:15 pm; Cuming Theatre, Chemistry

Professor Richard Hsung, University of Wisconsin, USA
Ynamides: a modern functional group in the new millennium

August 17th

(Lecture 1000 & Marie Curie Lecture) 5:00 pm; Masson Theatre, Chemistry

Professor Lynn Francesconi, City University of New York, USA

Radiochemistry: benefits to society and challenges to be overcome

August 24th

(Lecture 1001) 4:15 pm; Cuming Theatre, Chemistry **Associate Professor Manuel Miro**, University of the Balearic Islands, Spain

Automation of sample processing exploiting flow analysis

September 14th

(Lecture 1002 & Feutrill Lecture) 4:15 pm; Cuming Theatre, Chemistry **Dr John Lambert**, Biota Holdings Ltd, Australia

The science and business of antiviral drug development

September 21st

(Lecture 1003 & D.R. Stranks Memorial Lecture) 4:15 pm; Cuming Theatre, Chemistry **Professor Anthony Wedd**, The University of Melbourne, VIC

How does biology cope with copper? It is toxic but essential

October 19th

(Lecture 1004) 4:15 pm; Cuming Theatre, Chemistry **Professor John Webb**, The University of Melbourne, VIC

Building bridges: from iron(III) dimers to international diplomacy

November 9th

(Lecture 1005 & Selby Lecture) 5.30 pm; Elizabeth Murdoch Theatre, University of Melbourne **Professor Dame Julia Higgins**, Imperial College, UK

Polymers and neutron scattering - a life in polymer science: new techniques and opportunities for understanding polymer behaviour, international collaborations and a global network of colleagues

November 23rd

(Lecture 1006) 4:15 pm; Cuming Theatre, Chemistry **Professor Kim Dunbar**, Texas A&M University, USA

Wernerian and non-Wernerian coordination chemistry: from magnets and conductors to drugs

December 21st

AGM and President's Address 4:15 pm; Senior Theatre, Chemistry Associate **Professor Spas Kolev**, The University of Melbourne, VIC

Application of polymer inclusion membranes for the on-line extractive separation of metal ions in flow injection analysis

CHEMISTRY BUILDING REDEVELOPMENT



CHEMISTRY BUILDING REDEVELOPMENT

During 2011 further progress was made on the Chemistry building refurbishments as part of the ongoing redevelopment plan. All teaching laboratories in the Chemistry West building have now been fully refurbished with the completed Level 2 and 3 teaching laboratories formally opened by 2008 Chemistry Nobel Laureate Professor Martin Chalfie on the 30 November. The building activity is now concentrated on refurbishing the research laboratories located on each level of the East Wing of Chemistry.

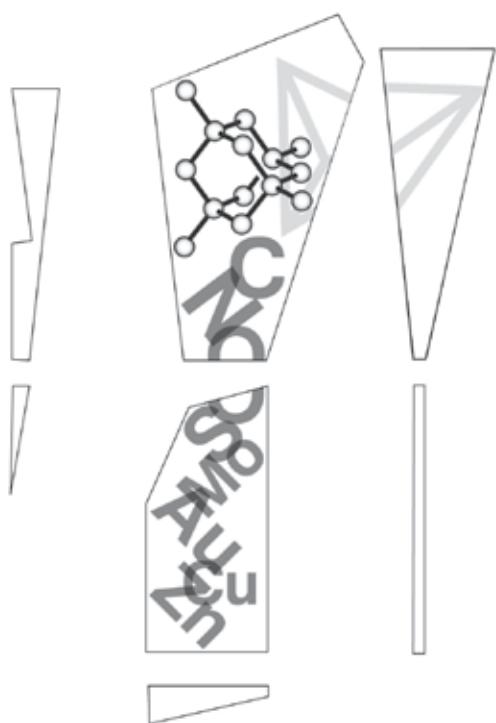
Practical completion of the East Wing Level 3 synthetic research laboratories for the Abrahams, Best and Boskovic groups was achieved in June. Funding was also approved for the East Wing Level 1 research laboratories for the Ashokkumar, Caruso and Grieser groups and the construction of these laboratories was well underway by the end of the year. Major plant infrastructure to service all areas of the School was also completed. This will leave the Level 2 research laboratories and office areas as the final stage of the refurbishment for the School. Of special note has been the appearance of the external screens that cover the new fume-hood flues between Chemistry West and East. These screens, bearing images designed by staff in the School, provide a striking landmark for Chemistry in the University. They depict, on the north screen, symbols for the elements and the diamond tetrahedral structure, while on the south screen the chemical basis of life is stylistically represented with a cascading series of images of the elements and molecules that finally form more complex molecular assemblies and cells.

Ken Giggino

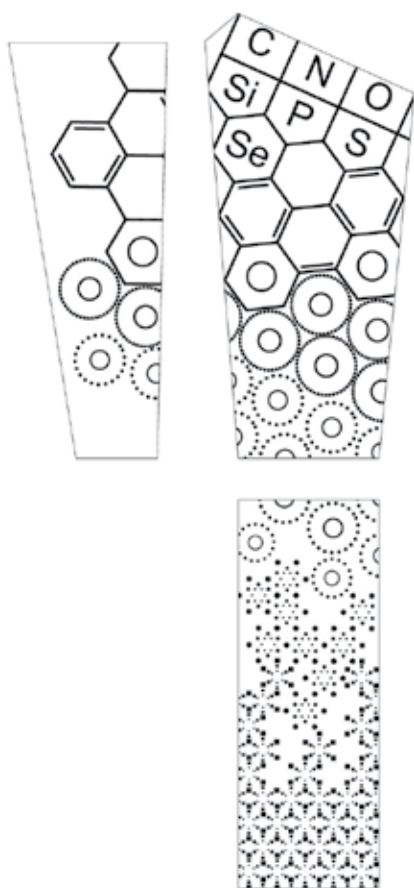
Chair, Chemistry
Building Working Group



CHEMISTRY BUILDING REDEVELOPMENT



North Screen



South Screen



Photo's courtesy of S2F Pty Ltd

2011 PRIZES

AWARD DETAILS	RECIPIENT
1ST YEAR PRIZES	
DWIGHT PRIZE IN 1ST YEAR CHEMISTRY Awarded to an outstanding student in 1st Year Chemistry going on to major in chemistry.	Yi Kang
EXHIBITION PRIZE IN 1ST YEAR CHEMISTRY Awarded to the student achieving the highest results in first year Chemistry. Does not have to be majoring in chemistry.	Raman Lokon
2ND YEAR PRIZES	
C.A. TAYLOR SCHOLARSHIP — CHEMISTRY Conditions: Awarded to an outstanding second year student who intends to major in chemistry.	Stephanie Kusumo
THE HUNTSMAN AUSTRALIA PRIZE Awarded to a second year student proceeding to a major in chemistry in 3rd year.	Samuel Tucker
3RD YEAR PRIZES	
J.S. ANDERSON PRIZE Conditions: Awarded to the student enrolled in the Honours Year of a Science degree who is majoring in Chemistry and who displays the greatest potential for research.	Kenichi Nakanshi
DULUX AUSTRALIA PRIZE IN CHEMISTRY Conditions: The prize is awarded annually to a Chemistry student who has completed a 3rd year of the B.Sc. course and who is enrolled in the B.Sc. (Honours) course in the sections of Organic or Physical Chemistry.	Edward Nagul
FRED WALKER SCHOLARSHIP Conditions: Awarded to a 3rd year student for a 4th year of study in Chemistry in preparation for a Master of Science.	Kenichi Nakanshi
JAMES CUMING MEMORIAL SCHOLARSHIP (Major & Minor) 2 scholarships (Major & Minor) were established for the study of Chemistry in its higher branches and to enable students to continue their studies after completion of the degree of Bachelor of Science Awarded to the top and second top Faculty Honours Score of those students going into straight Chemistry Honours	Major: Merinda Healey
	Minor: Matthew Lovell

AWARD DETAILS	RECIPIENT
4TH YEAR PRIZES	
KERNOT RESEARCH SCHOLARSHIP Open to candidates who have completed the BSc Honours course.	Jessica Holmes
THE STANLEY HARVEY PRIZE John Henry Harvey made a bequest to award the Stanley Harvey Prize each year This Prize is awarded to the winner of the Professor Kernot Scholarship	Jessica Holmes
DIXON RESEARCH SCHOLARSHIP Awarded on the basis of fourth year honours results to a student continuing on to a higher degree.	Matthew Burton
RONALD RISEBOROUGH PRIZE A donation was made in 1959 by students and staff of Chemistry and from Mrs F. Riseborough to perpetuate the memory of Ronald Riseborough. Conditions: The Prize is awarded for the best fourth year research report in Applied Chemistry.	Sarah Jaber
POSTGRADUATE PRIZE	
THE MONICA ELIZABETH REUM MEMORIAL PRIZE A donation was made in 1998 by family, friends and colleagues in memory of Dr Monica Elizabeth Reum. Conditions: Awarded to a person who submits for assessment an outstanding PhD thesis in an area of Organic Chemistry. The prize consists of a substantial monograph on some aspect of Organic Chemistry, with an inscribed book-plate and the remainder of the available income in cash.	Phillip van der Peet
THOMAS HEALY AWARD A travel scholarship awarded to RHD students.	Kwun Lun Cho Hannah Lockie Leena Chandhi Dharmarathne

CHEMISTRY OUTREACH PROGRAM



Dr Wothers exploding an hydrogen balloon in the Masson Theatre.

The International Year of Chemistry was particularly busy for the Outreach Program. In 2011 we took real-life chemistry activities to the schools of more than 20,000 Prep – Year 12 students, engaging these students in chemistry and supporting their teachers with interesting, curriculum relevant activities and professional development sessions.

We were particularly pleased to obtain substantial funding to develop A Scientific Entrée, which will form a new set of classroom activities on dairy science & technology for Years 5-8 & 12. A partnership was formed with Cohuna Secondary College to work on this project; Cohuna is a small school located very close to the Murray River and is underrepresented in the University's undergraduate intake, with an historically low level of engagement with the University. We look forward to developing this partnership and particularly to further develop the science in agriculture program pioneered by Cohuna Secondary College, which draws on the dairy industry and educational expertise of their staff and local primary producers.

A highlight of the year was the lecture series delivered by Dr Peter Wothers from Cambridge University to celebrate the International Year of Chemistry. In his "Just Add Water" lectures, Dr Wothers presented a thought-provoking, energetic and action-packed show on water and its properties. It was particularly thrilling to see him explode a hydrogen balloon that was almost a cubic meter in volume and to feel the benches of the Masson Theatre shudder in response.

The School of Chemistry also hosted Prof Lynn Francesconi from Hunter College New York who gave the Marie Curie Lecture, speaking on Radiochemistry: its benefits to society and challenges to be overcome to a packed audience in the Masson Theatre. As part of this event, many students and teachers from Melbourne Girls College toured the School of Chemistry and attended the Lecture, which gave them valuable exposure to modern scientific research, strong scientific role models, and extended a three-year partnership that has developed with the College.



Daniel from Grade Prep at St Kevin's Primary School drawing effervescent tablets in cold and hot water.



ALUMNI FUNCTION 2011

Alumni Function 13th July 2011

Queens College was the venue for the 1970s Chemistry honours, master and postgraduate Reunion held on Wednesday 13th July. It was a wonderful occasion and a delight to have so many graduates together with past and present staff. We were particularly grateful to those who entertained us with their memories of the 70s.

Dr David Jones delivered an interesting address on his group's research into the development of printable photovoltaic panels. The technology they are working on has the potential to revolutionise the energy industry and bring Australia one step closer to achieving a sustainable future.

MUCS 1000th Lecture, 17th August 2011

The 1000th Lecture of the Melbourne University Chemical Society (MUCS) was held on 17th Aug in the Masson Theatre. Professor Lynn Francesconi, City University of New York, delivered the lecture, entitled 'Radiochemistry: benefits to society and challenges to be overcome', which also celebrated the 100th anniversary of Marie Curie's award of the Nobel prize in Chemistry. MUCS started in 1903 and it is fitting that the 1000th MUCS Lecture was delivered in the International Year of Chemistry. After the lecture, a celebratory dinner was held in University House.



<http://www.chemistry.unimelb.edu.au/community/AlumniFunction2011.html>

<http://www.chemistry.unimelb.edu.au/community/MUCS-1000th.html>

<http://www.science.unimelb.edu.au/alumni>



SUBJECTS

FIRST YEAR

Director: Muthupandian Ashokkumar

- CHEM10003 Chemistry 1
Muthupandian Ashokkumar
- CHEM10004 Chemistry 2
Muthupandian Ashokkumar
- CHEM10006 Chemistry for Biomedicine
Muthupandian Ashokkumar
- CHEM10007 Fundamentals of Chemistry
Muthupandian Ashokkumar

SECOND YEAR

Director: Stephen Best

- CHEM20011 Environmental Chemistry
Spas Kolev
- CHEM20018 Reactions and Synthesis
Stephen Best
- CHEM20019 Practical Chemistry
Colette Boskovic
- CHEM20020 Structure and Properties
Stephen Best

THIRD YEAR

Director: Uta Wille

- CHEM30012 Analytical and Environmental Chemistry
Spas Kolev
- CHEM30013 Chemical Research Project
Ken Ghiggino
- CHEM30014 Specialised Topics in Chemistry B
Uta Wille
- CHEM30015 Advanced Practical Chemistry
Trevor Smith
- CHEM30016 Reactivity and Mechanism
Uta Wille
- CHEM30017 Specialised Topics in Chemistry A
Uta Wille

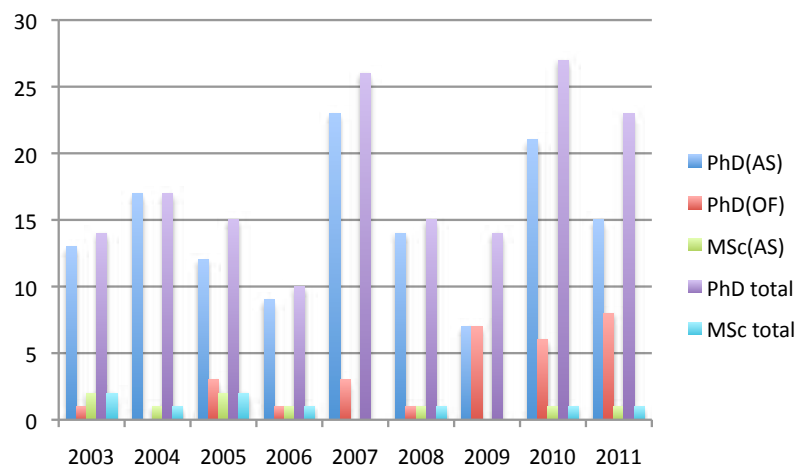
HIGHER YEARS

Honours, PG Diploma in Chemistry, MSc
Craig Hutton



KEY TEACHING AND LEARNING STATISTICS

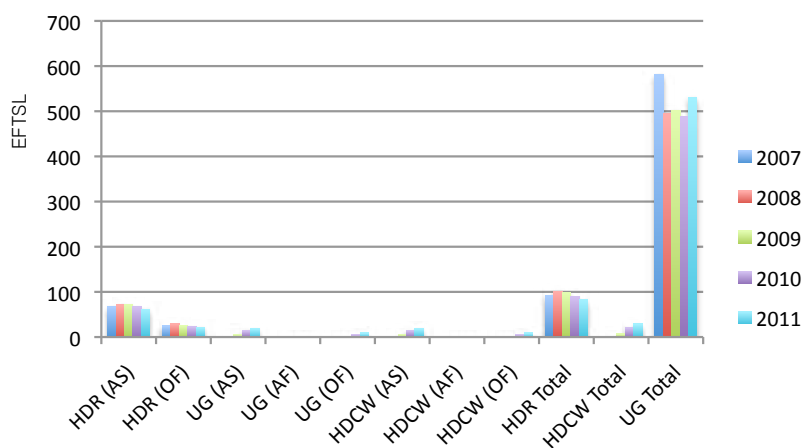
Research completions by year



AS: Australian Subsidised Students

OS: Overseas Full-Fee Students

Teaching Load



HDR (AS): Higher Degree Research/Australian Subsidised students

HDR (OF): Higher Degree Research/Overseas Full-Fee students

UG (AF): Undergraduate/Australian Full-Fee students

UG (OF): Undergraduate/Overseas Full-Fee students

UG (AS): Undergraduate/Australian Subsidised students

*EFTSL refers to Effective Full-Time Student loan

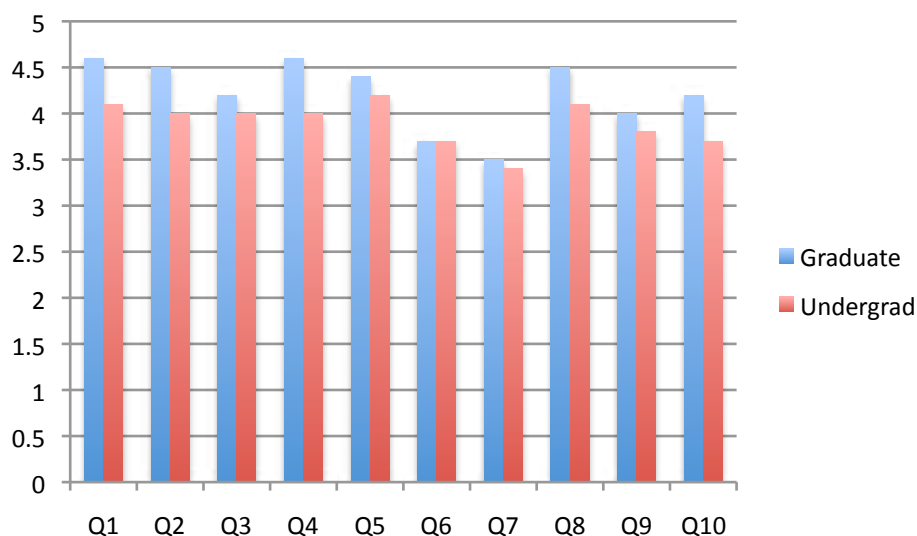
KEY TEACHING AND LEARNING STATISTICS

SES

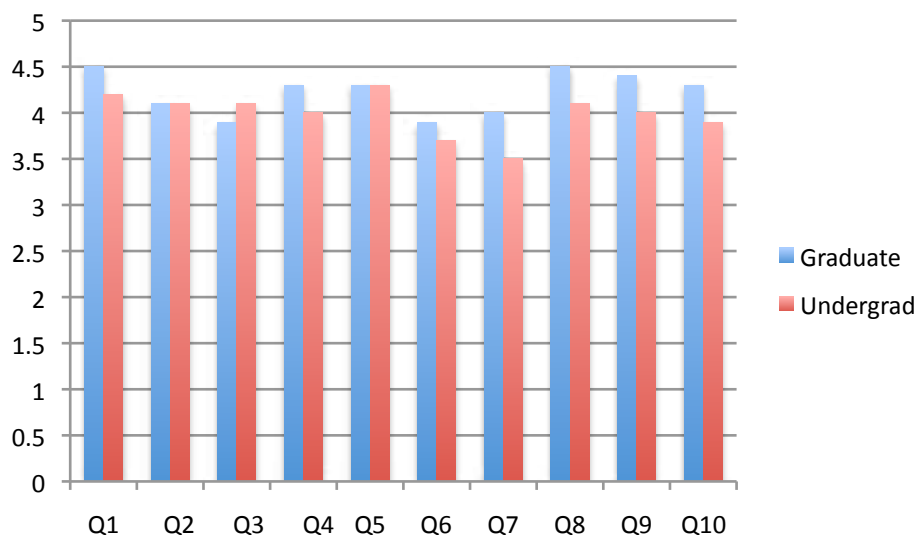
The SES survey provides feedback from undergraduate and postgraduate coursework students on their perceptions of the quality of teaching and learning experience for each subject in which they are enrolled.

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.

Semester 1



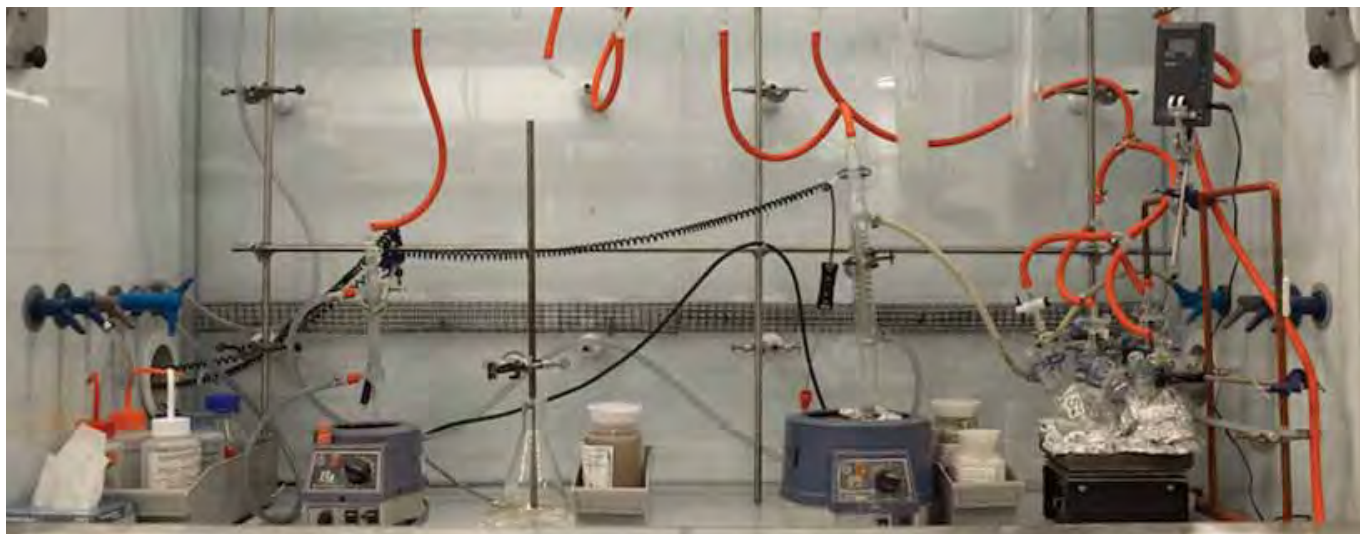
Semester 2



CQ1 (Intellectually stimulating)
CQ2 (well-coordinated)
CQ3 (Learning resources)
CQ4 (well taught)
CQ5 (High standard)

CQ6 (useful assessment)
CQ7 (Valuable feedback)
CQ8 (new ideas)
CQ9 (apply to practice)
CQ10 (Learning community)

RESEARCH HIGHER DEGREE STUDENT COMPLETIONS



Robert John Borthwick

Stable, high-energy light-emitting phosphorescent polymers

Geoffrey Lewis Burrell

Preparation and characterization of protic ionic liquids for industrial use in Australia

Benjamin Cao

Synthesis of immunogenic mycobacterial cell wall glycolipids

Emma Louise Denehy

Computational and experimental investigations of sulfonyl (-SO₂R-) group transfer

Xiaofei Duan

Low temperature fabrication of aluminium oxide thin films

Scott James Fraser

Cubic phase lipids as novel biosensing surfaces

Christian Gunawan

Studies towards the synthesis of mulberry Diels-Alder adducts

Simon Alexander James

Influence of perturbed copper homeostasis in protein aggregation and neurodegenerative disease

Brian Arthur Johnson

Synthesis of histrionicotoxin analogues using conventional and continuous flow approaches

Mui Ling Khoo

Total synthesis of (-)-silvestrol, (-)-episilvestrol and analogues

Adrian Ka Yin Lam

Gas-phase properties and fragmentation of 'unusual' amino acids

Shea Fern Lim

The nature of neighbouring group participation by chalcogen substituents

John Edward Lynch

Stereoselective total synthesis of (-)-spirofungin A

Benjamin Scott Mashford

Nanocrystalline semiconductors for solution-processable optoelectronics

Laura Jayne McCormick

Synthetic and structural investigations of coordination polymers and oligomers

Brett Michael Paterson

Transition metal complexes of bis(thiosemicarbazones): applications for imaging and therapy

Christian Potzner

Band structure engineering in II-VI semiconductor core/shell nanocrystals

Inam Ul Haq Raja

Synthesis and study of organic light emitting materials

Lisa Nicole Smith

Fundamental studies toward the production of high quality doped semiconductor nanocrystals

Corin Michael Storkey

The synthesis and biological evaluation of selenium containing carbohydrates

Phillip Leigh van der Peet

Chemical tools for an improved understanding of Leishmania β -1,2-mannosyltransferases

Philip Jerome Wearne

On the optical properties of nanoparticles stored in a quadrupole ion trap

Samantha Anne Su Ying Wimala

Studies towards the synthesis of the spirangiens

Mengxin Yin

Synthesis and biological applications of phospholipid-based chemical probes

RESEARCH FUNDING FOR 2011



The School performed strongly in ARC grants with 7 new successful Discovery Project, 3 Linkage and 2 LIEF equipment infrastructure grants and 1 NHMRC Project as lead CI. \$3.5M was awarded to Organic Solar Cells Project from the Victorian Government Department of Primary Industries (DPI) and the Australian Solar Institute (ASI). Total HERDC income exceeded \$7.3M in 2011.

The School hosts the ARC Centre of Excellence for 'Free Radical Chemistry and Biotechnology' directed by Carl Schiesser and participates in 2 other ARC Centres. Spas Kolev is a CI in the Victorian Centre for Aquatic Pollution Identification and Management. We also have ARC Fellows: 1 Laureate, 2 Professorial, 2 Future, 1 Research and 2 Post-doctoral. Two SRE initiatives were funded in 2011: 'University Analytical Services Unit – SCAN'; and 'Bioconjugations for Chemical Biology'. SCAN funding will be addressed in 2012 and workshop on Chemical Biology is planned for Jun 2012.

The quality of our researchers is recognized by awards for research excellence including: Morrison Medal to Evan Bieske; Selby Research Award to Alessandro Soncini; JAFIA Award to Spas Kolev; Fellow of Biophysical Society (USA) and ANZMAG Medal to Frances Separovic; RACI Biota Award for Medicinal Chemistry to Paul Donnelly; "Prime Minister's Prize for Science" to Ezio Rizzardo and David Solomon; and Victoria Fellowship to Brett Paterson. Brandon Macdonald won a DuPont Innovation award; Alex Donald was awarded a Centenary Research Fellowship; Ezio Rizzardo was named amongst Top 100 Chemists 2000-2010 by Thomson Reuters; Rachel Caruso in Top 100 Materials Scientists; Paul Mulvaney, author on three of the top five most-read articles in 2010 of the ACS journal, *Langmuir*; Williams Group work was published in *Nature Immunology*; Jonathan White awarded Erskine Fellowship, NZ; and Andrew Holmes awarded Newton Abraham Visiting Professorship, University of Oxford. The School of Chemistry was 23rd in latest QS World University rankings by subject.

2011 International Year of Chemistry was celebrated by Public Lectures: Prof Carol Robinson FRS; Joint Melbourne-Vanderbilt Chemistry Symposium, Nashville; 'Marie Curie' and MUCS 1000th Lecture presented by Prof Lynn Francesconi; the School hosted British chemist, Dr Peter Wothers, with his 'Just add water' chemistry show; Selby Lecture given by Prof Dame Julia Higgins FRS and conferring of the Degree of Doctor of Science (*honoris causa*); and Prof Martin Chalfie from Columbia University (Nobel Prize in Chemistry 2008) officially opened the new Level 2 & 3 teaching laboratories and presented a public lecture in the Masson Theatre. The School moved into newly renovated teaching (Level 3 Teaching Lab) and research (Level 3 East) labs with modern design and enhanced safety, including EHS compliant fume cupboards.

New ARC projects commencing in 2011 include:

Dr Stephen P Best

Synchrotron X-ray absorption fine structure and fundamental X-ray interactions for nano-physics, chemistry and mineralogy

Assoc. Prof. Evan J Bieske

Getting the drift - new frontiers in ion spectroscopy

Dr Colette Boskovic

Switchable molecules for molecular nanoscience

Dr Paul Donnelly

Validating a potential therapeutic for amyotrophic lateral sclerosis

Assoc. Prof. Rachel A Caruso

High efficiency dye-sensitised solar cells containing multiple sensitisers

Assoc. Prof. Michelle L Gee

Imaging the action of antimicrobial peptides in living cells

Prof Franz Grieser, Prof Muthupandian Ashokkumar

Free radical generation and reactions in ultrasound assisted processes

Prof Paul Mulvaney

The Victorian integrated plasmonics facility

Molecular plasmonics - from single electrons to quantum catalysis and optical logic gates

Prof Richard A O'Hair, Dr George N Khairallah

Decarboxylation to unmask organometallics: scope and utility in bond formation

Prof Mark A Rizzacasa, Assoc. Prof. Craig A Hutton

Biogenesis inspired total synthesis of natural products

Prof Frances Separovic

The mechanism of membrane disruption by antimicrobial peptides

Advanced characterisation of materials by nuclear magnetic resonance

Assoc. Prof. Jonathan White

PET imaging agents for the differential diagnosis of hypoxic tumors

ARC CENTRE OF EXCELLENCE FOR FREE RADICAL CHEMISTRY AND BIOTECHNOLOGY

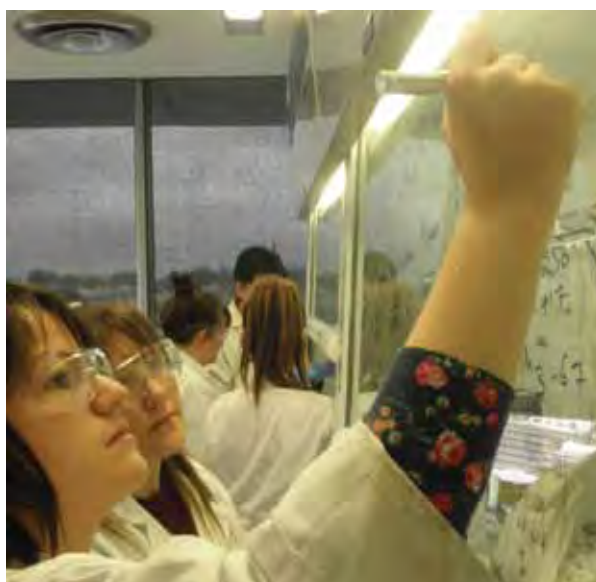


2011 was an outstanding year for the ARC Centre of Excellence for Free Radical Chemistry and Biotechnology, highlighted by numerous research achievements, outcomes and events. The Centre contributed to 2011 “International Year of Chemistry” festivities in numerous ways, most notably through the commissioning of Centre wine and through the involvement of the public in a successful art competition.

The international scientific community continued to witness the impact of our research through multiple publications in the top peer reviewed journals in the field, while our researchers have shared their research successes through conference presentations on multiple occasions. Centre research is having significant impact in the wider community through better understanding of the ageing process, improved production of anti-addiction drugs, contributions to lung cancer treatment, as well as new drugs for hypertension and heart disease.

The Centre saw a significant increase in Centre outputs which is a reflection of our increasing research strength and international standing. An impressive 99 peer reviewed journal articles is a 50% increase over 2010 outputs, while 227 conference presentations represents a 27% increase over the previous year's efforts. In addition to these important outputs, Centre members also contributed to a book, a book chapter, four patent applications, and were featured on 542 occasions in the popular media, including 20 radio or television interviews.

It is pleasing to note that after almost seven years the ARC Centre of Excellence for Free Radical Chemistry and Biotechnology continues to make important contributions to free radical science, while continuing to exceed its Key Performance Indicators and is well positioned for the future.



CONFERENCES

Professor Muthupandian Ashokkumar	May	2011 International symposium on Molecular systems (Global COE Symposium for Young Researchers)	Fukuoka, Japan
		161st Meeting of the Acoustical Society of America	Seattle, USA
	November	International workshop on advanced sonochemistry	Nagoya, Japan
Dr Stephen Best	November	ANZMAG	Torquay, VIC
	December	ASUM (Australian Synchrotron User Meeting)	Melbourne, VIC
Dr Colette Boskovic	December	IC11, Conference of the Inorganic Division of the Royal Australian Chemical Institute	Perth, WA
Assoc Prof Rachel Caruso	July	PacRim9	Cairns, QLD
	September	Euromat 2011	Montpellier, France
	October	2011 Shanghai International Nanotechnology Cooperation Symposium	Shanghai, China
	November	3rd Australia-China Symposium for Materials Science (ACMS2011)	Goldcoast, Australia
		CSIRO OCE Science Leaders Symposium	Canberra, ACT
Dr Dehong Chen	July	9th International Meeting of Pacific Rim Ceramic Societies	Cairns, QLD
	September	16th International Sol-Gel Conference	Hangzhou, China
Mrs Penny Commons	February	STAV Chemistry Teacher's Conference	Melbourne, VIC
	November	CEA November Lectures	Melbourne, VIC
Dr Alex Donald	January	23rd Australian and New Zealand Society for Mass Spectrometry Conference	Freemantle, WA
	June	59th American Society for Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Allied Topics	Denver, USA
	July	43rd IUPAC Congress	San Juan, Puerto Rico
Dr Paul Donnelly	December	IC11, Conference of the Inorganic Division of the Royal Australian Chemical Institute	Perth, WA
Dr Chris Donner	October	Free Radical Spring Carnival	Sydney, NSW
Dr Linda Feketeova	January	23rd Australian and New Zealand Society for Mass Spectrometry Conference	Freemantle, WA
	June	59th American Society for Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Allied Topics	Denver, USA
	August	2011 Annual Meeting of the Korean Society for Mass Spectrometry and 2nd Asian & Oceanic Mass Spectrometry Conference (AOMSC), BEXCO	Busan, South Korea
	October	1st Nano-IBCT Conference 2011, Radiation damage of biomolecular systems: Nano-scale insights into Ion Beam Cancer Therapy	Caen, France
	December	BioPhysChem 2011	Wollongong, NSW
Assoc Prof Michelle Gee	October	Australian Academy of Science Boden Research Conference on Bacterial Cell Biology: New Insights on Host-Pathogen Interactions	Canberra, ACT
	December	BioPhysChem	Wollongong, NSW
	December	International Conference on Industrial Engineering	Bangkok, Thailand

CONFERENCES

Dr John Gehman	March	55th Biophysical Society Meeting	Baltimore, USA
	April	Joint Chemistry Symposium Vanderbilt University	Nashville, USA
	October	17th International Biophysics Congress	Beijing, China
	December	BioPhysChem 2011	Wollongong, NSW
Professor Ken Ghiggino	August	XXVth International Conference on Photochemistry	Beijing, China
	September	Faraday Discussion 155: Artificial Photosynthesis	Edinburgh, UK
	September	12th Conference on Methods and Applications of Fluorescence	Strasbourg, France
Professor Franz Grieser	January	Australian Colloid and Interface Symposium 2011	Hobart, TAS
	December	6th International Chemical Congress of Pacific Basin Societies (Pacifichem) 2010	Honolulu, USA
Dr Sonia Horvat	September	5th Pacific Symposium on Radical Chemistry (PSRC5)	Shirahama, Japan
Professor Andrew Holmes	March	ACS 241st National Meeting, Anaheim, Division of Fuel Chemistry	Anaheim, USA
	April	MRS Fall Meeting, San Francisco, Symposium OO 9.2	San Francisco, USA
	July	ICMAT 2011, Singapore, Flexible and Printed Electronics	Singapore, Singapore
	August	ACS 242nd National Meeting, Denver, Metal-Cont. Polymers and Materials	Denver, USA
	November	Australia- India Joint symposium on Smart Nanomaterials in Victoria	Melbourne, VIC
Assoc Prof Craig Hutton	August	QMB Biointeractions Symposium	Queenstown, New Zealand
	July	Gordon Research Conference on Organic Reactions & Processes	Rhode Island, USA
	April	SynthCon1	Yarra Glen, VIC
Dr Yvonne Kavanagh	September	5th Pacific Symposium on Radical Chemistry (PSRC5)	Shirahama, Japan
	December	Royal Australian Chemical Institute (RACI) 36th Annual Synthesis Symposium; Melbourne	Melbourne, VIC
Dr George Khairallah	January	23rd Australian and New Zealand Society for Mass Spectrometry Conference	Freemantle, WA
	June	59th American Society for Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Allied Topics	Denver, USA
	August	2nd Asia and Oceania Mass Spectrometry Conference (AOMSC)	Busan, South Korea
Assoc Prof Spas Kolev	February	International Conference on Basic Science	Malang, Indonesia
	May	International Conference on Green Technologies and Environmental Protection & 7th National Chemistry Conference	Sofia, Bulgaria
	July	17th International Conference on Flow Injection Analysis	Krakow, Poland
Professor Robert Lamb	Oct	American Vacuum Society (AVS) annual convention	Nashville, USA
Dr Hadi Lioe	January	23rd Australian and New Zealand Society for Mass Spectrometry Conference	Freemantle, WA
	June	59th American Society for Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Allied Topics	Denver, USA
Dr Anthony Morfa	January	Fifth Biennial Australian Colloid & Interface Symposium	Hobart, TAS

CONFERENCES

Mr Mick Moylan	February	VCE Chemistry Teachers' Conference	Bundoora, VIC
	July	Gippsland Science Educators' Conference	Churchill, VIC
	November	STAVCON	Bundoora, VIC
Professor Paul Mulvaney	January	ACIS2011- The RACI Colloid and surface Chemistry Conference	Hobart, TAS
	March	CSIRO Biomedical Materials Workshop	Sydney, NSW
	May	SPP5-Fifth International Conference on Surface Plasmon Photonics	Busan, Korea
	May	International Workshop on Nanoplasmonics for energy and the environment	Vigo, Spain
	August	Global Artificial Photosynthesis (GAP) Conference	Lord Howe Island, NSW
	August	242nd ACS National Meeting and Exposition	Denver, USA
	November	Australia- India Joint symposium on Smart Nanomaterials in Victoria	Melbourne, VIC
	November	Zing Nanomaterials Conference 2011	Cancun, Mexico
	December	2nd Nano Today Conference	Hawaii, USA
Dr Tich-Lam Nguyen	January	Fifth Biennial Australian Colloid & Interface Symposium	Hobart, TAS
Professor Richard O'Hair	January	23rd Australian and New Zealand Society for Mass Spectrometry Conference	Freemantle, WA
	June	59th American Society for Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Allied Topics	Denver, USA
Professor Mark Rizzacasa	April	SynthCon1	Yarra Glen, VIC
	July	27th International Symposium on the Chemistry of Natural Products (ISCPN27)	Brisbane, QLD
Dr Marc-Antoine Sani	October	9th Australian Peptide Conference	Hamilton Island, QLD
	November	ANZMAG	Torquay, VIC
	December	BioPhysChem	Wollongong, NSW
Professor Carl Schiesser	July	7th International Conference on Chemical Kinetics	Cambridge, USA
	August	23rd International Congress on Heterocyclic Chemistry	Glasgow, United Kingdom
	September	5th Pacific Symposium on Radical Chemistry	Shirahama, Japan
Professor Frances Separovic	March	55th Biophysical Society Meeting	Baltimore, USA
	June	94th Canadian Chemistry Conference & Exhibition CSC2011	Montreal, Canada
	October	17th International Biophysics Congress	Beijing, China
	November	8th Australian & New Zealand Society for Magnetic Resonance Conference	Torquay, VIC
	December	BioPhysChem 2011	Wollongong, NSW



CONFERENCES

Assoc Prof Trevor Smith	June	BioPhysChem 2011	Singapore, Singapore
	August	XXV International Conference on Photochemistry (ICP2011)	Beijing, China
	September	Workshop on characterizations for OPV materials and devices" National Institute of Advanced Industrial Science and Technology (AIST)	Tsukuba, Japan
		Japan Annual Meeting on Photochemistry	Miyazaki, Japan
		12th Conference on Methods and Applications of Fluorescence (MAF12)	Strasbourg, France
		Nano Meets Spectroscopy 2011	Teddington, UK
	December	BioPhysChem2011	Wollongong, NSW
Professor Peter Taylor	February	National Launch of the International Year of Chemistry	Canberra, ACT
	September	American Chemical Society spring meeting	Anaheim, USA
	November	eResearch Australasia	Melbourne, VIC
	November	Supercomputing11	Seattle, USA
Assoc Prof Peter Tregloan	April	Educause Australasia Conference	Sydney, NSW
	December	CubeNET Symposium, "Ahead of the Game. Biomedical science education into the 21st century"	Canberra, ACT
Dr Huabin Wang	October	17th International Biophysics Congress (IUPAB)	Beijing, China
Professor Anthony Wedd	June	Symposium in Honour of Prof. Hans Freeman	Sydney, NSW
	August	Fifteenth International Conference on Biological Inorganic Chemistry	Vancouver, Canada
	October	7th International Copper Meeting	Alghero, Italy
	December	IC11, Conference of the Inorganic Division of the Royal Australian Chemical Institute	Perth, WA
Assoc Prof Jonathan White	August	19th International Symposium on Radiopharmaceutical Sciences	Amsterdam, The Netherlands
Dr Uta Wille	April	2nd Melbourne-Vanderbilt Chemistry Symposium	Nashville, USA
	June	Gordon Research Conference on Physical Organic Chemistry	New Hampshire, USA
	September	GDCh Wissenschaftsforum	Bremen, Germany
		5th Pacific Symposium on Radical Chemistry	Shirahama, Japan
Dr Spencer Williams	April	SynthCon1	Yarra Glen, VIC
	December	RACI Biomolecular Division Conference	Torquay, VIC
Dr Wallace Wong	July	14th International Conference on Novel Aromatic Compounds	Eugene, Oregon, USA
	August	International Conference on Advanced Materials and Manufacturing	Quebec, Canada
	November	International Photonics and Optoelectronics Meeting 2011	Wuhan, China
	November	Asia Communications and Photonics Conference 2011	Shanghai, China
Dr Alex Wu	August	Cellular Systems Summer School	Heidelberg, Germany
	October	American Vacuum Society (AVS) annual convention	Nashville, USA
Assoc Prof Charles Young	August	Molybdenum and Tungsten Enzyme Conference	Edmonton, Canada
	August	15th International Conference on Biological Inorganic Chemistry	Vancouver, Canada
	November	Chemistry Education Association November Lectures	Melbourne, VIC

ORGANIC CHEMISTRY SEMINAR PROGRAM 2011:

Coordinator: Dr George Khairallah
E-mail: gkhai@unimelb.edu.au

18 February 2011

Dr Scott Stewart

Univ of WA

Athel Beckwith Lecture

Lessons learnt in alkaloid chemistry

18 February 2011

Prof Amos B. Smith

Willmore Fellow, Univ Of Pennsylvania

Evolution of anion relay chemistry (ARC): construction of architecturally complex natural and unnatural products

25 February 2011

Prof Amos B. Smith

Willmore Fellow, Univ Of Pennsylvania

Nodulisporic acid a synthetic studies: application of a novel Buchwald–Hartwig/Heck. Cascade to unite the eastern and western hemispheres

1 April 2011

Prof. Philippe Renaud

Univ of Bern

Tools and strategies for the synthesis of alkaloids

8 April 2011

Ben Cao

Williams Group, PhD completion seminar

Synthesis of glycoconjugates and immunogenic natural products from mycobacteria: new insights into glycolipid specific t-cell responses

15 April 2011

Inam ul Haq Raja

Holmes Group, PhD Completion Seminar

Synthesis and study of organic light emitting materials

29 April 2011

Dr Tim Quach

Univ of Melbourne

Application of asymmetric synthesis in marine natural products chemistry

10 May 2011

Dr Matthew J. Fuchter

Imperial College London

Natural product inspiration for epigenetic inhibition

13 May 2011

Prof. Andrew Abell

Univ of Adelaide

Defining peptide structure and function in solution and on surfaces

27 May 2011

Christian Gunawan

Rizzacasa Group, PhD completion seminar

Studies toward the synthesis of mulberry Diels-Alder adducts

3 June 2011

Carl Chen

Williams group, PhD completion seminar

Development of a fixed-charge labelling mass spectrometric assay for the study of Leishmania glycosyltransferases

10 June 2011

Shan Sun

Hutton group, PhD completion seminar

Synthesis of novel amino acid-appended cavitanes

17 June 2011

Prof. P. Andrew Evans

Univ of Liverpool

New Multi-Component Transition Metal-Catalyzed Carbocyclization Reactions

22 July 2011

Brian A. Johnson

Holmes Group, PhD Completion seminar

Synthesis of histrionicotoxin analogues using conventional and continuous flow techniques

5 August 2011

Nicole Rijs

O'Hair Group, PhD Completion seminar

Gas-phase reaction mechanisms of some coinage metal organometallates

26 August 2011

Nichole Tan

Schiesser Group, PhD Completion seminar

Towards the synthesis of multipotent antihypertensive and antioxidant nitroxide containing sartans

2 September 2011

Dr Chris Donner

University of Melbourne

From pyranoquinones to prostanoids : applying radical strategies in synthesis

9 September 2011

Dr David Wilson

LaTrobe University

The big and the small: modeling organic and bio-molecules



16 September 2011

Jeremy Tan

Wille Group, PhD Completion seminar

The synthesis of bicyclic lactams using the concept of self-terminating radical cyclisations

23 September 2011

Ben Harris

White Group, PhD Completion seminar

Molecular orbital interactions in organic chemistry

03 October 2011

Evelyn Laurens

White Group, PhD Completion seminar

Synthesis & Biological Evaluation of Novel Fluoro-18 Labeled Positron Emission Tomography (PET) Imaging Agents for Hypoxic Tissues in Tumours

14 October 2011

Dr Kay Brummond

University of Pittsburgh

Exploiting Allenes in the Synthesis of Molecularly Complex and Biologically Relevant Targets

4 November 2011

Andrew Tilley

White Group, PhD Completion seminar

Photon harvesting MEH-PPV pendant polymers: RAFT synthesis, energy transfer and interesting structural properties

11 November 2011

Steve Birkett

Rizzacasa Group, PhD Completion seminar

Structural studies towards the synthesis of the ajudazols

INORGANIC AND ANALYTICAL CHEMISTRY SEMINAR PROGRAM 2011:

Coordinator: Professor Tony Wedd

Email: agw@unimelb.edu.au

12 noon Tuesdays, Cuming Theatre, School of Chemistry

March 8

Prof Ashfaq Bengali

(Texas A&M University in Qatar)

The Reactivity of Bonds in $\text{XMn}(\text{CO})\text{L}_2$ Complexes [X = Tp and DMP]: A Time-resolved IR Study

March 15

Mr Gojko Buncic

(University of Melbourne)

Molecular Probes for Bio-Metal Ions

March 22

Dr Bjorn Winther-Jensen

(Monash University)

Electro-catalytic Reactions on Conjugated Polymers: As Efficient as Platinum for Production of Dihydrogen

March 29

Dr Chris Ritchie

(University of Melbourne)

Self-assembly and Design of Novel Polyoxometalate Anions: From Ligands to Functionality

April 5

Dr Ian McKelvie

(University of Melbourne)

The Quest for the Ideal Photometric Detector in Flow-based Analytical Systems

April 12

Dr Augustine Doronila

(University of Melbourne)

Metallophytes: Plants that can Tolerate High Levels of Heavy Metals

May 3

Dr James Hickey

(University of Melbourne)

Probing Mechanisms of Neurological Degeneration with Metal Complexes

May 17

Assoc Prof Lisa Martin

(Monash University)

Looking for a New Magic Bullet Using Anti-microbial Peptides

May 24

Mr Kerwyn Alley

(University of Melbourne)

Switchable Dinuclear Metal Complexes: The Valence Tautomerism Saga

Aug 2

Dr Suzanne Neville

(Monash University)

Nano-scale Magnetic Materials

Aug 9

Dr Peter Barnard

(La Trobe University)

Synthesis, Structures and Non-Traditional Applications of N-Heterocyclic Carbene Complexes

Aug 23

Ms Sin Chun Lim

PhD completion seminar

Metal Complexes for Diagnostic Brain Imaging

Aug 30

Ms Lee Xin Chong

PhD Completion seminar

Copper Enzymes Have Evolved to Remove Excess Toxic Copper!

Sept 13

Dr Jacqui Gulbis

(WEHI)

The Potassium Transport Channels of Biology: Structure and Function

Oct 4

Mr Keith White

PhD completion seminar

New Lightweight Network Materials for Gas Sorption

Oct 11

Mr Alex St John

PhD completion seminar

Polymer Inclusion Membranes: Through the Looking Glass



PHYSICAL CHEMISTRY SEMINAR PROGRAM

Time: Thursdays at 1 pm (unless otherwise stated)

Location: Cuming Theatre, Chemistry building in 2011 (unless otherwise stated)

Contact: Robert Lamb

E: rn1amb@unimelb.edu.au



Feb. 2, 2011

Assoc Prof Tadashi Mori

Osaka University, Japan

"Effect of wavelength and confinement on the diastereoselective photoreactions of intermolecular and intramolecular donor-acceptor systems"

Feb. 14, 2011

Dr Duncan A. Wild

RACI Physical Chemistry Lectureship, University of Western Australia

"Prospecting for spectra of charged species out in the Wild West"

Feb. 18, 2011

Professor Tossy Nagamura

Kyushu University, Japan

"Supramolecular control of electron transfer dynamics with nanocavities for ultrafast molecular photonics"

Feb. 24, 2011

Scott Fraser

School of Chemistry, University of Melbourne

PhD Completion Seminar: "Self-assembling lipid systems as novel biosensing platforms"

Feb. 25, 2011

Prof Dirk M. Guldi

Friedrich-Alexander-Universitaet Erlangen-Nuernberg, Germany

"Let there be light - carbon nanostructures in solar energy conversion schemes"

Mar. 10, 2011

Prof Ron Martin

University of Western Ontario London, Canada

"Synchrotron radiation analysis and metals in human bones and teeth: unlocking the mysteries of periodontal disease, Inca metallurgy and Arctic exploration"

Mar 24, 2011

Prof Joseph Alia

University of Minnesota Morris, USA

"Chemical Pictures and Quantum Concepts"

May 12, 2011

Assoc Prof Eva Harth

Vanderbilt University, USA

"Click-chemistries as versatile reactions to design and functionalize nanosponge delivery systems"

May 19, 2011

Peter Kingshott

Swinburne University of Technology, VIC

"New Material Surfaces Based on Colloid Crystal Patterning and Nanofibers"

June 16, 2011

Dr Alessandro Soncini

School of Chemistry, University of Melbourne

"Electrical control of spin currents in mixed-valence single-molecule magnetic devices"

June 23, 2011

Maryline Chee Kimling

School of Chemistry, University of Melbourne

PhD Completion Seminar: "Sol-gel template synthesis of porous metal oxide beads for sequestration of radionuclides"

June 30, 2011

Beenamma Jimmy

School of Chemistry, University of Melbourne

PhD Completion Seminar: "Ultrasonic nebulisation of aqueous surfactant systems"

August 4, 2011

Dr Angus Gray-Weale

School of Chemistry, University of Melbourne

"How the hydrophobic effect works: protein folding, polymer solubility, and nano-splashes"

August 11, 2011

Prof Uli Wiesner

Cornell University, USA

"Functional nanomaterials"

August 25, 2011

Prof Ian Boyd

School of Chemistry, University of Melbourne

"Principles and applications of UV excimer lamps in nanofabrication"

September 8, 2011

Prof Feng Wang

Swinburne University, VIC

"Biomolecular electron spectroscopy: combining supercomputer and synchrotron"

September 15, 2011

Kwun Lun Cho

School of Chemistry, University of Melbourne

PhD Completion Seminar: "Superhydrophobic surfaces: science and development"

September 29, 2011

Zhengfei Chen

School of Chemistry, University of Melbourne

PhD Completion Seminar: "Synthesis and characterization of nanostructured inorganic materials from ionic liquids"

Nov 3, 2011

Prof Leann Tilley

Biochemistry, University of Melbourne

"Super-resolution optical imaging of malaria parasites: new insights, new drugs?"

Dec 13, 2011

Dr Wojciech Pisula

Max Planck Institute for Polymer Research

"Control over the charge carrier transport in organic semiconductors by chemical design and processing"

PUBLICATIONS

Abrahams B, Boughton BA, Fitzgerald N, Holmes J & Robson R. 2011. A highly symmetric diamond-like assembly of cyclotricatechylene-based tetrahedral cages. *Chemical Communications*. **47**: 7404-7406.

Abrahams BF, Grannas MJ, Hudson TA, Hughes SA, Pranoto NH & Robson R. 2011. Synthesis, structure and host-guest properties of $(Et_4N)_2[SnIVCll(chloranil\ ate)_4]$, a new type of robust microporous coordination polymer with a 2D square grid structure. *Dalton Transactions*. **40**: 12242-12247.

Abrahams B, Hudson TA, McCormick L & Robson R. 2011. Coordination Polymers of 2,5-Dihydroxybenzoquinone and Chloranilic Acid with the (10,3)-a Topology. *Crystal Growth & Design*. **17**: 2717-2720.

Abrahams B, McCormick L, Moubaraki B, Murray K, Robson R & Waters T. 2011. Two Cu-21 Clusters with Pseudo-D-3 Symmetry Derived from the D-Saccharate Pentaanion, $C_6H_5O_8^{5-}$. *Chemistry - A European Journal*. **17**: 7454-7459.

Liu D, Lang J & Abrahams B. 2011. Highly Efficient Separation of a Solid Mixture of Naphthalene and Anthracene by a Reusable Porous Metal-Organic Framework through a Single-Crystal-to-Single-Crystal Transformation. *Journal of the American Chemical Society*. **133**: 11042-11045.

Anandan S, Lee G, Hsieh S, Ashokkumar M & Wu J. 2011. Amorphous Titania-Coated Magnetite Spherical Nanoparticles: Sonochemical Synthesis and Catalytic Degradation of Nonylphenol Ethoxylate. *Industrial & Engineering Chemistry Research*. **50** (13): 7874-7881.

Balaji C, Moholkar VS, Pandit AB & Ashokkumar M. 2011. Mechanistic Investigations on Sonophotocatalytic Degradation of Textile Dyes with Surface Active Solutes. *Industrial & Engineering Chemistry Research*. **50** (20): 11485-11494.

Bernareshaw N, Ciceri L, Bianchi C, Grieser F & Ashokkumar M. 2011. Sonophotocatalytic degradation of 4-chlorophenol using $Bi_2O_3/TiZrO_4$ as a visible light responsive photocatalyst. *Ultrasonics Sonochemistry*. **18** (1): 135-139.

Cavaliere FC, Zhou MZ, Caruso FC & Ashokkumar MA. 2011. One-Pot Ultrasonic Synthesis of Multifunctional Microbubbles and Microcapsules Using Synthetic Thiolated Macromolecules. *Chemical Communications*. **47**: 4096-4098.



Chandrapala JJ, Zisu B, Palmer M, Kentish SE & Ashokkumar M. 2011. Effects of ultrasound on the thermal and structural characteristics of proteins in reconstituted whey protein concentrate. *Ultrasonics Sonochemistry*. **18** (5): 951-957.

Ganesan S, Muthuraaman B, Mathew V, Vadivel M, Maruthamuthu P, Ashokkumar M & Suthanthiraraj S. 2011. Influence of 2,6 (N-pyrazolyl) isonicotinic acid on the photovoltaic properties of a dye-sensitized solar cell fabricated using poly(vinylidene fluoride) blended with poly(ethylene oxide) polymer electrolyte. *Electrochimica Acta*. **56** (24): 8811-8817.

He Y, Grieser F & Ashokkumar M. 2011. Kinetics and Mechanism for the Sonophotocatalytic Degradation of p-Chlorobenzoic Acid. *Journal of Physical Chemistry A*. **115** (24): 6582-6588.

He Y, Grieser F & Ashokkumar M. 2011. The mechanism of sonophotocatalytic degradation of methyl orange and its products in aqueous solutions. *Ultrasonics Sonochemistry*. **18** (5): 974-980.

Jimmy B, Kentish SE & Ashokkumar M. 2011. Dynamics of counterion binding during acoustic nebulisation of surfactant solutions. *Ultrasonics Sonochemistry*. **18** (5): 958-962.

Kentish SE & Ashokkumar MA. 2011. The Physical and Chemical Effects of Ultrasound. *Ultrasound Technologies for Food and Bioprocessing*. Dordrecht, Netherlands: Springer Science+Business Media, pp. 1-12.

Kentish SE & Ashokkumar MA. 2011. Ultrasonic Membrane Processing. *Ultrasound Technologies for Food and Bioprocessing*. Dordrecht, Netherlands: Springer Science+Business Media, pp. 583-598.

Lee J, Ashokkumar MA, Yasui, Tuziuti, Kozuka, Towata & Iida. 2011. Development and optimization of acoustic bubble structures at high frequencies. *Ultrasonics Sonochemistry*. **18** (1): 92-98.

Leong TS, Ashokkumar M & Kentish SE. 2011. The Fundamentals of power ultrasound - a review. *Acoustics Australia*. **39** (2): 54-63.

Leong T, Collis J, Manasseh R, Ooi AS, Novell A, Bouakaz A, Ashokkumar M & Kentish SE. 2011. The Role of Surfactant Headgroup, Chain Length, and Cavitation Microstreaming on the Growth of Bubbles by Rectified Diffusion. *Journal of Physical Chemistry C*. **115** (49): 24310-24316.

PUBLICATIONS

- Sathishkumar P, Anandan S, Maruthamuthu P, Swaminathan T, Zhou M & Ashokkumar M. 2011.** Synthesis of Fe³⁺ doped TiO₂ photocatalysts for the visible assisted degradation of an azo dye. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. **375** (1-3): 231-236.
- Shirsath, Hage A, Zhou M, Sonawane & Ashokkumar M. 2011.** Ultrasound assisted preparation of nanoclay Bentonite-FeCo nanocomposite hybrid hydrogel: A potential responsive sorbent for removal of organic pollutant from water. *Desalination*. **281**: 429-437.
- Singla R, Grieser F & Ashokkumar M. 2011.** The mechanism of sonochemical degradation of a cationic surfactant in aqueous solution. *Ultrasonics Sonochemistry*. **18**: 484-488.
- Son Y, Cha J, Lim M, Ashokkumar M & Khim J. 2011.** Comparison of Ultrasonic and Conventional Mechanical Soil-Washing Processes for Diesel-Contaminated Sand. *Industrial & Engineering Chemistry Research*. **50** (4): 2400-2407.
- Son Y, Lim M, Ashokkumar M & Khim J. 2011.** Geometric Optimization of Sonoreactors for the Enhancement of Sonochemical Activity. *Journal of Physical Chemistry C*. **115** (10): 4096-4103.
- Vilkhu K, Manasseh R, Mawson R & Ashokkumar M. 2011.** Ultrasonic recovery and modification of food ingredients. *Ultrasound Technologies for Food and Bioprocessing*. New York, United States: Springer, pp. 345-368.
- Vo HS, Kentish SE & Ashokkumar M. 2011.** The enhancement of foam generated by low power ultrasound and its application to foam fractionation. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. **380** (1-3): 35-40.
- Zhou M, Cavalieri F & Ashokkumar M. 2011.** Tailoring the properties of ultrasonically synthesised microbubbles. *Soft Matter*. **7** (2): 623-630.
- Zisu B, Lee JY, Chandrapala JJ, Bhaskaracharya RK, Palmer M, Kentish SE & Ashokkumar M. 2011.** Effect of ultrasound on the physical and functional properties of reconstituted whey protein powders. *Journal of Dairy Research*. **78** (2): 226-232.
- Brotchie A & Zhang X. 2011.** Response of interfacial nanobubbles to ultrasound irradiation. *Soft Matter*. **7** (1): 265-269.
- Cheah MH & Best SPB. 2011.** XAFS and DFT Characterisation of Protonated Reduced Fe Hydrogenase Analogues and Their Implications for Electrocatalytic Proton Reduction. *European Journal of Inorganic Chemistry*. **2011** (7): 1128-1137.
- Casavecchia P, Brouard M, Costes M, Nesbitt D, Bieske EJ & Kable S. 2011.** Molecular Collision Dynamics. *Physical Chemistry Chemical Physics*. **13**: 8073-8074.
- Dryza V & Bieske E. 2011.** Infrared Spectroscopy of the Ag⁺-H₂ Complex: Exploring the Connection Between Vibrational Band-Shifts and Binding Energies. *Journal of Physical Chemistry Letters*. **2** (7): 719-724.
- Dryza V, Bieske E, Buchachenko A & Klos J. 2011.** Potential energy surface and rovibrational calculations for the Mg⁺-H₂ and Mg⁺-D₂ complexes. *Journal of Chemical Physics*. **134** (4): 214302-1 to 214302-6.
- Poad BLJ, Dryza V, Klos J, Buchachenko A & Bieske EJ. 2011.** Rotationally resolved infrared spectrum of the Na⁺-D₂ complex: an experimental and theoretical study. *Journal of Chemical Physics*. **134**: 214302.
- Sader J, Sanelli J, Hughes BD, Monty JP & Bieske EJ. 2011.** Distortion in the thermal noise spectrum and quality factor of nanomechanical devices due to finite frequency resolution with applications to the atomic force microscope. *Review of Scientific Instruments*. **82**: 095104.
- Wild D, Loh Z & Bieske EJ. 2011.** Infrared Spectra and ab initio Calculations for Fluoride-acetylene Clusters: F⁻-(HCCH)_n, n = 3?6. *Australian Journal of Chemistry*. **64** (5): 633-637.
- Ritchie C, Miller C & Boskovic C. 2011.** The generation of a novel polyoxometalate-based 3D framework following picolinate-chelation of tungsten and potassium centres. *Dalton Transactions*. **40**: 12037-12039.
- Ritchie C, Speldrich M, Gable RW, Sorace, Koegerler & Boskovic C. 2011.** Utilizing the Adaptive Polyoxometalate [As₂W₁₉O₆₇(H₂O)]¹⁴⁻ To Support a Polynuclear Lanthanoid-Based Single-Molecule Magnet. *Inorganic Chemistry*. **50**: 7004-7014.
- Chee Kimling M & Caruso RA. 2011.** Templating of macroporous or swollen macrostructured polymers. *Hierarchically Structured Porous Materials*. Weinheim, Germany: Wiley-VCH 131-172.
- Chen, Huang, Chen D, Cao L, Zhang, Caruso RA & Cheng. 2011.** Effect of Mesoporous TiO₂ Bead Diameter in Working Electrodes on the Efficiency of Dye-Sensitized Solar Cells. *ChemSusChem*. **4** (10): 1498-1503.
- Drisko G, Wang X & Caruso R. 2011.** Strong Silica Monoliths with Large Mesopores Prepared Using Agarose Gel Templates. *Langmuir*. **27** (6): 2124-2127.
- Huang, Chen D, Cao L, Caruso RA & Cheng. 2011.** Flexible dye-sensitized solar cells containing multiple dyes in discrete layers. *Energy & Environmental Science*. 2803-2806.
- Huang F, Cheng Y & Caruso R. 2011.** Al-doped TiO₂ Photoanode for Dye-Sensitized Solar Cells. *Australian Journal of Chemistry*. **64** (6): 820-824.
- Ide AH, Drisko G, Scales, Luca, Schiesser CH & Caruso RA. 2011.** Monitoring bisphosphonate surface functionalization and acid stability of hierarchically porous titanium zirconium oxides. *Langmuir*. **27**: 12985-12995.
- Wang X & Caruso R. 2011.** Enhancing photocatalytic activity of titania materials by using porous structures and the addition of gold nanoparticles. *Journal of Materials Chemistry*. **21** (1): 20-28.
- Wang X, Waterhouse IN, Mitchell RG, Prince & Caruso RA. 2011.** Noble metal modified porous titania networks and their application as photocatalysts. *ChemCatChem*. **3**: 1763-1771.
- Adlard P, Bica L, White A, Nurjono M, Filiz G, Crouch P, Donnelly P, Cappai R, Finkelstein D & Bush A. 2011.** Metal Ionophore Treatment Restores Dendritic Spine Density and Synaptic Protein Levels in a Mouse Model of Alzheimer's Disease. *PLoS One*. **6** (3).
- Bica L, Meyerowitz J, Parker S, Caragounis A, Du T, Paterson BM, Barnham KJ, Crouch P, White A & Donnelly P. 2011.** Cell cycle arrest in cultured neuroblastoma cells exposed to a bis(thiosemicarbazonato) metal complex. *Biomaterials*. **24**: 117-133.
- Buncic G, Hickey JL, Schieber C, White JMW, Crouch PJ, White AR, Xiao Z, Wedd AGW & Donnelly PS. 2011.** Water soluble bis(thiosemicarbazonato)copper(II) complexes. *Australian Journal of Chemistry*. **64** (3): 244-252.
- Crouch PJ, Savva MS, Hung L, Donnelly PS, Mot A, Parker SJ, Greenough MA, Volitakis I, Adlard PA, Cherny RA, Masters CL, Bush AI, Barnham KJ & White AR. 2011.** The Alzheimer's therapeutic PBT2 promotes amyloid-B degradation and GSK3 phosphorylation via a metal chaperone activity. *Journal of Neurochemistry*. **119** (1): 220-230.
- Donnelly P. 2011.** The role of coordination chemistry in the development of copper and rhenium radiopharmaceuticals. *Dalton Transactions*. **40** (5): 999-1010.

PUBLICATIONS

Hickey JL, Crouch PJ, Mey S, Caragounis A, White JM, White AR & Donnelly PS. 2011. Copper(II) complexes of hybrid hydroxyquinoline-thiosemicarbazone ligands: GSK3b inhibition due to intracellular delivery of copper. *Dalton Transactions*. **40** (6): 1338-1347.

Ma M, Cooper M, Paul R, Shaw K, Karas J, Scanlon D, White J, Blower P & Donnelly P. 2011. Macrobicyclic Cage Amine Ligands for Copper Radiopharmaceuticals: A Single Bivalent Cage Amine Containing Two Lys(3)-bombesin Targeting Peptides. *Inorganic Chemistry*. **50** (14): 6701-6710.

Ma M & Donnelly PS. 2011. Peptide targeted copper-64 radiopharmaceuticals. *Current Topics in Medicinal Chemistry*. **11**: 500-520.

Ma M, Neels O, Denoyer D, Roselt P, Karas J, Scanlon D, White J, Hicks R & Donnelly P. 2011. Gallium-68 Complex of a Macrobicyclic Cage Amine Chelator Tethered to Two Integrin-Targeting Peptides for Diagnostic Tumor Imaging. *Bioconjugate Chemistry*. **22** (10): 2093-2103.

Paterson B & Donnelly PS. 2011. Copper complexes of bis(thiosemicarbazones): from chemotherapeutics to diagnostic and therapeutic radiopharmaceuticals. *Chemical Society Reviews*. **40**: 3005-3018.

Price K, Crouch P, Lim S, Paterson B, Liddell J, Donnelly P & White AR. 2011. Subcellular localization of a fluorescent derivative of Cu-II(atm) offers insight into the neuroprotective action of Cu-II(atm). *Metalomics: integrated biometal science*. **3** (12): 1280-1290.

Price K, Crouch P, Volitakis I, Paterson B, Lim S, Donnelly P & White AR. 2011. Mechanisms Controlling the Cellular Accumulation of Copper Bis(thiosemicarbazonato) Complexes. *Inorganic Chemistry*. **50** (19): 9594-9605.

Schieber C, Howitt J, Putz U, White J, Parish C, Donnelly P & Tan S. 2011. Cellular Up-regulation of Nedd4 Family Interacting Protein 1 (Ndfip1) using Low Levels of Bioactive Cobalt Complexes. *Journal of Biological Chemistry*. **286** (10): 8555-8564.

Soon C, Donnelly P, Turner B, Hung L, Crouch P, Sherratt N, Tan J, Lim N, Lam L, Bica L, Lim S, Hickey J, Morizzi J, Powell A, Finkelstein D, Culvenor J, Masters CL, Duce J, White AR, Barnham K & Li Q. 2011. Diacetylbis(N(4)-methylthiosemicarbazonato) Copper(II) (Cu-II(atm)) Protects against Peroxynitrite-induced Nitrosative Damage and Prolongs Survival in Amyotrophic Lateral Sclerosis Mouse Model. *Journal of Biological Chemistry*. **286**: 51.

McLean SC, Scholes CA, Smith TA & Gee ML. 2011. Monitoring Supramolecular Self-Assembly using Time-Resolved Fluorescence Spectroscopy. *Australian Journal of Chemistry*. **64** (6): 825-832.

Rapson A, Hossain M, Wade JD, Nice EC, Smith TA, Clayton AH & Gee ML. 2011. Structural Dynamics of a Lytic Peptide Interacting with a Supported Lipid Bilayer. *Biophysical Journal*. **100**: 1353-1361.

Clark, Dias DAD, Smith TAS, Ghiggino KPG & Scollary GRS. 2011. Iron(III) tartrate as a potential precursor of light-induced oxidative degradation of white wine: Studies in a model wine system. *Journal of Agricultural and Food Chemistry*. **59** (1): 3575-3581.

O'Brien A, Lu, Hooley E, Ghiggino KPG, Steer P & Paige F. 2011. Aggregation of zinc tetraphenylporphyrin characterized by ensemble and single-molecule fluorescence spectroscopy. *Canadian Journal of Chemistry*. **89** (2): 122-129.

Sugunan K, Robotham B, Sloan P, Szmytkowski, Ghiggino KP, Paige F & Steer P. 2011. Photophysics of Untethered ZnTPP-Fullerene Complexes in Solution. *Journal of Physical Chemistry A*. **115** (44): 12217-12227.

Beattie J, Creux P & Gray-Weale A. 2011. Sodium Fluoride at the Air/Water Interface. *Australian Journal of Chemistry*. **64**: 1580-1582.

Hahn U, Setaro F, Ragas X, Gray-Weale A, Nonell S & Torres T. 2011. Microenvironment-switchable singlet oxygen generation by axially-coordinated hydrophilic ruthenium phthalocyanine dendrimers. *Physical Chemistry Chemical Physics*. **13**: 3385-3393.

Konkolewicz D, Ka Poon C, Gray-Weale A & Perrier S. 2011. Hyperbranched alternating block copolymers using thiol-yne chemistry: materials with tuneable properties. *Chemical Communications*. **47**: 239-241.

Konkolewicz D, Perrier S, Stapleton DI & Gray-Weale A. 2011. Modeling Highly Branched Structures: Description of the Solution Structures of Dendrimers, Polyglycerol, and Glycogen. *Journal of Polymer Science. Part B, Polymer Physics*. **49**: 1525-1538.

Konkolewicz, Gaillard S, West A, Cheng Y, Gray-Weale A, Schmidt T, Nolan S & Perrier. 2011. Luminescent Hyperbranched Polymers: Combining Thiol-Yne Chemistry with Gold-Mediated C-H Bond Activation. *Organometallics*. **30**: 1315-1318.

Browne C, Tabor RF, Chan DYC, Dagastine RR, Ashokkumar M & Grieser F. 2011. Bubble Coalescence during Acoustic Cavitation in Aqueous Electrolyte Solutions. *Langmuir*. **27** (19): 12025-12032.



PUBLICATIONS



Lockie H, Manica R, Stevens GW, Grieser F, Chan DYC & Dagastine RR. 2011. Precision AFM Measurements of Dynamic Interactions between Deformable Drops in Aqueous Surfactant and Surfactant-Free Solutions. *Langmuir*. **27** (6): 2676-2685.

Tabor RF, Chan DYC, Grieser FG & Dagastine RRD. 2011. Structural forces in soft matter systems. *Journal of Physical Chemistry Letters*. **2**: 434-437.

Tabor RF, Lockie HE, Chan DYC, Grieser F, Grillo I, Mutch KJ & Dagastine RR. 2011. Structural forces in soft matter systems: unique flocculation pathways between deformable droplets. *Soft Matter*. **7** (24): 11334-11344.

Tabor RF, Lockie HE, Mair D, Manica R, Chan DYC, Grieser F & Dagastine RR. 2011. Combined AFM-Confocal Microscopy of Oil Droplets: Absolute Separations and Forces in Nanofilms. *Journal of Physical Chemistry Letters*. **2** (9): 961-965.

Tabor RF, Morfa AJ, Grieser F, Chan DYC & Dagastine RR. 2011. Effect of Gold Oxide in Measurements of Colloidal Force. *Langmuir*. **27** (10): 6026-6030.

Tabor RFT, Chan DYC, Grieser FG & Dagastine RRD. 2011. Anomalous Stability of Carbon Dioxide in pH-Controlled Bubble Coalescence. *Angewandte Chemie - International Edition*. **123**: 3516-3518.

Tabor RFT, Manica RM, Chan DYC, Grieser FG & Dagastine RRD. 2011. Repulsive van der Waals forces in soft matter systems: why bubbles do not stick to walls. *Physical Review Letters*. **106**: 064501.

Tabor RF, Wu C, Lockie HE, Manica R, Chan DYC, Grieser F & Dagastine RR. 2011. Homo- and hetero-interactions between air bubbles and oil droplets measured by atomic force microscopy. *Soft Matter*. **7** (19): 8977-8983.

Teo B, Ashokkumar M & Grieser F. 2011. Sonochemical polymerization of miniemulsions in organic liquids/water mixtures. *Physical Chemistry Chemical Physics*. **13** (9): 4095-4102.

Teo B, Suh S, Hatton T, Ashokkumar M & Grieser F. 2011. Sonochemical Synthesis of Magnetic Janus Nanoparticles. *Langmuir*. **27** (1): 30-33.

Widnerström I, Teo B, Ashokkumar M & Grieser F. 2011. Sonochemical synthesis and characterisation of thermoresponsive microgel particles. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. **377** (1-3): 342-348.

Daenke T, Kwon T, Holmes A, Duffy N, Bach U & Spiccia L. 2011. High-efficiency dye-sensitized solar cells with ferrocene-based electrolytes. *Nature Chemistry*. **3** (3): 211-215.

Fong HH, Lee JK, Lim YF, Zakhidov AK, Wong WW, Holmes AB, Ober CK & Malliaras GG. 2011. Orthogonal Processing and Patterning Enabled by Highly Fluorinated Light Emitting Polymers. *Advanced Materials*. **23**: 735-739.

Keyworth C, Chan K, Labram J, Anthopoulos T, Watkins S, McKiernan M, White A, Holmes AB & Williams C. 2011. The tuning of the energy levels of dibenzosilole copolymers and applications in organic electronics. *Journal of Materials Chemistry*. **21**: 11800-11814.

Kumar RJ, Macdonald J, Singh T, Waddington L & Holmes A. 2011. Hierarchical Self-Assembly of Semiconductor Functionalized Peptide alpha-Helices and Optoelectronic Properties. *Journal of the American Chemical Society*. **133** (22): 8564-8573.

Kwon T-H, Armel V, Nattestad A, Macfarlane DR, Bach, Lind, Gordon, Tang, Jones DJ & Holmes AB. 2011. Dithienothiophene (DTT)-based Dyes for Dye-Sensitized Solar Cells: Synthesis of 2,6-Dibromo-DTT. *Journal of Organic Chemistry*. **76** (10): 4088-4093.

Maniam SJ, Holmes AB, Krstina J, Leeke GA & Collis GE. 2011. Supercritical Carbon Dioxide as a Solvent for Deposition of a Tailored Dye in Dye Sensitized Solar Cells. *Green Chemistry*. **13**: 3329-3332.

Seyler H, Jones DJ, Holmes AB & Wong WWH. 2011. Continuous flow synthesis of conjugated polymers. *Chemical Communications*. **48** (10): 1598-1600.

Seyler H, Wong WWH, Jones DJ & Holmes AB. 2011. Continuous flow synthesis of fullerene derivatives. *Journal of Organic Chemistry*. **76**: 3551-3556.

Wong WWH, Ma, Pisula, Mavrinskiy, Feng, Seyler H, Jones DJ, Muellen, Baeuerle & Holmes AB. 2011. Fluorenyl Hexa-peri-hexabenzocoronene-Dendritic Oligothiophene Hybrid Materials: Synthesis, Photophysical Properties, Self-Association Behaviour and Device Performance. *Chemistry - A European Journal*. **17** (20): 5549-5560.

PUBLICATIONS



Churches Q, Johnson J, Fifer N & Hutton C. 2011. Anomalies in the Stereoselectivity of the Petasis Reaction Using Styrenyl Boronic Acids. *Australian Journal of Chemistry*. **64** (1): 62-67.

Churches Q, White JM & Hutton C. 2011. Synthesis of beta,gamma-Dihydroxyhomotyrosines by a Tandem Petasis-Asymmetric Dihydroxylation Approach. *Organic Letters*. **13** (11): 2900-2903.

Mitsakos V, Devenish S, O'Donnell PA, Gerrard J & Hutton C. 2011. LC-MS and NMR characterization of the purple chromophore formed in the o-aminobenzaldehyde assay of dihydrodipicolinate synthase. *Bioorganic & Medicinal Chemistry*. **19** (4): 1535-1540.

Bonggotgetsakul Y, Cattrall R & Kolev S. 2011. The preparation of a gold nanoparticle monolayer on the surface of a polymer inclusion membrane using EDTA as the reducing agent. *Journal of Membrane Science*. **379**: 322-329.

Cho Y, Xu C, Cattrall R & Kolev S. 2011. A polymer inclusion membrane for extracting thiocyanate from weakly alkaline solutions. *Journal of Membrane Science*. **367** (1-2): 85-90.

Ebbs SE, Kolev SDK, Piccinin R, Woodrow IE & Baker AJMB. 2011. Initial loss of cyanide, thiocyanate, and thiosulfate adjuvants following amendment to an oxidic gold ore. *Minerals Engineering*. **24**: 1641-1643.

Guell RG, Antico EA, Kolev SDK, Benavente JB, Salvado & Fontas CF. 2011. Development and characterization of polymer inclusion membranes for the separation and speciation of inorganic As species. *Journal of Membrane Science*. **383**: 88-95.

Kagaya S, Cattrall R & Kolev S. 2011. Solid-Phase Extraction of Cobalt(II) from Lithium Chloride Solutions Using a Poly(vinyl chloride)-based Polymer Inclusion Membrane with Aliquat 336 as the Carrier. *Analytical Sciences*. **27** (6): 653-657.

Lomonte C, Doronila A, Gregory D, Baker AJ & Kolev S. 2011. Chelate-assisted phytoextraction of mercury in biosolids. *Science of the Total Environment*. **409** (13): 2685-2692.

St John A, Best S, Wang Y, Tobin M, Puskar L, Siegele R, Cattrall R & Kolev S. 2011. Micrometer-Scale 2D Mapping of the Composition and Homogeneity of Polymer Inclusion Membranes. *Australian Journal of Chemistry*. **64** (7): 930-938.

Zhang L, Cattrall RW & Kolev SD. 2011. The use of a polymer inclusion membrane in flow injection analysis for the on-line separation and determination of zinc. *Talanta*. **84**: 1278-1283.

Zhang YL, Cattrall RW, Mckelvie ID & Kolev SD. 2011. Gold, an alternative to platinum group metals in automobile catalytic converters. *Gold Bulletin*. **44** (3): 145-155.

Antoline, Krenske EH, Lohse, Houk & Hsung. 2011. Stereoselectivities and Regioselectivities of (4 + 3) Cycloadditions Between Allenamide-Derived Chiral Oxazolidinone-Stabilized Oxyallyls and Furans: Experiment and Theory. *Journal of the American Chemical Society*. **133** (36): 14443-14451.

Krenske EH, Houk KN, Holmes AB & Thompson JK. 2011. Entropy vs. Tether Strain Effects on Rates of Intramolecular 1,3-Dipolar Cycloadditions of N-alkenyl nitrones. *Tetrahedron Letters*. **52**: 2181-2184.

Duan X, Liaw II, Tran N & Lamb RN. 2011. Fabrication of polycrystalline aluminum oxide thin films via hydrolysis and hydrothermal reactions in solutions. *Thin Solid Films*. **520** (1): 25-29.

Barrow S, Funston AF, Gomez DE, Davis TD & Mulvaney P. 2011. Surface Plasmon Resonances in Strongly Coupled Gold Nanosphere Chains from Monomer to Hexamer. *Nano Letters*. **11** (10): 4180-4187.

Chrimes A, Kayani A, Khoshmanesh K, Stoddart P, Mulvaney PM, Mitchell A & Kalantar-Zadeh K. 2011. Dielectrophoresis-Raman spectroscopy system for analysing suspended nanoparticles. *Lab On a Chip: miniaturisation for chemistry and biology*. **11** (9): 921-930.

Funston AM, Davis TJ, Novo CS & Mulvaney P. 2011. Coupling modes of gold trimer superstructures. *Philosophical Magazine A - Physics of Condensed Matter Structure Defects & Mechanical Properties*. **369** (1950): 3472-3482.

PUBLICATIONS

- Jaber S, Karg MK, Morfa AJM & Mulvaney PM. 2011.** 2D assembly of gold-PNIPAM core-shell nanocrystals. *Physical Chemistry Chemical Physics*. **2011** (13): 5576-5578.
- Jasieniak J, Macdonald B, Watkins S & Mulvaney P. 2011.** Solution-Processed Sintered Nanocrystal Solar Cells via Layer-by-Layer Assembly. *Nano Letters*. A-I.
- Karg M, Hellweg T & Mulvaney P. 2011.** Self-Assembly of Tunable Nanocrystal Superlattices Using Poly-(NIPAM) Spacers. *Advanced Functional Materials*. **21** (24): 4668-4676.
- Karg MK, Jaber S, Hellweg T & Mulvaney PM. 2011.** Surface plasmon spectroscopy of gold-poly-N-isopropylacrylamide core-shell particles. *Langmuir*. **27** (2): 820-827.
- Katz-Boon H, Rossouw C, Weyland M, Funston AM, Mulvaney P & Etheridge J. 2011.** Three-Dimensional Morphology and Crystallography of Gold Nanorods. *Nano Letters*. **11** (1): 273-278.
- Mao Z, Cartier R, Kohl A, Farinacci M, Dorhoi A, Nguyen T, Mulvaney P, Ralston J, Kaufmann SHE, Wang D & Mohwald H. 2011.** Cells as Factories for Humanized Encapsulation. *Nano Letters*. **11** (April): 2152-2156.
- Mashford B, Baldauf J, Nguyen T, Funston AM & Mulvaney P. 2011.** Synthesis of Quantum Dot Doped Chalcogenide Glasses via Sol-gel Processing. *Journal of Applied Physics*. **2011** (109): 94305-94311.
- McGuinness LP, Yan Y, Stacey AD, Simpson DA, Hall L, MacLaurin D, Praver S, Mulvaney P, Wachtrup J, Caruso F, Scholten R & Hollenberg LC. 2011.** Quantum measurement and orientation tracking of fluorescent nanodiamonds inside living cells. *Nature Nanotechnology*. **6** (6): 358-363.
- Morfa AJM, Kirkwood N, Karg MK, Singh ThB & Mulvaney P. 2011.** Effect of Defects on the Behavior of ZnO Nanoparticle FETs. *Journal of Physical Chemistry C*. **115**: 8312-8315.
- Zhang F, Lees EE, Amin F, Rivera-Gil P, Yang F, Mulvaney P & Parak WJ. 2011.** Polymer-Coated Nanoparticles: A Universal Tool for Biolabelling Experiments. *Small*. **7** (22): 3113-3127.
- Zhen G, Muir B, Moffat BAM, Harbour P, Murray K, Moubaraki B, Suzuki K, Madsen I, Agron-Olshina N, Waddington L, Mulvaney PM & Hartley P. 2011.** Comparative Study of the Magnetic Behavior of Spherical and Cubic Superparamagnetic Iron Oxide Nanoparticles. *Journal of Physical Chemistry C*. **2011** (115): 327-334.
- Antonello A, Della Gaspera E, Baldauf JS & Mattei G. 2011.** Improved thermal stability of Au nanorods by use of photosensitive layered titanates for gas sensing applications. *Journal of Materials Chemistry*. **2011** (21).
- Della Gaspera E, Karg M, Baldauf J, Jasieniak J, Maggioni G & Martucci A. 2011.** Au Nanoparticle Monolayers Covered with Sol-Gel Oxide Thin Films: Optical and Morphological Study. *Langmuir*. **2011** (September): 13739-13747.
- Nuhiji E, Amar F, Wang H, Byrne N, Nguyen T & Lin T. 2011.** Whispering gallery mode emission generated in tunable quantum dot doped glycerol/water and ionic liquid/water microdroplets formed on a superhydrophobic coating. *Journal of Materials Chemistry*. **21** (29): 10823-10828.
- Barlow CK, Wright A, Easton C & O'Hair R. 2011.** Gas-phase ion-molecule reactions using regioselectively generated radical cations to model oxidative damage and probe radical sites in peptides. *Organic & Biomolecular Chemistry*. **9** (10): 3733-3745.
- Brunet C, Antoine R, Broyer M, Dugourd P, Kulesza A, Petersen J, Roehr M, Mitric R, Bonacic-Koutecky V & O'Hair R. 2011.** Structural and Photochemical Properties of Organosilver Reactive Intermediates MeAg²⁺ and PhAg²⁺. *Journal of Physical Chemistry A*. **115** (33): 9120-9127.
- Chen X, Khairallah G, O'Hair RA & Williams SJ. 2011.** Fixed-charge labels for simplified reaction analysis: 5-hydroxy-1,2,3-triazoles as byproducts of a copper(I)-catalyzed click reaction. *Tetrahedron Letters*. **52**: 2750-2753.
- Donald WA, Mckenzie J & O'Hair RA. 2011.** C-H Bond Activation of Methanol and Ethanol by a High-Spin FeIVO Biomimetic Complex. *Angewandte Chemie - International Edition*. **50** (36): 201102146.
- Feketeova LF, Barlow CB, Benton T, Rochfort & O'Hair RAO. 2011.** The formation and fragmentation of flavonoid radical anions. *International Journal of Mass Spectrometry*. **301** (1-3): 174-183.
- Feketeova LF, Yuriev , Orbell , Khairallah GK & O'Hair RAO. 2011.** Gas phase formation and reactions of radical cations of guanosine, deoxyguanosine and their homodimers and heterodimers. *International Journal of Mass Spectrometry*. **304**: 74-82.
- Lam A, Hutton C & O'Hair RA. 2011.** Role of 2-oxo and 2-thioxo modifications on the fragmentation reactions of the histidine radical cation. *Rapid Communications in Mass Spectrometry*. **25**: 251-261.
- Leeming MG, Khairallah G, Da Silva GR & O'Hair RA. 2011.** Modeling Solvation of Magnesium Centers by Ether Ligands: Gas-Phase Synthesis and Hydrolysis of the Organomagnesium Cations [CH(3)Mg(3X-crown-X)]⁺ (X=4-6). *Organometallics*. **30** (16): 4297-4307.
- Lioe H, White JM & O'Hair RA. 2011.** Preference for bridging versus terminal ligands in magnesium dimers. *Journal of Molecular Modeling*. **17** (6): 1325-1334.
- Mitric R, Petersen J, Kulesza A, Roehr M, Bonacic-Koutecky V, Brunet C, Antoine R, Dugourd P, Broyer M & O'Hair R. 2011.** Gas-Phase Synthesis and Vibronic Action Spectroscopy of Ag₂H⁺. *Journal of Physical Chemistry Letters*. **2**: 548-552.
- Osborn, O'Hair RA, Black M & Ryzhov. 2011.** Post-Translational Modification in the Gas Phase: Mechanism of Cysteine S-Nitrosylation via Ion-Molecule Reactions. *Rapid Communications in Mass Spectrometry*. **25**: 3216-3222.
- Osburn S; Berden G; Oomens J; O'Hair RAJ; Ryzhov V.** Structure and Reactivity of the N-Acetyl-Cysteine Radical Cation and Anion: Does Radical Migration Occur? *J. Am. Soc. Mass Spectrom.*, **2011**, 22, 1794-1803.
- Osburn S, Steill J, Oomens J, O'Hair R, Van Stipdonk M & Ryzhov V. 2011.** Structure and Reactivity of the Cysteine Methyl Ester Radical Cation. *Chemistry - A European Journal*. **17**: 873-879.
- Woolley M, Khairallah G, Donnelly P & O'Hair R. 2011.** Nitrogen adduction by three coordinate group 10 organometallic cations: platinum is favoured over nickel and palladium. *Rapid Communications in Mass Spectrometry*. **25**: 2083-2088.
- Yoo J, Feketeova LF, Khairallah GK, White JMW & O'Hair RAO. 2011.** Structure and unimolecular chemistry of protonated sulfur betaines, (CH₃)₂S⁺(CH₂)_nCO₂H (n = 1 and 2). *Organic & Biomolecular Chemistry*. **9**: 2751-2759.
- Yoo J, Feketeova L, Khairallah G & O'Hair RA. 2011.** Intercluster reactions show that (CH₃)₂S⁺-CH₂CO₂H is a better methyl cation donor than (CH₃)₃N⁺-CH₂CO₂H. *European Journal of Mass Spectrometry*. **17**: 159-166.
- Yoo J, Feketeova L, Khairallah G & O'Hair RA. 2011.** Unimolecular chemistry of doubly protonated zwitterionic clusters. *Journal of Physical Chemistry A*. **115** (17): 4179-4185.
- Balog, Cicman, Field, Jones, Feketeova L, Hoydalsvik, Ziesel. 2011.** Transmission and trapping of cold electrons in water ice. *Journal of Physical Chemistry A*. **115**: 6820-6824.

PUBLICATIONS

Donald WA, Leib D, Demireva & Williams R. 2011. Ions in Size-Selected Aqueous Nanodrops: Sequential Water Molecule Binding Energies and Effects of Water on Ion Fluorescence. *Journal of the American Chemical Society*. **133** (46): 18940-18949.

Donald WA & Williams R. 2011. Gas-phase electrochemistry: Measuring absolute potentials and investigating ion and electron hydration. *Pure and Applied Chemistry*. **83** (12): 1-23.

Birkett S, Ganame D, Hawkins WC, Meiries S, Quach T & Rizzacasa M. 2011. Total Synthesis of 8-Deshydroxyajudazol B. *Organic Letters*. **13** (8): 1964-1967.

Hilli F, White JM & Rizzacasa MA. 2011. Formal total synthesis of the myxobacteria metabolite apicularen A via a transannular oxy-Michael addition. *Tetrahedron*. **67** (27-28): 5054-5068.

Lynch J, Zanatta SD, White JMW & Rizzacasa MAR. 2011. Stereoselective Total Synthesis of (–)-Spirofungin A by Utilising Hydrogen-Bond Controlled Spiroketalisation. *Chemistry - A European Journal*. **17** (1): 297-304.

Aitken HM; Schiesser CH; Donner CD. Synthetic and Computational Studies of Acyl Radical Cyclizations with α -Alkoxyacrylates: Formal Synthesis of (±)-Longianone. *Aust. J. Chem.*, **2011**, *64*, 409-415.

Beckwith ALJ; Schiesser CH. Treasures from the Free Radical Renaissance Period – Miscellaneous Hexenyl Radical Kinetic Data. *Org. Biomol. Chem.*, **2011**, *9*, 1736-1743. (Featured as a HOT article)

Kavanagh Y; Ford L; Schiesser CH. Free Radical Hydrostannylation of Unactivated Alkenes with Chiral Trialkylstannanes. *Organometallics*, **2011**, *30*, 4387-4392.

Kyne SH; Aitken HM; Fensterbank L; Lacôte E; Malacria M; Ollivier C; Schiesser CH. Intramolecular homolytic substitution of sulfonates and sulfinamides – a computational study. *Org. Biomol. Chem.*, **2011**, *9*, 3331-3337.

Kyne SH; Schiesser CH; Matsubara H. An Ab Initio and DFT Study of Radical Addition Reactions of Imidoyl and Thioyl Radicals to Methanimine. *Org. Biomol. Chem.*, **2011**, *9*, 3217-3224.

Staples MK; Grange RL; Angus JA; Ziogas J; Tan NPH; Taylor MK; Schiesser CH. Tandem Free-Radical Addition/Substitution Chemistry and its Application to the Preparation of Novel AT1 Receptor Antagonists. *Org. Biomol. Chem.*, **2011**, *9*, 473-479.

Storkey C, Davies M, White J & Schiesser C. 2011. Synthesis and antioxidant capacity of 5-selenopyranose derivatives. *Chemical Communications*. **47** (34): 9693-9695.

Tan NPH; Taylor MK; Bottle SE; Wright CE; Ziogas J; White JM; Schiesser CH; Jani NV. Novel Paramagnetic AT1 Receptor Antagonists. *Chem. Commun.*, **2011**, *47*, 12083-12085.

Chan L, Hossain MAH, Samuel CS, Separovic F & Wade JDW. 2011. The relaxin peptide family--structure, function and clinical applications. *Protein and Peptide Letters*. **18** (2011): 220-229.

Ciccotosto GC, Tew DJT, Drew SCD, Smith DGS, Johanssen T, Lal , Lau TL, Perez KAP, Curtain C, Wade JDW, Separovic F, Masters CLM, Smith JPS, Barnham KJB & Cappai RC. 2011. Stereospecific interactions are necessary for Alzheimer disease amyloid-beta toxicity. *Neurobiology of Aging*. **32**: 235-248.

Fernandez D, Sani M & Separovic F. 2011. Interactions of the antimicrobial peptide maculatin 1.1 and analogues with phospholipid bilayers. *Australian Journal of Chemistry*. **64**: 798-805.

Fernandez D, Sani MS, Gehman JDG, Hahm KH & Separovic F. 2011. Interactions of a synthetic Leu-Lys-rich antimicrobial peptide with phospholipid bilayers. *European Biophysics Journal with Biophysics Letters*. **40** (4): 471-480.

Fraser S, Dawson M, Waddington J, Muir W, Mulet, Hartley G, Separovic F & Polyzos. 2011. Development of Cubosomes as a Cell-Free Biosensing Platform. *Australian Journal of Chemistry*. **64** (1): 46-53.

Fraser S, Rose , Hattarki K, Hartley G, Dolezal, Dawson M, Separovic F & Polyzos. 2011. Preparation and biological evaluation of self-assembled cubic phases for the polyvalent inhibition of cholera toxin. *Soft Matter*. **7** (13): 6125-6134.

Gehman JDG, Sani MS & Separovic F. 2011. Solid-State NMR of Membrane-Acting Antimicrobial Peptides. *Biomolecular NMR Spectroscopy*. Amsterdam, Netherlands: IOS Press, pp. 137-161.

Gehman JD & Separovic F. 2011. Solid-state NMR of amyloid membrane interactions. *Protein Folding, Misfolding, and Disease*. United States: Humana Press, pp. 165-177.



PUBLICATIONS

- McCubbin, Praporski, Piantavigna, Knappe, Hoffmann, Bowie, Separovic F & Martin. 2011.** QCM-D fingerprinting of membrane-active peptides. *European Biophysics Journal with Biophysics Letters*. **40**: 437-446.
- Sani MS, Gehman JD & Separovic F. 2011.** Lipid matrix plays a role in Abeta fibril kinetics and morphology. *FEBS Letters*. **585** (5): 749-754.
- Sani MA, Separovic F & Gehman JD. 2011.** Disentanglement of heterogeneous dynamics in mixed lipid systems. *Biophysical Journal*. **100**: L40-L42.
- Separovic F, Killian, Cotten, Busath & Cross. 2011.** Modeling the membrane environment for membrane proteins. *Biophysical Journal*. **100** (April): 2073-2074.
- Shabanpoor F, Separovic F & Wade JDW. 2011.** General method for selective labelling of double-chain cysteine-rich peptides with a lanthanide chelate via solid-phase synthesis. *Journal of Peptide Science*. **17**: 169-173.
- Shabanpoor F, Zhang S, Hughes R, Hossain M, Layfield S, Ferraro T, Bathgate R, Separovic F & Wade J. 2011.** Design and Development of Analogues of Dimers of Insulin-like Peptide 3 B-Chain as High-Affinity Antagonists of the RXFP2 Receptor. *Biopolymers*. **96** (1): 81-87.
- Hao X, Mckimmie LJ & Smith TA. 2011.** Spatial Fluorescence Inhomogeneities in Light Emitting Conjugated Polymer Films. *Journal of Physical Chemistry Letters*. **2** (13): 1520-1525.
- Hirvonen LMH & Smith TAS. 2011.** Imaging on the Nanoscale: Super-Resolution Fluorescence Microscopy. *Australian Journal of Chemistry*. **64** (1): 41-45.
- Scholes CA, Millar D, Gee ML & Smith TA. 2011.** Resonance Energy-Transfer Studies of the Conformational Change on the Adsorption of Oligonucleotides to a Silica Interface. *Journal of Physical Chemistry B*. **115** (19): 6329-6339.
- Teoh C, Pham C, Todorova N, Hung A, Lincoln CN, Lees EE, Lam Y, Binger KJ, Thomson N, Radford S, Smith T, Mueller S, Engel A, Griffin M, Yarovsky I, Gooley P & Howlett G. 2011.** A Structural Model for Apolipoprotein C-II Amyloid Fibrils: Experimental Characterization and Molecular Dynamics Simulations. *Journal of Molecular Biology*. **405** (5): 1246-1266.
- Fowler P & Soncini A. 2011.** Visualising aromaticity of bowl-shaped molecules. *Physical Chemistry Chemical Physics*. **13** (46): 20637-20643.
- Jenneskens L, Havenith R, Soncini A & Fowler P. 2011.** Aromaticity of strongly bent benzene rings: persistence of a diatropic ring current and its shielding cone in [5]paracyclophane. *Physical Chemistry Chemical Physics*. **13** (37): 16861-16866.
- Ash, Chong L, Maher, Hinds, Xiao Z & Wedd AG. 2011.** Molecular Basis of the Cooperative Binding of Cu(I) and Cu(II) to the CopK Protein from Cupriavidus metallidurans CH34. *Biochemistry*. **50**: 9237-9247.
- Bernardini G, Wedd A & Bond A. 2011.** Reactivity of one-, two-, three- and four-electron reduced forms of alpha-[P2W18O62](6-) generated by controlled potential electrolysis in water. *Inorganica Chimica Acta*. **374** (1): 327-333.
- Bernardini G, Zhao C, Wedd A & Bond A. 2011.** Ionic Liquid-Enhanced Photooxidation of Water Using the Polyoxometalate Anion [P2W18O62](6-) as the Sensitizer. *Inorganic Chemistry*. **50** (13): 5899-5909.
- Guo S, Xie J, Gilbert-Wilson RJ, Birkett S, Bond A & Wedd A. 2011.** Synthesis and redox properties of triarylmethane dye cation salts of anions [M6O19](2-) (M = Mo, W). *Dalton Transactions*. **40** (2): 356-366.
- Li Q, Zhao C, Bond A, Boas J, Wedd A, Moubaraki B & Murray K. 2011.** Controlled potential electrodeposition of a microcrystalline thin film of the charge transfer material tetrathiafulvalene-polyoxometalate of approximate composition (TTF)(5.3)(Bu4N)(0.7) [P2W18O62]center dot 3H(2)O. *Journal of Materials Chemistry*. **21** (14): 5398-5407.
- Xiao Z, Brose J, Schimo, Ackland, La Fontaine & Wedd AG. 2011.** Unification of the Copper(I) Binding Affinities of the Metallo-Chaperones Atx1, Atox1 and Related Proteins: Detection Probes and Affinity Standards. *Journal of Biological Chemistry*. 11047-11055.
- Xiao Z & Wedd AG. 2011.** Metallo-Oxidase Enzymes: Design of their Active Sites. *Australian Journal of Chemistry*. **64** (3): 231-238.
- Bradford TA, Willis AC, White JMW, Herlt AJ & Mander LN. 2011.** The structures of four new himbacine-like Galbulimima alkaloids. *Tetrahedron Letters*. **52** (2): 188-191.
- Carr J, Duggan P, Humphrey D, Tyndall E & White J. 2011.** Quaternary Ammonium Spiroborate Esters and Mixed Anhydrides Derived from Aliphatic alpha-Hydroxy Acids and Diacids and their Wood Protection Properties. *Australian Journal of Chemistry*. **64**: 1417-1424.
- D'Souza AM, Spiccia N, Basutto J, Jokisz PG, Wong LS-M, Meyer AG, Holmes AB, White JM & Ryan JH. 2011.** 1,3-Dipolar Cycloaddition-Decarboxylation Reactions of an Azomethine Ylide with Isatoic Anhydrides: Formation of Novel Benzodiazepinones. *Organic Letters*. **13**: 486-489.
- Glover SA, White JM, Rosser AA & Digianantonio KM. 2011.** Structures of N,N-Dialkoxyamides: Pyramidal Anomeric Amides with Low Amidicity. *Journal of Organic Chemistry*. **76**: 9757-9763.
- Karnezis A, O'Hair RA & White JM. 2011.** Solution and Gas-Phase Investigations of Trimethylsilylpropyl-Substituted Pyridinium Ions. Manifestation of the Silicon α Effect. *Organometallics*. **30**: 5665-5674.
- Latham K, Downs J, Rix C & White J. 2011.** Interactions of guanidinium with benzene-sulphonic, -phosphonic and -arsonic acids and several of their nitro-derivatives. *Journal of Molecular Structure*. **987** (1-3): 74-85.
- Leaver DJ, Dawson RM, White JM, Polyzos A & Hughes AB. 2011.** Synthesis of 1,2,3-triazole linked galactopyranosides and evaluation of cholera toxin inhibition. *Organic & Biomolecular Chemistry*. **9**: 8465-8474.
- Lim S, Harris B, Blanc PM & White JMW. 2011.** Orbital Interactions in Selenomethyl-Substituted Pyridinium Ions and Carbenium Ions with Higher Electron Demand. *Journal of Organic Chemistry*. **76** (6): 1673-1682.
- Marcuccio SM, Epa R, White JM & Deadman JJ. 2011.** A New Process for Synthesis of Apricitabine, 2-(R)-Hydroxymethyl-4-(R)-(cytosin-10-yl)-1,3-oxathiolane, an Anti-HIV NRTI. *Organic Process Research and Development*. **15**: 763-773.
- Smith G, Wermuth UD, Healy PC & White JM. 2011.** Structural Systematics of the Anhydrous 1:1 Proton-Transfer Compounds of 3,5-Dinitrosalicylic Acid with Aniline and Monosubstituted Anilines. *Journal of Chemical Crystallography*. **41**: 1649-1662.
- Smith G, Wermuth U & White J. 2011.** 2-(4-Aminophenyl)-1-phenyldiazonium 2,4,6-trinitrophenolate. *Acta Crystallographica Section E - Structure Reports Online*. **67**.
- Szpakolski K, Latham K, Rix C & White J. 2011.** 2-Picolinic acid and benzoic acid from di-2-pyridyl ketone and acetophenone: A case of two copper catalysed Baeyer-Villiger rearrangements? *Inorganica Chimica Acta*. **376** (1): 628-633.

PUBLICATIONS



Tilley A, Danczak SM, Browne C, Young T, Tan TAT, Ghiggino KP, Smith TA & White JM. 2011. Synthesis and Fluorescence Characterization of MEHPPV Oligomers. *Journal of Organic Chemistry*. **76** (9): 3372-3380.

Blackmann A, Bottle S, Schmid S, Mocerino M & Wille U. 2011. *Chemistry*. Brisbane, Australia: Wiley - John Wiley & Sons.

Goeschen C, Wibowo N, White J & Wille U. 2011. Damage of aromatic amino acids by the atmospheric free radical oxidant NO₃ center dot in the presence of NO₂ center dot, N₂O₄, O-3 and O-2. *Organic & Biomolecular Chemistry*. **9** (9): 3380-3385.

Wille U. 2011. Reaction mechanisms: radical and radical ion reactions. *Royal Society of Chemistry. Annual Reports on the Progress of Chemistry. Section B: Organic Chemistry*. **107**: 244-265.

Wille U & Goeschen C. 2011. Oxidative Damage of Thymidines by the Atmospheric Free-Radical Oxidant NO₃. *Australian Journal of Chemistry*. **64**: 833-842.

Ash L, Zanatta SD, Williams SJ, Lawrence AJ & Djouma. 2011. The galanin-3 receptor antagonist, SNAP 37889, reduces operant responding for ethanol in alcohol-preferring rats. *Regulatory Peptides*. **166** (1-3): 59-67.

Cao B, White JM & Williams S. 2011. Synthesis of glycoconjugate fragments of mycobacterial phosphatidylinositol mannosides and lipomannan. *Beilstein Journal of Organic Chemistry*. **7**: 369-376.

Proietti Silvestri I, Andemariam F, Khairallah G, Yap S, Quach T, Tsegay SG, Williams M, O'Hair RA, Donnelly PS & Williams SJ. 2011. Copper(I)-catalyzed cycloaddition of silver acetylides and azides: Incorporation of volatile acetylenes into the triazole core. *Organic & Biomolecular Chemistry*. 6082-6088.

Qin C, Williams SJ & Woodman L. 2011. Antioxidant activity contributes to flavonol cardioprotection during reperfusion of rat hearts. *Free Radical Biology and Medicine*. 1437-1444.

Uldrich AP, Patel O, Cameron G, Pellicci D, Day E, Sullivan LC, Kyparissoudis K, Kjer-Nielsen L, Vivian J, Cao B, Brooks AG, Williams SJ, Illarionov P, Besra G, Turner SJ, Porcelli S, Mccluskey J, Smyth M, Rossjohn J & Godfrey DI. 2011. A semi-invariant Vα10+ T cell antigen receptor defines a population of natural killer T cells with distinct glycolipid antigen-recognition properties. *Nature Immunology*. **12** (7): 616-625.

Williams SJ, Thomas J, Boujaoude M, Gannon CT, Zanatta SD, Jarrott B, May N & Woodman OL. 2011. Water soluble flavonol prodrugs that protect against ischaemia-reperfusion injury in rat hindlimb and sheep heart. *MedChemComm*. **2** (4): 321-324.

Yap S, Woodman L, Crack PJ & Williams SJ. 2011. Synthesis of a hypoxia-targeted conjugate of the cardioprotective agent 3',4'-dihydroxyflavonol and evaluation of its ability to reduce ischaemia/reperfusion injury. *Bioorganic and Medicinal Chemistry Letters*. **21** (17): 5102-5106.

Sproules SA, Eagle A, Taylor M, Gable RW, White J & Young C. 2011. Paramagnetic Oxotungsten(V) Complexes Containing the Hydrotris(3,5-dimethylpyrazol-1-yl)borate Ligand. *Inorganic Chemistry*. **50** (10): 4503-4514.

Cooper R. 2011. The History and Development of Radiation Chemistry. *Australian Journal of Chemistry*. **64** (7): 864-868.

Harcourt RDH. 2011. Recoupled-Pair Bonding and 4-Electron 3-Center Bonding Units. *Journal of Physical Chemistry A*. **2011** (115): 6610-6616;8180-8180.

Larkins FPL. 2011. Australian higher education research policies and performance 1987-2010. Carlton, Australia: Melbourne University Press.

Faber PA, Cook PA, McKelvie ID & Ellis PS. 2011. Development of a gas diffusion probe for the rapid measurement of pCO₂ in aquatic samples. *Analytica Chimica Acta*. **691**: 1-5.

Grudpan K, Christian G & McKelvie ID. 2011. How did flow injection analysis, and its related techniques, develop in various parts of the globe? Reflections of prominent FIA practitioners. *Talanta*. **84** (5): 1200-1204.

Haji Shabani A, Ellis PS & McKelvie ID. 2011. Spectrophotometric determination of iodate in iodised salt by flow injection analysis. *Food Chemistry*. **129**: 704-707.

Mesquita RB, Ferreira MT, Tóth IV, Bordalo AA, McKelvie ID, Rangel AO. 2011. Development of a flow method for the determination of phosphate in estuarine and freshwaters? Comparison of flow cells in spectrophotometric sequential injection analysis. *Analytica Chimica Acta*. **701**: 15-22.

PUBLICATIONS

Bongiovanni MN, Scanlon D & Gras S. 2011. Functional fibrils derived from the peptide TTR1-cycloRGDfk that target cell adhesion and spreading. *Biomaterials*. 6099-6110.

Kamaruddin M, Ung, Hossain IKM, Jarasrassamee B, O'Malley, Thompson, Scanlon DS, Cheng HCC & Graham. 2011. A facile, click chemistry-based approach to assembling fluorescent chemo sensors for protein tyrosine kinases. *Bioorganic and Medicinal Chemistry Letters*. **21** (1): 329-331.

Bradshaw, Barril, Clark, Prenzler & Scollary GR. 2011. Ascorbic acid: A review of its chemistry and reactivity in relation to a wine environment. *Critical Reviews in Food Science and Nutrition*. **51**: 479-498.

Sonni, Clark, Prenzler, Riponi & Scollary GRS. 2011. Antioxidant action of glutathione and the ascorbic acid/ glutathione pair in a model white wine. *Journal of Agricultural and Food Chemistry*. **59**: 3940-3949.

Sonni F, Moore E, Clark A, Chinnici F, Riponi C & Scollary G. 2011. Impact of Glutathione on the Formation of Methylmethine- and Carboxymethine-Bridged (+)-Catechin Dimers

Belgi A, Hossain M, Shabanpoor F, Chan L, Zhang, Bathgate R, Tregear GW & Wade JD. 2011. Structure and Function Relationship of Murine Insulin-like Peptide 5 (INSL5): Free C-Terminus Is Essential for RXFP4 Receptor Binding and Activation. *Biochemistry*. **50** (39): 8352-8361.

Haugaard-Kedstrom L, Shabanpoor F, Hossain M, Clark R, Ryan P, Craik D, Gundlach A, Wade J, Bathgate R & Rosengren K. 2011. Design, Synthesis, and Characterization of a Single-Chain Peptide Antagonist for the Relaxin-3 Receptor RXFP3. *Journal of the American Chemical Society*. **133** (13): 4965-4974.

Hossain M, Man B, Zhao C, Xu Q, Du X, Wade J & Samuel C. 2011. H3 Relaxin Demonstrates Antifibrotic Properties via the RXFP1 Receptor. *Biochemistry*. **50** (8): 1368-1375.

Hossain M, Rosengren, Samuel C, Shabanpoor F, Chan L, Bathgate R & Wade JD. 2011. The Minimal Active Structure of Human Relaxin-2. *Journal of Biological Chemistry*. **286** (43): 37555-37565.

Ostorhazi E, Holub M, Ferenc Rozgonyi, Ferenc Harmos, Cassone M, Wade J & Otvos L. 2011. Broad-spectrum antimicrobial efficacy of peptide A3-APO in mouse models of multidrug-resistant wound and lung infections cannot be explained by in vitro activity against the pathogens involved. *International Journal of Antimicrobial Agents*. **37** (5): 480-484.

Ostorhazi E, Rozgonyi F, Szabo D, Binas A, Cassone M, Wade J, Nolte O, Bethel C, Bonomo R & Otvos L. 2011. Intramuscularly Administered Peptide A3-APO Is Effective Against Carbapenem-Resistant *Acinetobacter baumannii* in Mouse Models of Systemic Infections. *Biopolymers*. **96** (2): 126-129.

Otvos L, Kovalszky I, Scolaro L, Sztodola A, Olah J, Cassone M, Knappe D, Hoffmann R, Lovas S, Hatfield M, Beko G, Zhang S, Wade J & Surmacz E. 2011. Peptide-Based leptin Receptor Antagonists for Cancer Treatment and Appetite Regulation. *Biopolymers*. **96** (2): 117-125.

Otvos L, Shao W, Vanniasinghe A, Amon M, Holub M, Kovalszky I, Wade J, Doll M, Cohen P, Manolios N & Surmacz E. 2011. Toward understanding the role of leptin and leptin receptor antagonism in preclinical models of rheumatoid arthritis. *Peptides*. **32** (8): 1567-1574.

Van Duyvenvoorde H, Van Doorn J, Koenig J, Gauguin L, Oostdijk W, Wade J, Karperien M, Ruivenkamp C, Losekoot M, Van Setten P, Walenkamp M, Noordam C, De Meyts P & Wit J. 2011. The severe short stature in two siblings with a heterozygous IGF1 mutation is not caused by a dominant negative effect of the putative truncated protein. *Growth Hormone & IGF Research*. **21** (1): 44-50.



The School of Chemistry gratefully acknowledges its sponsors

Agilent Technologies
Australian Nuclear Science and Technology Organisation
Australian Research Council
Australian Synchrotron
BHP Billiton
Chemistry Education Association Inc
Dairy Innovation Australia Ltd
Dulux Australia
Huntsman Corporation Australia Pty Ltd
Melbourne Water
Peter MacCallum Cancer Institute
Stawell Gold Mines
Victorian Institute for Chemical Sciences Ltd

CONTACT THE SCHOOL



+61 3 8344 6567



+61 3 9347 5180

Chemistry Building
The University of Melbourne
VIC 3010 Australia



www.chemistry.unimelb.edu.au

ANNUAL REPORT COMPILED BY
ALEXANDRA STRICH
astrich@unimelb.edu.au

Chemistry Masson building and screen
photos by Shannon McGrath
www.shannonmcgrath.com

Chemistry Redevelopment photos by
S2F Pty Ltd
Hanna El Moullem | Project Manager
S2F Pty Ltd | Level 1, Building 1,
21-31 Goodwood Street, Richmond, VIC 3121
T +61 3 8456 4856 | F +61 3 8456 4899
E hanelm@s2f.com.au | W www.s2f.com.au

COPYRIGHT

© Copyright University of Melbourne
2012. Copyright in this publication is
owned by the University and no part
of it may be reproduced without the
permission of the University.

Authorised by: Head of School,
Chemistry, 2012.

CRICOS Provider code: 00116K

DISCLAIMER

The University has used its best
endeavours to ensure that material
contained in this publication was correct
at the time of printing. The University
gives no warranty and accepts no
responsibility for the accuracy or
completeness of information and the
University reserves the right to make
changes without notice at any time in
its absolute discretion. Users of this
publication are advised to reconcile the
accuracy and currency of the information
provided with the relevant faculty or
department of the University before
acting upon or in consideration of the
information.

STATEMENT ON PRIVACY POLICY

When dealing with personal or health
information about individuals, the
University of Melbourne is obliged to
comply with the *Information Privacy Act
2000* and the *Health Records Act 2001*.

For further information refer to:
[www.unimelb.edu.au/unisec/
privacypolicy.htm](http://www.unimelb.edu.au/unisec/privacypolicy.htm)

INTELLECTUAL PROPERTY

For further information refer to:
www.unimelb.edu.au/Statutes