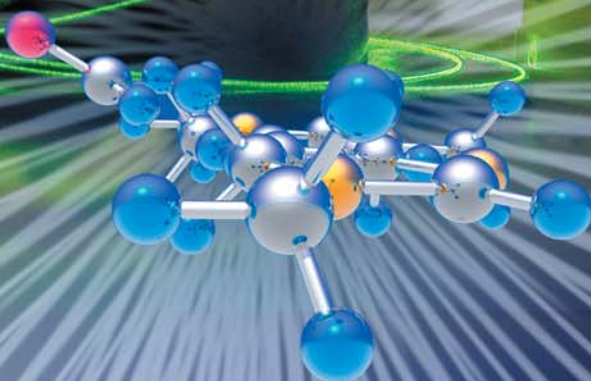


Annual Report 2004



THE UNIVERSITY OF
MELBOURNE



SCHOOL OF

Chemistry

Sponsors

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Head's Report



Increasing student numbers and research funding to staff have continued to expand activity in the School of Chemistry during 2004. Our undergraduate student enrolments have grown quite significantly while grant results announced at the end of the year placed the School as the leading recipient of new Australian Research Council funding in the University with over \$5.6 million dollars received and an outstanding 70% application success rate reflecting the high quality of research being undertaken in the School.

The completion of the Bio21 Institute building in late December 2004 will see the transfer of the research activity of approximately 70 chemistry academic staff and postgraduate students to this new location. The Bio21 Institute building is situated near the top of Flemington Road, adjacent to Veterinary Science in the Western Precinct of the University and, while there have been some delays in the final hand-over, there is no doubt that this very high-tech building will provide an exciting environment to encourage interdisciplinary interactions in molecular science and biotechnology. A particularly noteworthy feature is the co-location of major instrumentation, including NMR and mass spectrometry instruments of a number of University Departments and Institutes, in modern laboratories that will provide one of the most comprehensive scientific equipment infrastructure facilities in the country.

Another major initiative involving the School of Chemistry during the past year has been the implementation of programs of the Victorian Institute for Chemical Sciences (VICS) following funding support from the State Government and the participating Universities. These programs cover the four VICS themes of Chemistry Education and Outreach, Environmental Solutions, Drug Discovery and Chemical Synthesis, and Molecular Analysis and Dynamics. Already this initiative has led to the purchase of over \$4 million dollars in chemical instrumentation infrastructure and the support of 29 new collaborative research projects involving staff from Melbourne, Monash and RMIT chemistry departments.

A review of first year teaching led to the implementation of an advanced stream of lectures to high performing chemistry students and a reorganisation of the course delivery. Quality of Teaching surveys from students indicate these changes have been well received. Our interactive world-wide-web deliverable chemistry offerings (ChemCAL Online), under the overall direction of Peter Tregloan, continue to expand and now include pre-laboratory and question-

Head's Report

bank components while a new bridging chemistry subject with a substantial on-line component is under development. We are also collaborating with the Chemistry Education Association in a new venture to extend on-line offerings to the secondary sector.

I regret to report that one of our long serving staff members, Melvyn Gill, Associate Professor and Reader in the School, passed away during the year after a period of illness. Melvyn came to the School in 1982 as a lecturer in the Department of Organic Chemistry and made major contributions to teaching, research and administration, including periods as Deputy Head and acting Head of School. We convey our condolences to his family and to the many colleagues both in Australia and overseas who knew and worked with Melvyn.

The cooperation and input of all staff in the School contributed to the Faculty achieving ongoing certification under the Safety Map program. We should all be grateful to the protocols put in place through our Environmental, Health and Safety Committee and our EH&S officer that provide the template to monitor and improve the safety and working environment of the School. I also wish to particularly acknowledge the highly skilled support our workshop, store, technical, administration and teaching laboratory staff continue to provide that keeps our teaching and research activities operating at such a high level.

During 2005 our attention will turn to provide the planning input necessary to upgrade the buildings on the main campus where the majority of chemistry research groups and all teaching activity will remain. Chemistry is universally acknowledged to be a key enabling science for future technological developments and we are committed to ensuring that students at Melbourne continue to receive the highest international level of chemistry training and an educational experience that will prepare them for the wide range of careers available to our graduates. With the commitment of our staff and ongoing support of our sponsors the future for chemistry at Melbourne looks very bright indeed.

Ken Ghiggino
Masson Professor of Chemistry
Head, School of Chemistry

Academic Staff

Head of School and Masson Professor of Chemistry

Kenneth Philip Ghiggino, BSc *NSW* PhD *NSW* DipEd *Melb.* FRACI

Professors of Chemistry

Franz Grieser, BSc *Melb.* PhD *Melb.* FRACI

Francis Patrick Larkins, AM BEd *Melb.* MSc *Melb.* DSc *Melb.* DPhil *Oxf.* DipAdvMath *Oxf.* FAA FTSE FRACI FAIE FAIP
(Deputy Vice-Chancellor [Research])

Carl Herbert Schiesser, BSc *Adel.* PhD *ANU* DSc *Adel.* FRACI

Anthony Gordon Wedd, BSc *Tas.* PhD *Tas.* DSc *Tas.* FRACI

Associate Professors and Readers

Michelle Louise Gee, BSc *Melb.* PhD *NYAS* MRACI

Melvyn Gill, BSc *Brad.* PhD *Brad.* DSc *Brad.* FRACI FRSC

Paul Mulvaney, BSc *Melb.* PhD *Melb.*

Richard Alfred John O'Hair, BSc *Adel.* PhD *Adel.* FRACI

Mark Anthony Rizzacasa, BSc *W.Aust.* PhD *W.Aust.* MRACI

Frances Separovic, BA *Macq.* PhD *NSW.*

Jonathan Michael White, BSc *Cant.* PhD *Cant.* FRACI

Charles Graham Young, BSc *ANU* PhD *ANU*

Associate Professors

William David McFadyen, BSc *Melb.* PhD *Melb.* DipEd *Melb.*

Peter Allan Tregloan, BSc *Adel.* PhD *Adel.* MRACI

Senior Lecturers

Stephen Peter Best, BSc *Syd.* PhD *Syd.* MRACI

Evan Bieske, BSc *Qld.* PhD *Griff.*

Craig Hutton, BSc *Adel.* PhD *Adel.* MRACI

Spas Dimitrov Kolev, BSc *Sofia* PhD *TU Budapest*

Academic Staff

Lecturers

Brendan Francis Abrahams, BSc *Melb.* PhD *Melb.* DipEd *Melb.* SCA

Colette Boskovic, BSc, *Melb.* PhD *Melb.*

Trevor Alexander Smith, BSc *Melb.* PhD *Melb.* MRACI

Uta Wille, DiplomChem *Kiel.* PhD *Kiel.*

Spencer James Williams, BSc *W.Aust.* PhD *W.Aust.*

ARC Federation Fellow

Andrew Bruce Holmes, BSc *Melb.* MSc *Melb.* PhD UC *London* MA *Camb.* ScD *Camb.* FRS

ARC Research Fellow

Rachel A Caruso, BSc *Melb.* PhD *Melb.*

ARC Australian Post Doctoral Research Fellow

Dr. Paul Donnelly, BSc PhD *W.Aust*

Transition Teaching Fellow

Robert Edward Charlesworth, BSc *Melb.* DipEd *Melb.*

Chemistry Outreach Fellow

Joanne Kuluveovski, BSc *Melb.*

Senior Research Fellow

Muthupandian Ashokkumar, BSc *Madras* MSc *Madras* PhD *Madras* MRACI

Research Fellows

Eva Campi, BSc *Mon.*

Michael Carland, BSc *Melb.* PhD *Melb.*

Andrew Donohue, BSc *Mon.* PhD *Mon.*

John Gehman, BSc *Temple* PhD *Yale*

George Khairallah, BSc *Beirut* PhD *LaTrobe*

Academic Staff

Melissa Laws, BSc *Melb.* PhD *Melb.*
David John Neilsen, BSc *Tas.* PhD *Tas.*
Stuart Prescott, BSc *Syd.* PhD *Syd.*
Gowri Ramachandran, PhD *Madras*
Thu Thuc Truong, BSc *RMIT* PhD *RMIT*
Zhiguang Xiao, BSc *Fujian TU* MSc *Fujian TU* PRC PhD *La Trobe*
Meifang Zhou, BSc *East China* PhD *NSW*

Wilsmore Fellows

Andrew Hor, BSc *Imperial College* D.Phil. *Oxford* D.Sc. *London*
Paul F Luchman, BSc *Bristol* PhD *Bristol*
James Lisy, BSc *Iowa*, MA *Harvard* PhD *Harvard*
Philippe Renaud, PhD *Zurich*

Research Assistants

Laura Andrau, PhD *Fribourg*
Jilliarne Andropof, BSc *Melb.* PGDip *Melb*
Zoran Dinev, BSc *Melb*
Christopher Donner, BSc *Melb.* PhD *Melb.*
Carlie Gannon, BSc *Melb.*
Marissa Grace Haywood, BSc *M.V.*
Sonia Horvat, BSc *Melb.* PhD *Melb.*
Tim Hudson, BSc *Melb.* PhD *Melb.*
Mariske Leonie Krijgsman, MSc *Utrecht*
Jessica Pacifico, MSc, *Neuchâtel* Phd *Neuchâtel*
Victoria Tamara Perchyonok, BSc *Melb.* PhD *Melb.*
Natalie Pereira, BSc *Curtin*
David Price, BSc *Mon.* PhD *Mon.*
Marisa Spiniello, BSc *Flind.* PhD *Melb.*
Chris Thompson, BSc *ANU*, PhD *Mon.*
Ian Walker, BSc *Curtin*, PhD *ANU*

Honorary Staff

Professors Emeritus

Donald William Cameron, MSc *Qld.* MA *Camb.* PhD *Manc.* ScD *Camb.*
FRACI

Thomas Aloysius O'Donnell, PhD *Melb.* DSc *Melb.* FRACI

Professorial Fellows

Calum John Drummond, BSc *Melb.* PhD *Melb.*

Thomas William Healy, BSc *Melb.* MSc *Melb.* PhD *Col.* Hon DSc *Melb.*
FRACI FAA FTSE

Richard Robson, BA *Oxf.* DPhil *Oxf.* FAA

Robert Oliver Watts, BSc *Lond.* PhD *ANU* FAA FRACI

Principal Fellows

Ronald Cooper, BSc *Leeds* PhD *Leeds* FRACI

Roger Francis Martin, BSc *Melb.* PhD *Melb.*

Peter James Thistlethwaite, BSc *Melb.* PhD *Melb.* DipEd *Melb.*

Senior Fellows

Robert Craig, BSc *Melb.* MSc *Melb.* DPhil *Oxf.*

Donald Neil Furlong, BSc *Brun.* PhD *Brun.* FRACI

Patrick Hartley, BSc *Warw.* PhD *Imperial Coll of Sci. Tech. & Med.*

Valda May McRae, BSc *Melb.* BEd *Melb.* PhD *Melb.*

Peter McTigue, BSc *Melb.* MSc *Melb.* DPhil *Oxf.*

Fellows

Raymond Dagastine, BCE *Delaware*, PhD *Carnegie Mellon*

Chester Robin Gray, RTC *Tas.* Dip. Maths *Perth* Dip. App. Sci. *Perth* BSc *Perth*

Richard David Harcourt, BSc *Melb.* PhD *Mon.* DipEd *Melb.* MRACI

Mariana El Sous, BSc *Melb.* PhD *Melb.*

John Hodges, BSc *Delaware* PhD *Arizona*

John Michael Lawlor, BSc *Lond.* PhD *Lond.*

Markus Stefan Schatz, Dip Chem *FAU, Erlangen Nurn.* PhD *FAU, Erlangen Nurn*

San Hoa Thang, BSc *Griff.* PhD *Griff.*

Gerard Joseph Wilson, BSc *NU Ireland*, PhD *ANU*

Jan Ramuald Zdysiewicz, BSc *Adel.* PhD *Adel.*

Academic Staff News

News

Professor Andrew Holmes joined the School as ARC Federation Fellow and VESKI Fellow, jointly with the Bio21 Institute.

Dr Colette Boskovic returned to the School as a lecturer after working overseas as a post doctoral fellow at Indiana University and at the University of Bern.

The School also farewelled Sonia Horvat, research assistant with Carl Schiesser, and welcomed Paul Donnelly, ARC Australian Post Doctorate Research Fellow and Chris Thompson, research assistant with Evan Bieske. Dr Michael Carland also left the School to join ANU.

Academic Publications

A listing of research publications for 2004 is available on the School website at <http://www.chemistry.unimelb.edu.au/research>

Awards, Prizes & Medals

A.E. Rowden White Foundation - Dr. Spas Kolev, for a Thermo Finnigan LCQ Instrument for the School.

Dr. Spencer Williams awarded the RACI Division of Organic Chemistry Divisional Lectureship for recently appointed staff.

Selby Research Award for 2004 - Dr. Colette Boskovic and Dr. Brendan Abrahams.

Dean's Award for Excellence in Teaching - Robert Charlesworth.

A/Prof. Richard O'Hair elected a Fellow of the Royal Australian Chemical Institute

General Staff

Marino Artuso
Bernice Bedford
Michael Blake
Vicki Burley
Russell Charles
Leigh Crawford
Jo Dalvean, B.App.Sci. *Mon.*
Fran Dynan, AdvDipAcctg. *VU*
Jim Dynan
Greg Ellis, BAppSci FIT DipEd *H'thorn. Inst. Ed.*
Anthea Ellison, Dip.Hom.Med. *Syd.*
Robert Gable, BSc *Melb.* PhD *Melb.*
Les Gamel
Kerry Hambridge
Caithleen Jones, BA *Melb.*
Ben Kirk, B Comp. *Ballarat*
Peter Lehman, Appl.Chem. *RMIT* MSc *E. Anglia* PhD *E. Anglia*
Ross Lineham
Tang-Kuan Lim, BSc *Malaysia* PhD *Brit. Col.*
Brendan Mangan
Richard Mathys
Alf Meilak
Peter Mills, DipAppChem *RMIT* GradDip(Met) *RMIT*
Thu Nguyen
John Nuske
Des Odgers
George Papadopoulos, BEng *VUT* DipAppSc-OH&S *RMIT*
Shaun Scanlon
Jennifer Scott
Doug Taylor, BAppSc(Chem) *RMIT* GradDip(ClinSc) *Riverina* CAE
GradDipEd. *Melb.* CAE
Sioe See Volaric, BSc *Syd.* MSc. *Syd.*
Gillian Webster
Jennifer York, BSc *Melb.* MSc *Melb* PhD *Melb* MA *Deakin*

General Staff News

Jo Dalvean, graphic designer, multi-media programmer and ChemCal expert left Chemistry to become the IT Manager in the Dept. of Finance. Jo's exceptional skills have been greatly missed by all.

Ben Kirk was appointed IT Manager within the School and Anthea Ellison replaced Cait Jones as Carl Schiesser's assistant. Cait later joined Peter Lehman, as executive assistant in the VICS office.

Thu Nguyen joined the School as assistant to Prof. Andrew Holmes.

Dr Jennifer York, formerly Research Grants Manager in the Melbourne Research and Innovation Office (MRIO), was appointed the School's new Executive Manager and joined us in November.



In the Postgraduate School

2004 Melbourne University Chemical Society (MUCS)

President: Dr. Spencer J. Williams
Secretary: Assoc. Prof. Michelle Gee
Treasurer: Dr. Uta Wille
Student Members: Helen Ryan, Le Zeng, Nazanin Amini, Kylee Aumann, Colin Scholes, Danny Ganame

For 2004 MUCS Lecture program see website.

<http://www.chemistry.unimelb.edu.au/news/mucs2004.html>

Chemistry Postgraduate Society 2004 (CPS)

President: Alica Daly
Staff Rep: Vicki Burley
Treasurer: Emma Denehy
Secretary: Jacinta Watt

Berin Boughton, Nathan Fifer, Kate Hassall, Tina Tan

A major event for 2004 was the Annual Staff/Student Dinner held at the King Bo Chinese Restaurant in Melbourne. The event was a great success with 110 students and staff in attendance. The CPS also assisted in organising the School's participation in "Australia's biggest morning tea" and helped raise \$260 for the Cancer Council Victoria. The Annual Trivia Night was held on 1st October and, as usual, was well attended. On the night the winners were "Mariotti's Minions" (see photo). The winning team was made up of Andrew Mariotti, Colette Boskovic, Marissa Haywood, Tim Hudson, Patrick James, Simon James, Hadi Lioe, Tom Waters, Maree Staples and Lianyi Zhang.



In the Postgraduate School

Awards, Prizes & Scholarships

Melbourne Abroad Travelling Scholarship (MATs)

Alison Drechsler in Oxford, London and Nottingham

Monica Reum Prize - Michael Carland

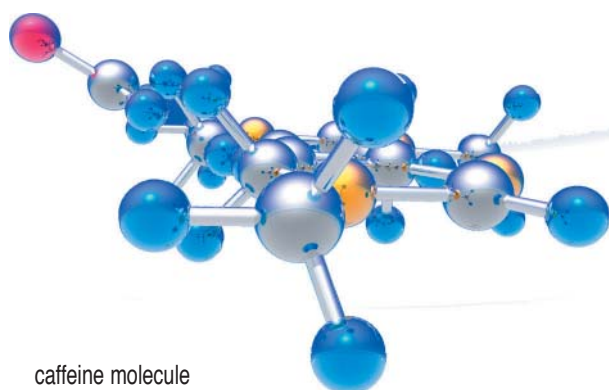
Post Graduate Overseas Research Experience Scholarship (PORES)

Crystal Lau at University of California, San Diego

Young Investigator's Award - Hadi Lioe

Chancellor's Prize for Excellence in PhD Thesis Passed in 2003 - Dr Duncan Wild

T.W. Healy Award - Sabina Zahirovic



caffeine molecule

Postgraduate Degrees Awarded

Doctor of Philosophy and Master of Science

The School of Chemistry congratulates the following students who completed their postgraduate studies in 2004.

Cuzzupe, Dr Anthony	Synthesis of biologically active furanoid natural products.
Doonan, Dr Christian	Novel cis-oxo-sulfido-molybdenum complexes which model molybdenum hydroxylases.
Falzon, Dr Chantal	An ab initio and density functional theory study on the intramolecular addition reactions of acyl and related radicals.
Holloway, Dr Georgina	Synthesis of cytotoxic marine macrolides
Hudson, Dr Timothy	Synthesis and characterisation of metal-derived polymers and oligomers involving oxy-anions.
Li, Barbara Tsz Yam	Studies of model systems towards the synthesis of the novel macrocyclic lactone dermocanarin 4.
Liu, Dr Edward Hsiang-Te	The chemistry in the search for antinematodal agents from southern Australia marine invertebrates.
McNally, Dr Michelle	Bioactive natural products from marine organisms.
Mitchell, Dr Jeffrey	Methodology for the synthesis of intercalator-peptide conjugates.
Mitri, Dr Minerva	The study of the spoilage of wine by copper in a simulated wine matrix.
Phyland, Dr James	Propellanes as precursors to taxoids.
Rooney, Dr Francis	Drug discovery from Southern Australian marine sponges
Spiniello, Dr Marisa	Structural investigation of the sigma-donor ability of some C-X bonds.
Tewierik, Dr Leonie	Studies on the synthesis of monochiral pyranoaphthoquinones.
Tickler, Dr Anna	The amyloid-b peptide of Alzheimer's Disease: chemical synthesis and physico-chemical characterisation of AB and analogues.
Tronson, Dr Rohan	The effect of surface active solutes and ultrasound frequency on sonoluminescence in aqueous solutions.
Vrkic, Dr Ana Katarina	Gas-phase reactivity studies of non-covalent complexes, diazonium ions and Grignard reagents.
Vuong, Dr Van Dat	Sponge metabolites as antiparasitic agents.

Postgraduate Degrees in Progress

Amini, Nazanin	On-line determination of mercury by membrane separation flow injection analysis.
Aumann, Kylee Maree	Potential cardioprotective agents: selenium containing allosteric enhancers of adenosine.
Barlow, Christopher	The hunt for gas phase peptide radicals.
Bondin, Mark Ian	Characterisation of transiently stable redox activated iron-sulfur compounds.
Borg, Stacey John	Redox interconversion chemistry of diiron carbonyl complexes.
Boughton, Berin Alain	Chemical tools for the study of mycobacterial glycolipid biosynthesis.
Boyd, Simon	Photoactivated ligand release.
Bullen, Craig	Surface chemistry and photoluminescence studies of cadmium selenide nanocrystals.
Callahan, Damien Lee	Study of uptake mechanisms in hyperaccumulating plants.
Cebon, Benjamin Isaiah Martin	Synthesis of epidermal growth factor inhibitors.
Cheah, Mun Hon	Electrocatalyses by biomimetic transition metal clusters.
Chen, Ming	Photoactive functional polymers.
Ciawi, Envi	The investigation of the correlation between cavitation bubble temperature and sonochemistry.
Crawford, Shannon	Bioprospecting for novel extractants to separate nickel and cobalt.
Daly, Alica Margaret	Synthetic studies towards the zaragozic acids.
Denehy, Emma Louise	Kinetic studies of sulfatases.
Dinev, Zoran	Covalent capture of supramolecular assemblies.
Drechsler, Alison Patricia	NMR studies of equinatoxin.
Dugdale, Antony	Marine bioadhesion to immersed surfaces.
Falzon, Cheryl	Synthesis, radiolabelling and evaluation of novel imaging agents for hypoxic tissue.
Fenner, Tahli	Toward novel selenium and tellurium vitamin E analogues.
Feutrill, John Thomas	Synthesis of bioactive metabolites from myxobacteria.

Postgraduate Degrees in Progress

Fifer, Nathan	Synthesis of anti-tumour cyclic peptides.
Ford, Leigh Robert	Investigations into single enantiomer outcomes in free-radical reactions.
Ganame, Danny	Synthesis of cytotoxic macrolides from marine sources.
Goh, Yit Wooi	Application of the structure correlation principle to the retro Diels Alder reaction.
Gomez-Alviarez, Daniel Enrique	Material properties of nanocrystals.
Gourlay, Craig	New models for molybdoenzymes.
Grange, Rebecca Louise	Toward selenium containing antioxidants and anti-inflammatory agents.
Hassall, Kathryn Sarah	Synthesis and structural characterisation β -silylated carbenium ions.
Haywood, Marissa Grace	Coordination polymers of simple oxyanions.
Hellis, Montaser Bashir	Membrane extraction of Zn from HCL solutions.
Hill, Lyndal Michelle Ruth	Molybdenum chemistry: bioinorganic meets polyoxometalate.
Hilli, Ferdows	Synthesis of cytoxic macrolides.
Hutchison, James Andell	Self-assembled supramolecular systems for energy and electron transfer
Jasieniak, Jacek	Quantum dot based optical device fabrication.
Kaiser, Peter Franz	New methods for amino acid and peptide synthesis.
Kesarios, Nick	The synthesis and PET labelling of tyrosine kinase inhibitors.
Koay, Melissa Shao Tang	Copper tolerance proteins.
Lau, Tong Lay	Effects of pentavalent silicon substituent in organic chemistry: ground state and reactivity effects.
Lee, Judy Yu-Ting	De-aeration under an ultrasonic field.
Lioe, Hadi	Chemistry and applications of novel reagents for proteomics.
Loft, Karen Jean	Understanding and exploiting bacterial sulfatases.
Loh, Zoe Miranda	Development of intermolecular potential energy surfaces for ion-neutral interactions.
MacDougall, Phoebe	Improved anti-inflammatory steroids: introduction of radical scavenging activities.
Malarek, Daniel Andrzej	Metal-based canonical receptors.

Postgraduate Degrees in Progress

Malarek, Michael Severyn	Novel p-acid/base organometallic complexes of molybdenum and tungsten.
Mariotti, Andrew Walter	Redox chemistry of polyoxometalate anions.
Mathai, Sean	Photochemistry and imaging porphyrin photosensitisers.
Mattsson, Eric Ronald	Bioactive natural products from marine microbes.
McLean, Scott	Protein adsorption & biocompatibility.
McAllister, David	Analogues of the anti-angiogenic compound, 2-methoxyestradiol: a synthetic and pharmacological study.
Moylan, Michael David	Coordination polymers and oligomers.
Muir, Ineke Lynn	Surface forces and adsorption profiles of proteins adsorbed onto solid surfaces.
Munro, Thomas Anthony	Synthesis of psychotropic and insect antifeedant diterpenoids.
Muthukumaran, Shobha	Ultrasonic cleaning of ultrafiltration membranes used in the dairy industry.
Nuhiji, Edin	Application of quantum dots to genetic analysis.
Parcha, Bhargava Shashikanth	Direct measurement of molecular recognition forces on smooth muscle cells.
Quach, Tim	Studies towards the synthesis of the ajudazols.
Radford, Alison Louise	Synthesis of selenium analogues of known antioxidants and anti-inflammatory agents.
Ratanachaithong, Widodo	Development of nanoporous adsorbents for biochemical separations/tissue engineering.
Ryan, Helen Elizabeth	Performance chemistry of surface coatings.
Scholes, Colin Anthony	Conformational aspects of protein adsorption through fluorescence.
Singla, Ritu	Combined sonochemical and photochemical decomposition of chemical pollutants.
Sproules, Stephen	Molybdenum and tungsten sulfur chemistry in biological systems.
Sunartio, Devi Maria	Ultrasound-initiated chemical reactions in aqueous solutions.
Tan, Tina Ai Ting	Electroluminescent polymers: synthesis and characterisation of oligo-PVs and water soluble derivatives of PPV.
Trevitt, Adam John	Characterisation of nanoparticles contained in an electrodynamic trap.

Postgraduate Degrees in Progress

Van Embden, Joel Leonard	Advanced quantum dot (QD) based optical devices and structures.
Vu, Thanh Duc	The effect of dissolved solutes on multibubble sonoluminescence in aqueous and nonaqueous solutions.
Wade, Timothy Lawrence	High power, high frequency supercapacitors.
Waters, Tom	Gas phase reactivity and electronic structure of some group six oxo-metalate anions.
Watt, Jacinta Anne	The study of mycobacterial cell wall biosynthesis.
Wearne, Philip Jerome	The optical properties of semiconductor nano-crystals.
Wee, Sheena	Studies of the interaction of metal complexes with ligands and biomolecules in the gas phase using mass spectrometry techniques.
Wilson, Rosemary Louise	Studies of charged complexes and clusters in the gas phase.
Yeoh, Shinn Dee	Application of the structure correlation principle to the retro Diels Alder reaction and other pericyclic fragmentation studies.
Zahirovic, Sabina	Interfacial tension study and rheological characterisation of water in oil emulsions.
Zammit, Steven	Synthesis of bioactive marine metabolites.
Zanatta, Shannon Dean	Synthesis of biologically active spiroketal containing natural products.
Zeng, Le	Kinetic studies on some enantioselective free-radical reductions.
Zhang, Lianyi	Electro-catalytic chemistry of polyoxo metalates.



Undergraduate Scholarships & Prizes

100 Level

Exhibition - Douglas Hin leong Chan

Dwights Prize - Thoma Seak Hou Leong

200 level

C.A. Taylor Prize - Samantha Winmala

Huntsman Australia Prize - Han Han

300 Level

Cuming Major Scholarship - Adam Brotchie

Fred Walker Scholarship - Su Wan Yap

J.S. Anderson Prize - Sara Kyne

Cuming Minor Scholarship - Joel Hooper

400 Level

Dulux Australia Prize 2004 - Berwyck Poad

Dixon Research Scholarship - Berwyck Poad

Huntsman Australia Award for Research Excellence - Caroline Egan

Professor Kernot Research Scholarship - Duanne Sigmund

Riseborough Prize - Ann Gooding

Stanley Harvey Prize - Duanne Sigmund



Research Funding

ARC, NHMRC, Government and Industry grants to the School in 2004 totalled \$3,270,067

Details of New Grants Awarded in 2004

Dr. M Ashokkumar	Radical chemistry during the ultrasonic treatment and extraction of food materials.
Dr. E Bieske	Advanced materials laser characterisation facility. Spectroscopy of single quantum dots.
Dr. P Donnelly	New copper and rhenium radiopharmaceuticals.
Prof. A Holmes	Organic optoelectronic materials: next generation semiconductors.
A/Prof. P Mulvaney	The Nanocrystal Network.
A/Prof. M Rizzacasa	Total synthesis of novel metabolites from microorganisms.
A/Prof. F Separovic	Small molecule NMR facility for accelerated drug discovery.
Dr. T Smith	Application of luminescent polymers to textiles.
Prof. A Wedd	Polyoxometalate clusters: catalytic chemistry in solution and condensed states.
Dr. U Wille	Exploring the frontiers of free-radical chemistry: self-terminating radical reactions.
Dr. S Williams	Chemical tools for the study of mycobacterial glycolipid biosynthesis. Mechansims and function of bacterial sulfates. Understanding and exploiting bacterial sulfatases.



Victorian Institute for Chemical Sciences

Formed in 2003, Victorian Institute for Chemical Sciences (VICS) is a new institute dedicated to the advancement of the chemical sciences in Victoria.

The founding members are The University of Melbourne, RMIT and Monash University.

At the end of 2004, VICS had 29 active projects in four theme areas, Drug Discovery and Chemical Synthesis, Chemistry Education and Outreach, Environmental Solutions and Molecular Analysis and Dynamics. VICS has a commitment from academic staff in the member Universities to manage or participate in these projects and has engaged appropriate technical and administrative staff.

VICS has also invested in state-of-the-art scientific instruments, which will be utilised in research projects and in accordance with the business model, will be made available to stakeholders on a fee for service basis.

Information about VICS and its activities can be obtained from Institute Director and CEO, Dr Peter Lehman, pglehman@unimelb.edu.au

Alternatively, visit the VICS website <http://www.vicsco.com.au>

Bio21 Institute



Bio21 Atrium
Photo: Michael Silver

The \$100 million Bio21 Institute complex was handed over to the University in late 2004. In December, the School of Chemistry prepared to relocate instrumentation including NMR's and a new state-of-the-art mass spectrometer to the new building. Approximately 70 staff and research students from the School will transfer research activities to the building in 2005.

More information on the Bio21 Institute can be found at <http://www.bio21.org>

Conferences, Workshops

2004 Attendance at Conferences, Workshops, and Symposia and Special Studies Leave

Ashokkumar, Dr. M	Feb	24 th Australian Colloid & Surface Science Student Conference, Adelaide.
	Mar	International Congress on Acoustics, Kyoto.
	Apr-May	9 th Meeting of the European Society of Sonochemistry, Spain.
	Nov	Accoustic Society of America Conference, San Diego, USA.
Best, Dr. S	Aug	International Hydrogenase Conference, Reading University, UK.
	Sept	2 Day Symposium at University College, London.
Bieske, Dr. E	Feb	Conference on Physical Chemistry, Hobart, Tas.
	Jul	2004 Gordon Conference on Molecular and Ionic Clusters, Aussois, France.
	Sept	6 th Asian International Syposium on Atomic & Molecular Physics, Beijing, China.
Carland, Dr. M	Jul	20 th RACI Organic Chemistry Conference, Cairns, Qld.
Caruso, Dr. R	Aug	International Conference on Materials for Hydrogen Energy, Sydney, NSW.
Cooper, Dr. R	June	Gordon Research Conference on Radiation Chemistry, Chicago, USA.
Dagastine, Dr. R	June	American Chemical Society Conference, Yale University, USA.
	Sept	Faraday Discussion 129, Cambridge, UK. Interfaces and Colloidal Systems, France.
Gee, A/Prof. M	Feb	24 th Australian Colloid & Surface Science Student Conference, Adelaide, S.A.
Ghigginio, Prof. K	Jan	RACI Professors and Heads of Chemistry Departments (PHODS) Conference, A.N.U., Canberra, ACT.
	Feb	RACI Physical Chemistry Conference, Hobart, Tas. Deans and Heads Conference, Lorne, Vic.

Conferences, Workshops

		ARC Network Meeting, Macquarie University, Sydney, NSW.
	July	XXIUPAC Conference on Photochemistry, Granada, Spain.
	Nov	Otago Lasers Research Workshop, University of Otago, Dunedin, New Zealand.
Grieser, Prof. F	Feb	24 th Australian Colloid & Surface Science Student Conference, Adelaide, S.A. Deans and Heads Conference, Lorne, Vic AIRG, Richmond, Vic.
	Apr- May	9 th Meeting of the European Society of Sonochemistry, Badajoz, Spain.
	Aug	Australian Industrial Research Group mid-year meeting, Canberra.
	Sept	Australia/Japan Conference, 57 th Divisional Meeting of Colloid & Surface Chemistry Chemical Society, Tokyo University of Science, Yamaguchi, Japan.
	Oct	10 th Asian Pacific Confederation of Chemical Engineers 2004 Congress, Kitakyusyu, Japan.
Holmes, Prof. A	Nov	International Conference in New Delhi, India. MRS Meeting, Boston, USA.
Hutton, Dr. C	Feb	3 rd Chinese-Australian Organic Chemistry Symposium, University of Sydney, NSW
	July	20 th RACI Organic Chemistry Conference, Cairns, Qld.
Kolev, Dr. S	May	Advances in Mining Technology Conference, Stawell, Vic.
	Jul	Interact 2004 Conference, Gold Coast, Qld.
Mulvaney, A/Prof. P	Feb	Bonn Winter Workshop on Nanoscale Magnetic Particles, Germany.
	Mar	<i>Particles 2004</i> , Florida, USA.
	June	Leading Centre for Nanocrystal Research, University of Hamburg, Germany. International Nanoscience Meeting (IVC16), Venice, Italy.

Conferences, Workshops

	July	ICCC36: The International Coordination Chemistry Meeting, Mexico. University of Vigo, Spain.
O'Hair, A/Prof. R	Mar	<i>Transition Metal Oxides-Cluster, Surfaces & Solids Structure, Dynamics & Reactivity</i> , Berlin, Germany.
	July	20th RACI Organic Chemistry Conference, Cairns, Qld.
Pacifico, Dr. J	Feb	24 th Australian Colloid & Surface Science Student Conference, Adelaide, S.A.
Perchyonok, Dr. T	June	ISOTRG: 9 th International Symposium Organic Free Radicals, Porto Vecio, Corsica
Prescott, Dr. S	Feb	24 th Australian Colloid & Surface Science Student Conference, Adelaide, S.A.
	Aug	18 th European Colloid and Interface Society Conference, Almeria, Spain.
Ramachandran, Dr. G	Jun- July	International Conference on Synthetic Metals (ICSM) 2004, University of Wollongong, NSW.
Rizzacasa, A/Prof. M	Feb	3 rd Chinese-Australian Organic Chemistry Symposium, University of Sydney, NSW.
Schiesser, Prof. C	Feb	3 rd Chinese-Australian Organic Chemistry Symposium, University of Sydney, NSW.
	Jul	20 th RACI Organic Chemistry Conference, Cairns, Qld.
	Nov	SC2004, Pittsburgh, USA. Inaugural Pacific Free Radical Symposium, Kanazawa, Japan.
Separovic, A/Prof. F	Jan	<i>Membranes: A Challenge for Protein Magnetic Resonance</i> , Conference at the Institute of Molecular Biophysics, Florida State University, Tallahassee, USA.
	Feb	Protein Structure and Function Conference, Lorne, Vic. National NMR Conference, ANZMAG 2004, Barossa Valley, SA.
	Apr	Council Meeting IUPAB, Paris, France

Conferences, Workshops

		European Biophysical Societies Association (EBSA) Meeting, Paris, France.
	Aug-Dec	Special Studies Program (L).
	Sept	International Peptide Conference, Prague, Czech Republic.
	Oct	ISMAR Conference, Jacksonville, Florida, USA.
Smith, Dr. T	Jun-July	ICSM - International Conference on Synthetic Metals 2004, University of Wollongong, NSW.
Spiniello, Dr. M	July	RACI Organic Chemistry Conference and XXIX ISMC Conference, Cairns, Qld.
Tregloan, A/Prof. P	Aug-Sept	Special Studies Program. 42 nd European High Pressure Research Group Meeting, Switzerland.
Wedd, Prof. AG	June	Symposium for celebration of 80 th birthday of Prof. P.W. Smith, University of Tasmania.
	Dec	Second Asian Conference on Biological Inorganic Chemistry, Goa, India.
White, A/Prof. J	Feb	3 rd Chinese-Australian Organic Chemistry Symposium, University of Sydney, NSW.
	June	Reaction Mechanisms Conference, Chicago, USA.
	July	20 th RACI Organic Chemistry Conference, Cairns, Qld.
Wille, Dr. U	Feb	3 rd Chinese-Australian Organic Chemistry Symposium, University of Sydney, NSW.
	July	RACI Organic Chemistry Conference and XXIX ISMC Conference, Cairns, Qld.
Williams, Dr. S	July	20 th RACI Organic Chemistry Conference, Cairns, Qld.
		22 nd International Carbohydrate Symposium, Glasgow, Scotland.
	Sept	Southern Highlands Conference on Heterocyclic Chemistry, Moss Vale, NSW COMBIO 2004, Perth, WA.
Young, A/Prof. C	Feb-July	Special Studies Program (L), University at Nottingham

School Seminars

March 11	Prof. Andy Hor, National University of Singapore, Wilsmore Fellow in Chemistry, <i>Development of New Metallocene Complexes for Catalysis.</i>
March 12	Dr Malcolm McLeod, University of Sydney, <i>Conquering Catalysis for Contemporary Chemistry.</i>
March 15	Karen Beyer, University of Melbourne, <i>Construction of Polyoxometalate Clusters.</i>
March 15	Nazanin Amini, University of Melbourne, <i>Chemiluminescence in Chemical Analysis.</i>
March 18	Prof. Chris Abell, University of Cambridge, <i>Studies on Enzyme Mechanism and Structure.</i>
March 19	Dr Bernard Flynn, Victorian College of Pharmacy, <i>New Multi-bond Forming Reactions for Organic Synthesis.</i>
March 22	Dr Conor Hogan, La Trobe University, <i>Redox Stimulated Isomerization of cis-Mn(CN)(CO)₂{P(OPh)₃}L](L = Ph₂PCH₂PPh₂).</i>
March 26	Prof. Phillipe Renaud, Universität Bern, Switzerland, <i>Radical Reactions: a Useful Tool for Synthetic Chemists.</i>
March 29	Dr Trevor Smith, University of Melbourne, <i>Yocto-chemistry. Chemistry in the Small and Fast Domains.</i>
March 30	Prof. Chris Willis, University of Bristol, UK, <i>Synthetic and Biosynthetic Studies on Natural Products.</i>
April 5	Dr Lisa Martin, Monash University, <i>Immobilisation of Redox Proteins - What do you do and how do you do it?</i>
April 6	Prof. Neil Greenham, University of Cambridge, <i>Solar Cells Using Conjugated Polymers and Semiconductor Nanoparticles.</i>
April 19	Prof. Chris Pickett, John Innes Centre, Norwich, School of Chemistry Inorganic and Analytical Seminar,
April 23	Dr Arthur Christopoulos, Department of Pharmacology, University of Melbourne, <i>Allosteric Modulators of G-protein Coupled Receptors.</i>

School Seminars

April 30	Chantal Falzon, University of Melbourne, PhD swansong, <i>Investigation into the Mechanistic Details of Acyl and Related Radicals.</i>
May 3	Dr Simon Lewis, Deakin University, <i>Forensic Chemistry Research at Deakin.</i>
May 6	Prof. Tom Klapotke, University of Munich, <i>New Nitrogen-rich High Explosives and Propellants.</i>
May 10	Ms Melissa Koay, Melbourne University, <i>The Chaperone Protein CopC Binds Two Copper Atoms in Different Redox States.</i>
May 17	Dr Colette Boskovic, The University of Melbourne, <i>Polynuclear Metal Complexes as Molecular Nanomagnets.</i>
May 21	Thomas Munro, University of Melbourne, PhD swansong, <i>Isolation and Synthesis of Psychoactive Terpenoids.</i>
June 7	A/Prof. Jonathan White, University of Melbourne, Joint Chemistry/ Pharmacology Seminar, <i>Applications of Minor Groove Binding Bisbenzimidazoles to the Radiation Treatment of Cancer.</i>
June 23	Professor G. Charles Dismukes, Princeton University, <i>The Biology and Chemistry of Water-Splitting Enzymes and Biomimetic Catalysts.</i>
July 5	Dr Michael Frisch, Gaussian Inc., <i>The Future of Quantum Chemistry.</i>
July 26	Dr Craig Hutton, University of Melbourne, <i>Inhibitors of Lysine Biosynthesis: Potential New Antibiotics.</i>
July 26	Sheena Wee, University of Melbourne, <i>Gas Phase Ion Chemistry of Peptide Radicals.</i>
July 28	Dr Phil Barker, BlueScope Steel Research, <i>Resins, Roofs and Radicals: Chemistry, COLORBOND® and BlueScope Steel.</i>
Aug 2	Dr Phil Andrews, Monash University, <i>Green Organometallic Chemistry.</i>
Aug 2	Prof. Tony Wedd, University of Melbourne, <i>The Oxygen-evolving Centre of Photosynthesis is a Mn₄CaO₄ Cluster!</i>
Aug 9	Dr Nichola Porter, RMIT, <i>Emissions from Mowing and Mulching - Are they Enhancing the Production of Photochemical Smog?</i>

School Seminars

Aug 16	Dr Paul Donnelly, University of Melbourne, <i>Toward a CuRe: Copper and Rhenium Radiopharmaceuticals.</i>
Aug 23	Assoc. Prof. Charles Young, University of Melbourne, <i>SSP Report: Dithiolene Complexes Relevant to Mo and W Enzymes.</i>
Aug 30	Mark Bondin, University of Melbourne, <i>Redox Initiated Structural Change in Iron-Sulfur Compounds.</i>
Sept 1	A/Prof. Roger Read, University of New South Wales, Feutrill Memorial Lecture: <i>Progress in Fluorous Chemistry - Unfolding the Fluorous Toolbox.</i>
Sept 6	Damien Callahan, University of Melbourne, <i>Imaging by Mass Spectrometry.</i>
	Dr David Nielsen, University of Melbourne, <i>Modelling the Cu-S-Mo Centre in Carbon Monoxide Dehydrogenase.</i>
Sept 13	Dr Michael Grace, Monash University, <i>Bats and Biogeochemistry - Going Green Isn't Great for the Royal Botanic Garden's Lake.</i>
Sept 24	Peter Steel, University of Canterbury, <i>Lessons Learnt about Ligand Design for Self-assembly of Multinuclear Metal Complexes.</i>
Oct 1	Dr Michael Sherburn, ANU, <i>From Polyenes to Polycycles.</i>
Oct 4	Dr Phil Andrews, Monash University, <i>Green Organometallic Chemistry.</i>
Oct 7	Craig Bullen, University of Melbourne, <i>Ligand Chemistry of CdSe Nanocrystals.</i>
Oct 8	Le Zeng, University of Melbourne, PhD swansong, <i>Kinetic Studies on Some Free-radical Reactions Involving Chiral Radicals.</i>
Oct 11	A/Prof. Paul Mulvaney, University of Melbourne, <i>Gold Nanorods - Shaping the Future.</i>
Oct 14	Ming Chen, University of Melbourne, <i>Photoactive Functional Polymers.</i>
Oct 15	Dr Kate Jolliffe, University of Sydney, <i>Preparation and Performance of Peptide Platforms.</i>

School Seminars

Oct 18	Dr Stephen Best, School of Chemistry, <i>Unpicking the details of Electrocatalytic Proton Reduction by Fe-hydrogenase Models.</i>
Oct 20	Prof. Douglas MacFarlane, Monash University, the Australian Journal of Chemistry Lecture, <i>Ionic Liquids and Ionic solids.</i> MUCS.
Oct 22	Dr Mike Davies, Heart Research Institute, <i>Do Radical Reactions Play a Role in Human Disease.</i>
Nov 5	Dan Malarek, University of Melbourne, PhD swansong, <i>Supramolecular Self-assembly on a Solid Support: Metal-directed Complementarity.</i>
Nov 11	Simon Boyd, University of Melbourne, <i>Photoactivated ligand Release.</i>
Nov 12	Dr Keith Jones, Kingston University, UK, <i>A Radical Look at Heterocyclic Natural Products.</i>
Nov 19	David McAllister, University of Melbourne, PhD swansong, <i>Analogues of the Antangiogenic compound, 2-mtoxyestradiol.</i>
Nov 24	Dr Spencer Williams, University of Melbourne, President's address, <i>Trouble in Modern Times: The Rise and Rise of Tuberculosis.</i> MUCS AGM.
Dec 9	Prof. J M Lisy, University of Illinois, <i>Competitive Non-Covalent Interactions in Ionic Clusters.</i>



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