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School of Chemistry Annual Report 2016

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HEAD OF SCHOOL REPORT

The year of 2016 saw UNSW's new Strategy-2025 start to get going. By the end of the year it was in full swing; a process that continues to today.

As is normal for a School of our size, we saw a number of changes in staffing in 2016. We were very sorry to lose two long-serving staff members. Rick Chan, our Finance Manager, who retired near the end of the year and, Anna Choy, who was an integral part of the First Year teaching program and one of our most respected teachers, moved to New Zealand. Dr. Toby Jackson was appointed School Manager, which is a new role for the School and Dr. Nancy Scoleri as Laboratory Manager. These are both in an acting capacity while we await UNSW's strategic review of all general staff positions.

We welcomed two new Associate Lecturers, Drs Scott Sulway and Kim Lapere as academics with a primary focus on teaching and educational development, especially in revolutionizing First Year delivery and assessment. The School advertised for three new Lecturer positions: one in a normal research teaching position, another with expertise in chemistry education, and a position in conjunction with Justin Gooding's Laureate Fellowship. After a protracted process we did not appoint at Level B for a research and teaching position, but we were successful in recruiting Dr Shannan Maisey to the School, beginning 2017, as a Lecturer with research expertise in chemistry education and Dr Vinicius Gonzales in the Laureate-aligned position. We also welcomed two new Research Fellows, Drs Adam Martin and Robert Chapman

Accompanying the growth in academic staff was significant growth in the number of researchers in the School – mostly in Higher Degree by Research (HDR) students. In 2016, 141 PhD and Masters students were enrolled in the School and 35 post-doctoral researchers and research fellows were conducting research in the various research groups.

Such growth must be presaged by success. Researchers in the School published 254 articles (mostly in journals) in 2016 – a 12% increase over 2015. Even more impressively, the quantity was not in place of quality with 34 of these articles featuring in journals in the Nature Index (an index that includes only the highest impact chemistry journals plus the top journal in each chemistry sub-discipline), an increase of 40% over 2015. Supporting this research was almost $7.5M in external research funds. Of note, were two significant non-traditional sources (for the School) in industry-linked funds to A/Prof. Jonathan Morris (Exonate) and A/Prof. Chuan Zhao (Torch)

Last year I reported on space pressures caused by the School's continual growth over a 10-year period. The pressures have almost reached bursting point – both in the laboratories and in finding workplaces for our staff, students and visitors. I am very pleased to report that a business case to furnish Level 7 of the new Hilmer building for Chemistry research was successful in 2016. This case was built around the Laureate Fellowship of Scientia Professor Justin Gooding, and supported through the Strategic Hire and Retention Pathways (SHARP) Committee. This will allow the research groups of Justin Gooding, Palli Thordarson, Richard Tilley, Adam Martin and Vinicius Gonzales to move into excellent new research labs and workspaces, and allow the rest of the School to breathe out a little. This is currently scheduled for Quarter 1, 2018.

While still on space, UNSW approved the construction of a new "Science and Engineering Building" (SEB), between the Hilmer building and Roundhouse. As I write this, ground has been broken and foundations are being laid. One of the drivers of the new building is to completely empty the old Applied Sciences tower for demolition or refurbishment. As 8 Chemistry research groups have labs and workspaces in the tower, space was allocated in the SEB for significant Chemistry research labs. There will again be a flow-on effect for the rest of the School as some of these groups have workspaces in Dalton, and some groups have a small amount of laboratory space in Chemical Sciences Building.

Several members of the School were recognized for their success during the year. Professor David Black received the prestigious David Craig Medal from the Australian Academy of Science. Dr. Alex Donald received the RACI Peter Alexander Medal and Dr. Vinh Nguyen the Organic Division Athel Beckwith Lectureship; these last two being RACI awards. And Palli makes me put in that I was awarded the Physical Chemistry Medal also from the RACI

Most of the above concerns research, but teaching is an equally important part of the School. During 2016 we had a minor restructure of Second Year courses, which will roll out in 2017. A more significant restructure of Third Year will follow in 2017. The "Lab Skills Assessment" project reported last year rolled out to include all First Year courses. I am pleased to report that the team of Dr. Ron Haines, Dr. Scott Sulway, Dr. Luke Hunter and A/Prof. Steve Colbran won a VCs Award for Enhancing the Student Experience because of the positive effect of this program.

I want to record my congratulations to the whole School for a very successful and exciting 2016. 2017 will be a tumultuous year as the full effects of Strategy-2025 take hold. It will be exciting, fast-paced and potentially transformative for UNSW. I particularly appreciate the support of everyone in the School admin office for making my job easier, helping me keep apace of all the changes and being such a great team.

Professor Scott Henderson Kable

School of Chemistry Committees – 2016

School Executive Committee

- Professor Scott Kable (Chair)
- Scientia Professor Justin Gooding
- Professor Pall Thordarson
- A/Prof Jason Harper
- Dr Gavin Edwards

Research Committee

- Professor Pall Thordarson (Chair)
- Professor Scott Kable
- Scientia Professor Justin Gooding
- A/Prof. Chuan Zhao
- A/Prof. Jonathan Morris
- Dr Neeraj Sharma

Postgraduate Committee

- Professor Martina Stenzel (Chair)
- Professor Scott Kable
- Professor Tim Schmidt
- A/Prof. Shelli McAlpine
- Dr Alex Donald
- Dr Jon Beves
- Mr Ken McGuffin

Teaching Committee

- A/Prof. Jason Harper (Chair)
- Dr Gavin Edwards
- Professor Scott Kable
- A/Prof Steve Colbran
- A/Prof John Stride
- Dr Ron Haines
- Dr Luke Hunter
- Dr Scott Sulway

Building & Space Committee

- Professor Scott Kable (Chair)

School HS Consultation Committee

- Dr Graham Ball (Chair)

Outreach Committee

- Professor Naresh Kumar (Chair)

School Executive Committee
Scientia Professor Justin Gooding, Professor Pall Thordarson, Professor Scott Kable, A/Prof Jason Harper

Academic Staff

Dr Leigh Aldous - DECRA Fellow

B.Sc (Hon), Leeds, Ph.D. Queen's University Belfast

Research ▶
- Biomass processing and thermoelectrochemical waste heat harvesting

Dr Graham Edwin Ball

BSc (Hons) PhD University of Sheffield, UK

Professional Activities: ▶
- RACI NSW Inorganic Division President
- RACI NSW Inorganic Division Representative

Research: ▶
- Chemical and biological applications of NMR spectroscopy.
- Characterisation of chemical reactive intermediates, especially organometallics.
- Applications of computational chemistry.
- Investigations of drug-DNA interactions.
- Structure elucidation

Dr Jonathan Beves

BSc (Hons I), MSc University of Sydney, PhD University of Basel

Professional Activities: ▶
- Board of NSW RACI
- Editorial board, Polyhedron
- Member, RACI, RSC, SCS

Research: ▶
- Supramolecular chemistry
- Photochromism
- Coordination chemistry

Professor David Black

BSc (Hons 1), MSc University of Sydney, PhD, University of Cambridge

Professional Activities:

- Secretary General, ICSU (2011-2017)
- Member of National Committee for Chemistry
- Member of NMI Reference Materials Review Committee, National Measurement Institute, Australian Government Analytical Laboratory

Research:

- Synthetic organic chemistry including methods of synthesis, heterocyclic chemistry (especially indole chemistry, photochemistry.
- Organic aspects of coordination chemistry including ligand design and synthesis, macrocycles, organometallic chemistry.
- Polymer chemistry - new polyamides, polyesters and modified peptides. Self-assembly studies involving hydrogen bonding.
- Development of mild and efficient new metal complex catalysts related to Green Chemistry

Associate Lecturer Anna Choy

BSc (Hons) UNSW

Professional Activities:

- UNSW School of Chemistry Coordinator of:
  - Summer School
  - Chemistry Bridging Course
  - Teaching Fellowship Scheme

Research:

- Chemistry Education

A/Prof Stephen Boyd Colbran

BSc (Hons), PhD, Otago

Professional Activities:

- Level 2/3 Student Advisor & Level 2/3 Teaching Laboratory Coordinator, School of Chemistry, UNSW
- Member of the American Chemical Society (ACS)
- Research grant reviewer: Australian Research Council, American Chemical Society Petroleum Research Fund, Marsden Research Grants New Zealand, and Deutschen Forschungsgemeinschaft (DFG) Germany.
- Referee for the journals: Journal of the American Chemical Society; Angewandte Chemie International Edition, ACS Catalysis, Chemistry–A European Journal; Journal of Physical Chemistry B, Inorganic Chemistry; Organometallics; Dalton Transactions; European Journal of Inorganic Chemistry; Inorganica Chimica Acta.
- Editorial board member for the International Journal of Inorganic Chemistry (IJIC) and for the Journal of Chemical Sciences (JChem)

Research:

- Transition metal chemistry, electrochemistry and catalysis

A/Prof Marcus Lawford Cole

BSc (Hons I) (Medal) 1998, PhD 2001, Cardiff University

Professional Activities:

- Fellow of the RACI

Research:

- Low oxidation state and hydrido complexes of the p- and f-block elements.
- Catalytic applications of N-heterocyclic carbenes.
- Probes for the quantification of multidentate ligand stereoelectronics.
- Sterically hindered ligand design

Dr Willilam Alex Donald

BSc Seattle University, PhD University of California, Berkeley

Professional Activities:

- Treasurer, Australian and New Zealand Society for Mass Spectrometry
- Chair Elect, RACI NSW Analytical & Environmental Chemistry Division
- Session Chair, 64th American Society for Mass Spectrometry Conference
- Referee for Analytical Chemistry, Analyst, Analytical Methods, Journal of the American Society for Mass Spectrometry, and Nature Scientific Reports
- Chartered member, Royal Australian Chemical Society
- Member, Australian and New Zealand Society for Mass Spectrometry
- Member, American Society for Mass Spectrometry

Research:

- Developing methods to control the ionization and fragmentation of molecules to improve the analytical performance of many types of mass spectrometry analyses. This is being achieved by surface modification and by improving our fundamental understanding of electrospray ionization and the dissociation of biomolecules during tandem mass spectrometry.
- Obtaining a molecular level understanding of complex reaction mechanisms using mass spectrometry, ion mobility, laser spectroscopy, and electronic structure calculations. Directly probing reaction intermediates that are involved in many chemical processes, such as in organic synthesis and heterogeneous and biological catalysis.
- Developing methods for single-cell chemical analysis by mass spectrometry
- Portable ion mobility devices with significantly higher resolving power than conventional devices

Dr Gavin Leslie Edwards

BSc (Hons), PhD (Monash)

Professional Activities:

- Associate Dean – Undergraduate Programs
- Deputy Director of Teaching – School of Chemistry

Professor Leslie Field

Ph.D, D.Sc University of Sydney

Professional Activities:

- Secretary for Science Policy, Australian Academy of Science
- Fellow of the Australian Academy of Science
- Fellow of the Royal Australian Chemical Institute
- Member of the American Chemical Society
- Fellow of the Royal Society for Chemistry
- Fellow of the Royal Society of NSW
- Member of the International Society for Magnetic Resonance
- Director and Chairman of UNSW Innovations Pty Ltd (ABN 25 000 263 025)
- Director of Australian Technology Park Innovations Pty Ltd (ABN 15 092 808 850)
- Director of the Victor Chang Cardiac Research Institute Pty Ltd (ACN 068 363 235)
- Director Uniseed UITT Pty Ltd
- Director Uniseed Management Pty Ltd
- National ICT Australia Ltd (NICTA) UNSW Member Representative
- Member ARC Centre for Functional Nanomaterials Advisory Board
- Member of the National Drug & Alcohol Research Centre (NDARC) Board of Management

Research:

- Organometallic chemistry of coordinated dinitrogen - nitrogen fixation.
- C-H Bond activation and functionalisation
- Organometallic chemistry of carbon dioxide
- Applications of NMR spectroscopy in organic & organometallic chemistry
- Transition metal catalysis in organic synthesis
- Transition metal acetylides, organometallic polymers and new materials
- Metallocene chemistry

Scientia Professor J. Justin Gooding

B.Sc. Hons (Melb), D. Phil (Oxon)

Professional Activities:

- Founding Co-Director of the Australian Centre for NanoMedicine
- Inaugural Editor-in-Chief, ACS Sensors
- Founding co-Director, New South Wales Smart Sensing Network (NSSN)
- Handling editor for Journal of Chemical and Biological Interfaces. Member of the editorial board of the journals Electrochemistry Communications, Electroanalysis, Sensors, Nanobiotechnology, Sensors and Actuators B, Sensor Letters, Journal of Nanoeducation, Analyst, Chemical Sciences, Biosensors
- Referee for the journals Nature Materials, Nature Nanotechnology, Journal of the American Chemical Society, Analytical Chemistry, Langmuir, Journal of Physical Chemistry B., Electroanalysis, Electrochemistry Communications, Talanta, IEEE Transactions on Biomedical Engineering, Sensors, Australian Journal of Chemistry, Analytical and Bioanalytical Chemistry, Biosensors Bioelectronics, Nucleic Acids Research, The Analyst, Chemical Communications, Journal of Immunological Methods, Journal of Material Science.
- Co-Chari 7th International Conference on Nanomedicine, Sydney 28-30 June 2016

Research:

- Immunosensors for detection of protein analytes (with a US based biosensing company)
- Porous silicon photonic crystals for biological imaging and disease diagnosis (with Dr Peter Reece, Physics UNSW and Dr. Katharina Gaus, Medicine UNSW).
- Modified surfaces for controlling surface interactions with cells for biomaterials applications (with Dr. Katharina Gaus, Medicine UNSW).
- Nanoparticle based biosensors labelling and detection in for medical diagnostics (with Professor Richard Tilley, Chemistry, UNSW).
- Silicon quantum dots for biolabelling (with Professor Richard Tilley, Chemistry, UNSW).
- Detection of microRNA (with Prof. Maria Kavallaris, Australian Centre for NanoMedicine).
- The three dimensional printing of cells (with Australian Centre for NanoMedicine).
- The immobilisation of homogeneous catalyst on surfaces (led by Professor Barbara Messerle, Macquarie University)
- Nanoparticle architectures for electrocatalysis (with Professor Richard Tilley, Chemistry, UNSW).

Dr Ronald Stanley Haines

B.Sc. in Pure and Applied Chemistry Ph.D. UNSW

Professional Activities:

- First Year Chemistry Laboratory Coordinator
- School of Chemistry IT Coordinator
- Member, School of Chemistry Teaching Committee
- Member, Faculty of Science IT Group
- Honours Thesis Reading Panel Chair

Research:

- Assessment and instruction in undergraduate Chemistry laboratories.
- Chemical education and the impact of mobile devices and web development technologies on content delivery to students.
- Chemical kinetics, in particular the influence on reaction mechanisms of ionic liquids as solvents

A/Prof Jason Brian Harper

B.Sc. University of Adelaide, B.Sc.(Hons), Ph.D., Australian National University

Professional Activities:

- Director, Faculty of Science Talented Students Programme
- Director of Teaching, School of Chemistry
- Co-Chair, 23rd IUPAC Conference on Physical Organic Chemistry (Sydney 2016)
- National Scientific Program and Organisational Committee, 8th International Conference on Green and Sustainable Chemistry (Melbourne 2017)
- National Accreditation Committee (University Chemistry Programmes), Royal Australian Chemical Institute
- Reviewer for national funding bodies: Australia, Romania, United Kingdom
- Ph.D. Examiner: Australia, South Africa
- Treasurer, Southern Highlands Conference on Heterocyclic Chemistry
- Member, Royal Australian Chemical Institute
- Member, American Chemical Society (ACS)
- Director, Systems Chemistry Australia

Research:

Application of physical organic chemistry to understanding organic processes, including:

- The development of an understanding of ionic liquids as novel reaction media, and their application.
- The examination of the chemical and physical properties of N-heterocyclic carbenes
- The investigation of novel NMR spectroscopic methods for monitoring reaction kinetics

Dr Luke Hunter

BSc (Advanced) (Honours), PhD, The University of Sydney

Professional Activities:

- Treasurer, RACI NSW Branch

Research:

Design and synthesis of bioactive small molecules for medicinal applications, with a particular emphasis on stereoselectively fluorinated molecules

Professor Scott Henderson Kable

B.Sc. (Hons) (Griffith), Grad. Dip. Business Admin. (QUT), PhD (Griffith)

Professional Activities:

- Head of School – Chemistry UNSW
- Board Member, RACI

Research:

- Fundamental reaction mechanisms in atmospheric chemistry
- Free radicals in the atmosphere, combustion and space
- Core/Mastery lab skills and Basic/Expert knowledge in First Year Chemistry

Professor Naresh Kumar

BSc (Hons 1) Punjab Agricultural University, India, MSc Punjab Agricultural University, India, PhD University of Wollongong, Australia

Professional Activities:

- Director: B Med Chem (Honours) program
- Director: School of Chemistry Outreach program
- Member: Royal Australian Chemical Institute (RACI)
- Member: American Chemical Society
- Chair: RACI (NSW) Natural Products Chemistry Group
- Member RACI Bioactive Discovery and Development Group
- Assessor: ARC Discovery, Linkage and LIEF projects
- Assessor: ARC Laureate Fellowship applications
- Reviewer: NHMRC Project Grant applications
- Research project evaluation for Auckland Medical Research Fund, and Cancer Society of New Zealand
- Reviewer: Academic Research Fund applications, Nanyang Technological University, Singapore
- PhD thesis examiner for national and international universities
- Referee for Tetrahedron Letters, Tetrahedron, Organic and Biomolecular Chemistry, Bioorganic and Medicinal Chemistry, Bioorganic and Medicinal Chemistry Letters, European Journal of Medicinal Chemistry, Journal of Organic Chemistry, Journal of Medicinal Chemistry, Biofouling, and Acta Biomaterialia

Research:

- Design and synthesis of novel antimicrobial agents including quorum-sensing inhibitors and antimicrobial peptide mimics
- Development of synthetic methodologies for the preparation of biologically important natural products and their analogues
- Heterocyclic chemistry
- Novel antimicrobial biomaterials

Dr Kim Lapere

BSc (Honours), PhD, The University of Western Australia

Research:

- Chemistry Education

A/Prof Shelli Renee McAlpine

BSc University of Illinois, PhD UCLA

Professional Activities:

- Editorial Advisory board: Journal of Medicinal Chemistry
- Chair of the American Chemical Society Australian chapter
- American Chemical Society: International committee board member
- NHMRC adhoc grant reviewer
- Conference Organizer for RACI Medicinal Chemistry Division

Research:

- Investigating Heat shock protein 90 inhibitors as potential chemotherapeutics
- Designing small molecules that target Heat shock protein 70 and Heat shock protein 27

A/Prof Jonathan Charles Morris

BSc (Hons) UWA, PhD ANU

Professional Activities:

- Deputy Dean of Graduate Research
- Member, Research Committee, School of Chemistry, UNSW
- Fellow, Royal Australian Chemical Institute and Member, American Chemical Society.
- Referee for ACS, RSC, Wiley and Elsevier Journals.
- Member, Scientific Advisory Board, Exonate Ltd.
- Treasurer of Organic Division, RACI
- Treasurer of Medicinal Chemistry and Chemical Biology, RACI

Research:

- Total synthesis of biologically active natural products
- Design of inhibitors of kinases that regulate alternative splicing [with Exonate]
- Applications of the Diels-Alder reaction to the synthesis of biologically active molecules
- Design of phosphatase activators (with Dr Matt Dun and Dr Nikki Verrills, University of Newcastle)
- Medicinal chemistry

Dr Vinh Nguyen

B.E (1st class Honours) UNSW, Ph.D ANU

Professional Activities:

- MRACI CChem member of RACI
- Life member of Alexander von Humboldt network

Research:

- Organocatalysis
- Aromatic cation activation
- Synthesis of naturally occurring and bioactive compounds
- Asymmetric synthesis and medicinal chemistry

Professor Timothy Schmidt

BSc (Hons 1M) USYD, PhD Cambridge

Professional Activities:

- Associate Editor, Journal of Photonics for Energy

Research:

- Molecular Spectroscopy
- Solar Energy
- Astrochemistry

Dr Neeraj Sharma

BAdSc (Hons 1), PhD USYD

Professional Activities:

- RACI Materials Division Chair
- Asian Crystallographic Association Regional Representative
- Program Advisory Committee, Powder Diffraction Beamline, Australian Synchrotron
- Member of National Committee for Crystallography (NCCr), Australian Academy of Sciences
- International Advisory Committee, Asian Conference on Solid State Ionics & 3rd International Conference on Sodium Batteries
- Chair RACI Materials Chemistry Symposium
- Organising Committee for 2016 International Symposium on Next-Generation Batteries

Research:

- Towards the next generation of batteries: Sodium-ion batteries
- Scaffolding layered electrode materials
- Tuning negative thermal expansion to produce zero thermal expansion materials
- In situ studies of materials and processes
- Structural investigations using neutron and X-ray scattering

Professor Martina Heide Stenzel

MSc, University of Bayreuth, Germany, PhD University of Stuttgart, Germany

Professional Activities:

- Co-Director Centre for Advanced Macromolecular Design (CAMD)
- Scientific editor of the RSC journal Materials Horizon
- Associate editor: Beilstein Journal of Nanotechnology
- Member of the editorial board of the journals Macromolecular Bioscience, Macromolecular Rapid Communications, Biomacromolecules, Polymer Chemistry, Journal of Materials Chemistry B and Acta Biomaterialia
- Member:
  - Australian Research Council (ARC) College of Experts.
  - National Chemistry Committee of the Australian Academy of Science
  - Royal Australian Chemical Institute (RACI)

Research:

- New polymer materials for drug delivery
- Self-assembly of polymers into nano-objects such as cylindrical micelles, vesicles, spherical micelles and other structures
- Hollow nanoparticles for the delivery of proteins
- Nanoparticles with proteins or sugars to generate bioactive nanoparticles with high affinity for cancer cells
- Macromolecular ligands for metal complexes and their use in cancer therapy
- Polyion complex micelles for protein delivery
- Investigation into the interaction of nanoparticles with cancer cells in 2D and in 3D multicellular spheroids

A/Prof John Arron Stride

BSc (Hons.) Ph.D. (Chemistry), University of East Anglia, UK

Professional Activities:

- UNSW AINSE Delegate
- ANSTO Neutron Program Advisory Committee
- Chair Australian Carbon Society
- School of Chemistry Honours Coordinator

Research:

- Molecular magnetism
- Nanostructured materials
- Molecular dynamics
- Photo-active devices
- Porous framework materials

Dr Scott Andrew Sulway

MChem (Hons), Ph.D. University of Manchester

Professional Activities:

- Member of the School of Chemistry Teaching Committee
- Demonstrator Training – Providing ongoing professional development to help enable a better learning environment

Research:

- Lab Skills & The pedagogy of what we teach in a lab

Professor Pall Thordarson

BSc. Chemistry, University of Iceland, PhD Chemistry USYD

Professional Activities:

- Co-chair 23rd IUPAC Conference on Physical Organic Chemistry (ICPOC23), Sydney 2016
- Editorial board member – Commissioning Editor, the Australian Journal of Chemistry.
- Chair, Scientific Advisory Board Member, Biomedical Imaging Facility, Mark Wainwright Analytical Centre, The University of New South Wales.
- Membership of the Royal Australian Chemical Institute, The American Chemical Society, The Royal Society of New South Wales, The Icelandic Chemical Society, Society of Porphyrins and Phthalocyanines (SPP), The Australian Microscopy and Microanalysis Society and the Marie Curie Fellowship Association
- Australian research Council (ARC) College of Expert member

Research:

- Systems Chemistry
- Self-assembled gels for biomedical applications and electroactive displays.
- Biophysical chemistry and the supramolecular chemistry of proteins.
- Non-linear interactions in supramolecular chemistry

Professor Richard Tilley

MChem Oxford, PhD Cambridge

Professional Activities:

- Board for, Nature Asia Materials, ChemPlusChem

Research:

- Nanoparticle synthesis and applications.
- Nanoparticles for energy and medicine
- Electron Microscopy

A/Prof Chuan Zhao

PhD Northwest University

Professional Activities:

- Chair of Electrochemistry Division Royal Australian Chemical Institute

Research:

- Electrochemical energy conversion and storage
- Sensors
- Bionics

Academic Fellows

DECRA Fellows

Dr Shen Cheng

PhD, Nanjing University of Science and Technology

Research:

- Nanostructured carbon for electrochemical CO2 reduction into fuels.

Dr Pu Xiao

PhD Wuhan University

Research:

- Surface coated nanodiamonds as drug delivery carriers and simultaneous imaging;
- Photopolymerization under visible LEDs

Professional Activities:

- Marker for undergraduate research course and Honours cohort
- Panel member of the Research Progress Review for PhD students

Dr Hongxu Lu

PhD, University of Tsukuba, Japan

Research:

- Nanoparticle trafficking in 3D tumor models
- Nanoparticle uptaking in micropatterned tumor cells
- Development of 2D and 3D cellular models for nanoparticle evaluation and drug screening

Professional Activities:

- Co-Manager of PC2 lab
- Honour review member
- Postgraduate review member

NHMRC Fellows

Dr Adam Martin

Bsc (Hons) Curtin, PhD UWA

Research:

- 3Dextracellular matrix models for capturing the early stages of neurodegeneration

Professional Activities:

- MRACI
- Member of the Society for Neuroscience

Dr Alexander Hertanto Soeriyadi

B. Eng, PhD Chemistry, UNSW

Research:

- Photonic Crystals for Probing Enzyme Activity
- Silk Biomaterial for Wound Healing
- Green Material for food preservatives

Professional Activities:

- ATSE Young Scientist Exchange Program
- 1st UNSW Indonesian Research Roadshow

Vice Chancellor Fellows

Dr Robert Chapman

BE (Hons 1), UNSW, PhD Sydney

Research:

- Oxygen tolerant controlled radical polymerisation systems for biomaterials design
- Protection of enzymes by nanoencapsulation
- Synthesis of controlled polyolefins

Professional Activities:

- Community editorial board (Materials Horizons)
- Member RACI, Member RSC

Dr Yuhua Xue

PhD Zhejiang University, China

Research:

- Synthesized graphene oxide nanosheets and prepared graphene fibres.
- Characterization of graphene oxide and graphene fibres.
- Preparation of wearable devices by using graphene fibres as electrodes, preparation of core-shell graphene fibres for stretchable strain sensors and supercapacitors.
- Preparation of graphene-gold Janus fibres for sensors and supercapacitors.

Academic Staff Awards

Dr Leigh Aldous

- Royal Australian Chemical Institute (RACI): Alan M. Bond Electrochemistry Division Award

Professor David Black

- Australian Academy of Science David Craig Medal

A/Prof Stephen Colbran, Dr Ron Haines, Dr Luke Hunter, Professor Scott Kable, Dr Scott Sulway

- Vice Chancellor's Award for Teaching Excellence (Contributions to Student Learning)

Dr William Alexander Donald

- Royal Australian Chemical Institute (RACI): Peter W. Alexander Medal for early career excellence in Analytical Chemistry
- Physical Chemistry Division Lectureship (RACI)
- Emerging Investigator, Analyst

Scientia Professor J. Justin Gooding

- Royal Society of Chemistry: Faraday Medal
- Elected as a Fellow of the Australian Academy of Science
- Elected Fellow of the International Society of Elecrochemistry
- World Congress on Biosensors: Biosensors and Bioelectronic Award
- Royal Society of NSW: Walter Burfitt Prize
- Royal Society of NSW: Archibald Liversidge Medal

Professor Scott Kable

- Royal Australian Chemical Institute (RACI): Physical Chemistry Division Medal

Professor Naresh Kumar

- Science Teachers Association of NSW: Outstanding Service Award

Dr Vinh Nguyen

- Royal Australian Chemical Institute (RACI): Athel Beckwith Lectureship

Dr Alex Hertanto Soeriyadi

- ATSE Young Scientist Exchange program

Dr Pu Xiao

- France-Australia Science Innovation Collaboration Fellowships
- Rod Rickards Fellowship Scheme, Australian Academy of Science

Staff

Administration

Head of School
Professor Scott Henderson Kable
BSc (Hons 1), PhD, Griffith

Deputy Head of School
Scientia Professor John Justin Gooding
BSc Melb. DPhil Oxon

Director of Research
Professor Pall Thordarson
BSc Iceland, PhD Syd

Director of Teaching
Associate Professor Jason Brian Harper
BSc Adelaide, BSc, PhD ANU

Deputy Director of Teaching
Dr. Gavin Leslie Edwards
BSc PhD Monash, CChem, MRACI

Post Graduate Research Coordinator
Professor Martina Heide Stenzel
MSc Bayreuth, PhD Stuttgart

Deputy Post Graduate Research Coordinator
Dr William Alexander Donald
BSc Seattle, PhD UCA Berkley

Honours Coordinatoor
Associate Professor John Arron Stride
BSc (Hons.) PhD E.Anglia

Talented Students Program Coordinator
Dr Neeraj Sharma
BSc (Hons) PhD USYD

Higher Year Teaching and Laboratory Coordinator
Associate Professor
Stephen Boyd Colbran
BSc PhD Otago

First Year Coordinator
Dr. Luke Hunter
BSc(Adv)(Hons), PhD USYD

First Year Laboratory Coordinator
Dr. Ronald Stanley Haines
BSc PhD UNSW

IT Coordinator
Dr. Ronald Stanley Haines
BSc PhD UNSW

Seminar Coordinator
Dr. Jonathan Beves,
BSc, MSc USYD, PhD Basel

Outreach Coordinator
Professor Naresh Kumar
MSc Punj. PhD W'gong., CChem, MRACI

Degree Program Coordinators

Medicinal Chemistry:
Professor Naresh Kumar
MSc Punj. PhD W'gong, CChem, MRACI

Nanotechnology:
Associate Professor Chuan Zhao
BSc Shaanxi, MSc PhD Northwest UT

Administrative Officer
Rick Sai Kin Chan
BBus Curtin

Administrative Officer
Jodee Anning
BA UNSW

Teaching Staff

Scientia Professors
John Justin Gooding
BSc Melb., DPhil Oxon

Professors
David St Clair Black
MSc Syd., PhD Camb., AMusA, CChem, FRACI

Scott Henderson Kable
BSc (Hons 1), PhD, Griffith

Naresh Kumar
MSc Punj., PhD W'gong, CChem, MRACI

Timothy Schmidt
BSc USyd, PhD Cambridge

Martina Heide Stenzel
MSc Bayreuth, PhD Stuttgart

Pall Thordarson
BSc Iceland, PhD Syd

Associate Professors
Stephen Boyd Colbran
BSc PhD Otago

Marcus Lawford Cole
BSc (Hons) PhD Cardiff

Jason Brian Harper
BSc Adelaide, BSc ANU PhD ANU

Shelli Renee McAlpine
BSc Ill, PhD UCLA

Jonathan Charles Morris
BSc UWA, PhD ANU

John Arron Stride
BSc (Hons.) PhD E.Anglia

Chuan Zhao
BSc Shaanxi, MSc PhD Northwest UT

Senior Lecturers
William Alexander Donald
BSc Seattle, PhD UCA Berkley

Graham Edwin Ball
BSc PhD Sheffield, MRACI

Gavin Leslie Edwards
BSc PhD Monash, CChem, MRACI

Neeraj Sharma
BSc (Hons) PhD USYD

Lecturers
Leigh Aldous
BSc (Hon) Leeds, PhD Queen's

Jonathon Beves
BSc, MSc USYD, PhD Basel

Ronald Stanley Haines
BSc PhD UNSW

Luke Hunter
BSc (Adv)(Hons), PhD USYD

Associate Lecturers

Anna Choy
BSc (Hons), UNSW

Kim Lapere
BSc (Hons) PhD, UWA

Dr. Scott Sulway
MChem (Hons), PhD University of Manchester

DECRA Fellows

Dr Shen Cheng
PhD Nanjing University of Science and Technology

Dr Hongxu Lu
BSc MSc Ocean University of China, PhD Tsukuba University, Japan

Dr Pu Xiao
BSc PhD Wuhan University, China

NHMRC Fellows

Dr. Adam Martin
BSc (Hons) Curtin, PhD UWA

Dr Alex Soeriyadi
BEng (Hons 1), PhD Industrial Chemistry, UNSW

VC Postdoctoral Fellows

Dr. Robert Chapman
BEng (Hons 1) Industrial Chemistry, PhD USyd

Dr. Yuhua Xue
Ph.D. Zhejiang University, China

Welcome Trust-India Fellow

Dr. Padmavarthy
Ph.D. Anna University, India

Casual 1st Year Teaching Staff

Dr Kakali Chowdhury
PhD, Uni New Dehli, India

Joan P. Ross
BSc Syd.

Research Staff

Professor Leslie D. Field
(Deputy Vice Chancellor – Research)

Research Associates

Dr. Manohari Abeysinghe
BSc, PhD Wales

Dr. Shahrul Ahmad
PhD Sheffield, UK

Dr. Muhammad Alam
PhD Tokyo Institute of Technology, Japan

Dr. Abbas Barfidokht
PhD UNSW

Dr. Alex Bell
PhD Bristol

Dr. Renxun Chen
BSc (Hons), PhD UNSW

Dr. Xiaoyu (Jet) Cheng
PhD UNSW

Dr. Soshan Cheong
PhD Victoria University of Wellington

Dr. Kyloon Chuah
PhD UNSW

Dr. Biswath Das
PhD Lund

Dr Andrew Dolan
PhD, Imperial College London

Dr. Laszlo Frazer
BSc Chicago
PhD Northwestern

Dr. Joseph Gallagher
BSc MSc (Hons 1) PhD Victoria U. Wellington

Dr. Vinicus Goncales
PhD, USP, Brazil

Dr. Bakul Gupta
PhD UNSW

Dr. Aaron Harrison
PhD UWA

Dr. Kitty Ho, BSc (Hons)
PhD, UNSW

Dr. Kenneth K.C. Hong
PhD, UNSW

Dr. Celine Hue
PhD Lille University of Science and Technology

Dr. Kitty Ho
Bsc (Hons) PhD, UNSW

Dr. George Iskander
BSc MSc PhD Khartoum, FRSC, MRSC, RACI

Dr. Sreenu Jennepalli
PhD Wollongong

Dr. K.M. Mohibul Kabir
PhD MRIT

Dr. Fehmida Kanodarwala
BSc MSc Wilson College – Mumbai India, PhD UNSW

Dr. Olha Krechkivska
BSc & MSc National University of Kyivmohyla, PhD U. Utah

Dr Samuel Kutty
BSc Hons UNSW, PhD UNSW

Dr. Hsiu Lin Li
BSc (Hons), PhD Monash

Dr Yibing Li
PhD Griffith University

Dr. Guillaume Longatte
PhD P.A.S.T.E.U.R., Ecole Normale Supérieure, Paris

Dr. Rowan MacQueen
BSc, PhD USyd

Dr. Klaas Nauta
PhD UNC

Dr. Stephen Parker
PhD UNSW

Dr. Janjira Panchompoo
BSc, Chulalongkorn, DPhil, Oxford

Dr. Jianbo Qu
PhD Chinese Academy of Sciences

Dr. Lydia Sandiford
PhD Kings College London

Dr. Synøve Scottwell
B.Sc.(Hons), Otago, NZ

Dr. Kazuaki Taguchi
PhD Kumamoto

Dr. Roya Tavallaie
PhD UNSW

Dr Trang To
PhD, Imperial College London

Dr. Hamish Toop
BSC (Hons) Adelaide, PhD UNSW

Dr. Robert Utama
PhD UNSW

Dr. James E.A. Webb
PhD, USYD

Dr. Ying (Jessie) Yang
PhD UNSW

Dr. YuanHui Zheng
PhD Monash

Visiting Fellows

Emeritus Scientia Professor

Michael Nicholas Paddon Row
BSc Lond, PhD ANU, CChem, FRSC, FRACI

Emeritus Professors

Roger Bishop
BSc St Andrews, PhD Camb. CChem, FRSC, FRACI

David Brynn Hibbert
BSc PhD Lond., CChem, MRSC, FRACI

Conjoint Professors

Grainne Mary Moran
BSc PhD NUI, CChem, MRACI

Professorial Visiting Fellows

Alan Norman Buckley
BSc Syd., PhD Monash, MRACI

Barbara Messerle
BSc PhD Syd

Ronald Postle
PhD Leeds

Visiting Fellows

Dr Nicholas Armstrong
B.App.Sc (Hons 1st), PhD UTS

Dr Joseph John Brophy
BSc, PhD DSc UNSW, DipEd Monash, CChem, FRACI

Honorary Associate Professors

A/Prof. Roger Read
BSc PhD Syd., DIC Lond., CChem, FRACI

Adjunct Senior Lectuer

Dr. Alex Falber
Algae Enterprises Ltd, Victoria, Australia

Professional and Technical Staff

Administrative Support

Anne Ayres
Kenneth Gerard McGuffin
BA Syd

Computer Officer

Ray Arnhold

Finance Officer

Amanda Nina Troobnikoff
BSc (Hons) UTS

Laboratory Manager

Dr Toby Jackson
BSc (Hons) Exeter, PhD Aberdeen

Marketing

Dr. Sue Min Liu

Student Services Manager

Steve Yannoulatos
BSc (Hons) UNSW

Technical Officers

Peta Di Bella
BSc (Hons) UQ

Dr Dominic Frances
PhD UNSW

Hitendra Gopal
Berta Litvak
BSc UTS, MEdAdmin UNSW

Michael McMahon
Dr Nancy Scoleri
BSc (Hon), PhD Adel.

Dr Ruth Thomas
BSc, PhD UNSW

Svetislav Videnovic
BChemEng, Sarajevo

School Store

Ian Aldred
Shan Balachandran

School Technical Staff:

Back row: Ken McGuffin, Anne Ayres, Steve Yannoulatos, Dr Toby Jackson, Jodee Anning, Ian Aldred, Hitendra Gopel
Front row: Amanda Troobnikoff, Shan Balachandran, Dr Nancy Scoler

Professor Pall Thordarson

Director of Research

The year 2016 saw the School continue to go from strength to strength in research performance.

This included another record number of publications, a significant increase of publication in highly ranked journals, another great year in obtaining external competitive research grants, industry collaboration and a number of awards and recognition for the research achievement of our staff and students.

Director of Research Report

Grants:

The School had an exceptionally good year in terms of grant successes. In September 2016, the ARC announced the outcomes of the 2017 ARC Centre of Excellence round, and one of the successful bids included the ARC Centre of Excellence in Exciton Science with Professor Timothy Schmidt one of the Chief Investigators. This Centre of Excellence will receive $31M in funding over the next 7 years with approximately $2M coming to our School. This brings the number of significant ARC Centre of Excellence nodes within the School to two – the other being the ARC Centre of Excellence in Bio-Nano Science (2014-2020).

The School did well in the main ARC grant round announced late last October with a total of over $1.7M in new research grant founding to the School. This included 5 ARC Discovery grants; 4 of them with the first named investigator (Professors Morris & Stenzel and Drs Sharma & Ball) coming from our School as well as an ARC DECRA fellowship to Dr Robert Chapman. In addition, researchers from the School were Chief Investigators on three ARC LIEF grants totalling $1.7M with one of them led by Professor Richard Tilley worth $1.1M. These were not the only successes the School had within the highly competitive ARC Schemes. The School also obtained one ARC Linkage grant worth $330,378, awarded to Professors Thordarson, Schmidt and Tilley. Professor Thordarson was also involved in another successful Linkage grant worth $228,186.

The School continued to do well with the NHMRC developmental grant scheme with Professor Naresh Kumar involved in a $473K project on innovative antimicrobial treatment with Optometry and Prince of Wales Clinical School. The School did well in internal research grant schemes with two MREII grants to Professor Martina Stenzel and Dr Vinh Nguyen.

Industry initiatives:

Of special note in 2016 was the spectacular growth the School saw in industry engagement and funding support from various schemes. This included the UNSW-China Torch Project, which was officially signed off by our Prime Minister, Malcolm Turnbull on the 15th April 2016 at a ceremony in Beijing. One of the foundation UNSW-China Torch Projects is led by our own Associate Professor Chuan Zhao. Another signature industry initiative that UNSW Chemistry played a major role in establishing in 2016 was the NSW Smart Sensing Network – a NSW Government initiative, led by Scientia Professor Justin Gooding and Professor Ben Eggleton (U. Sydney), which was awarded over $900K in funding. The UNSW part of this network is spearheaded by Scientia Professor Justin Gooding and Dr William Alex Donald.

The School did well as mentioned above in ARC (Linkage) and NHMRC (Developmental Grant) – industry research supportive schemes. The School also obtained several grants from the new Researcher in Business initiative of the Australian Government.

Last but not least I want to highlight the success of the biopharmaceutical company, Exonate (UK). In December 2016 Exonate announced it had raised $2.5M in funding to develop a treatment for wet age-related macular degeneration based on compounds developed in the labs of our own Associate Professor Jonathan Morris.

Accolades to our staff:

Externally, our staff received a number of accolades. Scientia Professor Justin Gooding was elected Fellow of the Australian Academy (FAA) of Science and Professor David Black (FAA) was awarded the prestigious David Craig Medal from the Australian Academy of Science. Scientia Professor Gooding's election to the Academy takes our current number of Australian Academy of Science Fellows to five (Gooding, Black, Field, Dance and Paddon-Row).

Dr William Alex Donald won both the Royal Australian Chemical Institute (RACI) Physical Chemistry Divisional Lectureship and the Peter W. Alexander Medal. The School had a number of other RACI accolades: Dr Vinh Nguyen was awarded the RACI Organic Chemistry Division Athel Beckwidth Lectureship, Dr Leigh Aldous the RACI Alan M Bond Electrochemistry Division Award and Professor Scott Kable the Physical Chemistry Division Medal. Scientia Professor Justin Gooding won the Royal Society of Chemistry (RSC, UK) Faraday medal as well as the Biosensor and Bioelectronic Award at the World Congress on Biosensors. Finally, I would like to highlight here the UNSW Scientia Professorship awarded to Professor Martina Stenzel in what was another great year for the School in terms of awards.

Student prizes:

Not to be outdone by our staff, our students also keep winning prizes with Stephen Wearmouth (Morris Group), Elysha Taylor (Morris Group) and Catherine Au (Hunter Group) all winning prizes at the RACI Medical Chemistry and Chemical Biology Conference. Elysha Taylor won another prize, together with Mohanad Hussein (Nguyen group), at the RACI NSW Branch Organic Chemistry Annual One-Day Symposium. Muhammad Zenaidee and Laura Jeffress both from the Donald group also won prizes at the RACI Research and Development Topics Conference. Alexander Mason (Thordarson group) won a prize at the Gordon Research Conference on Biointerfaces (Switzerland) and Kai Buys (Cole group) won a prize at the 42nd International Conference on Coordination Chemistry (France). Matthew Mudge (Colbran group) and Peter Jurd (Field group) round off this impressive list of awards for our students with the prizes won at the International Conference on Organometallic Chemistry.

Publications:

After two years of exceptional growth in publications, we saw another record in 2016 with 245 journal publications representing 17% growth from 2015 – and the third year in a row with double-digit growth in the number of papers. What was particularly noteworthy was the growth in publications in high impact, prestigious journals. On the Nature Journal List, which only includes 8 of the best chemistry journals such as the *Journal of the American Chemical Society, Angewandte Chemie* and *Chemical Science*, we saw the number of papers grow by an impressive 41% or from 24 in 2015 to 34 in 2016. This also included one *Nature Communications* publication from Associate Professor Chuan Zhao – the second year in a row he publishes in that prestigious journal.

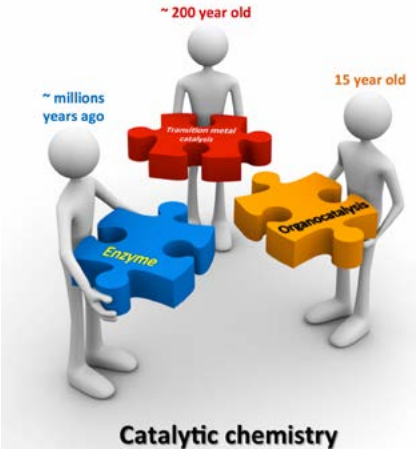
Dr. Vinh Nguyen

Dr. Vinh Nguyen started his study in industrial chemistry at University of New South Wales in 2002.

He then moved to undertake his PhD in organic chemistry at the Australian National University, Canberra in 2006. After travelling to Germany and Perth (WA), he moved back to UNSW in June 2015 to establish his new research group. His current research interests are organocatalysis and synthesis of naturally occurring and bioactive compounds.

Research Highlights

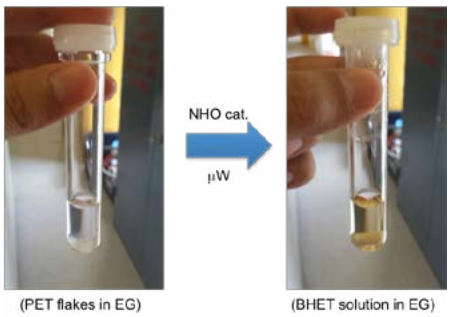
Organocatalytic chemistry



The Nguyen group focuses on the development of novel organocatalytic methods. Organocatalysis, chemical process catalyzed by small non-metallic organic compounds, has been attracting a great deal of attention from synthetic organic chemists for the last fifteen years as one of the most promising emerging fields in organic chemistry. It can be employed in diverse synthetic cascade sequences to quickly construct complex bonds, stereocenters and polycyclic frameworks. Organocatalysts are less expensive, more stable and exhibit superior solubility in both organic and aqueous solutions compared to organometallic/ bioorganic counterparts. Most importantly, organocatalysis generally gives rise to outstanding stereoselectivity, which is significantly valuable and useful at the structural engineering stage of bioactive compounds and pharmaceutical agents.

Organocatalytic chemistry by N-Heterocyclic Olefins (NHOs)

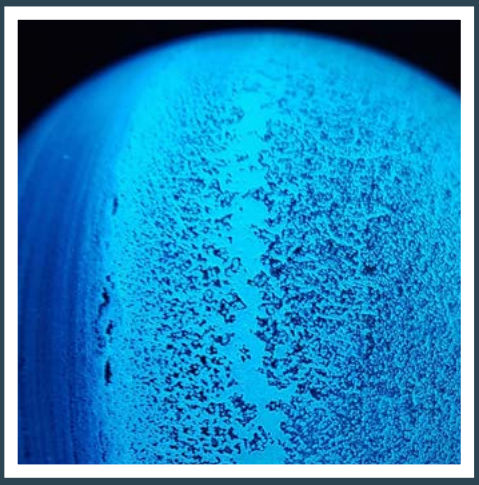
The Nguyen group is one of a few groups establishing this very topical emerging research field. In recent decades, N-heterocyclic carbenes have become established as a prevalent family of organocatalysts. N-Heterocyclic olefins, the alkylidene derivatives of N-heterocyclic carbenes, have recently also emerged as efficient promoters for organic reactions. Their extraordinarily strong Lewis/Brønsted basicity suggests great potential as a new class of organocatalysts for a broad range of reactions in synthetic chemistry such as the transesterification reaction or the phase-transfer alkylation reaction. The NHO-promoted transesterification can potentially be the practical solution for recycling PET plastic in a chemical pathway as opposed to the currently used mechanical or physical processes.

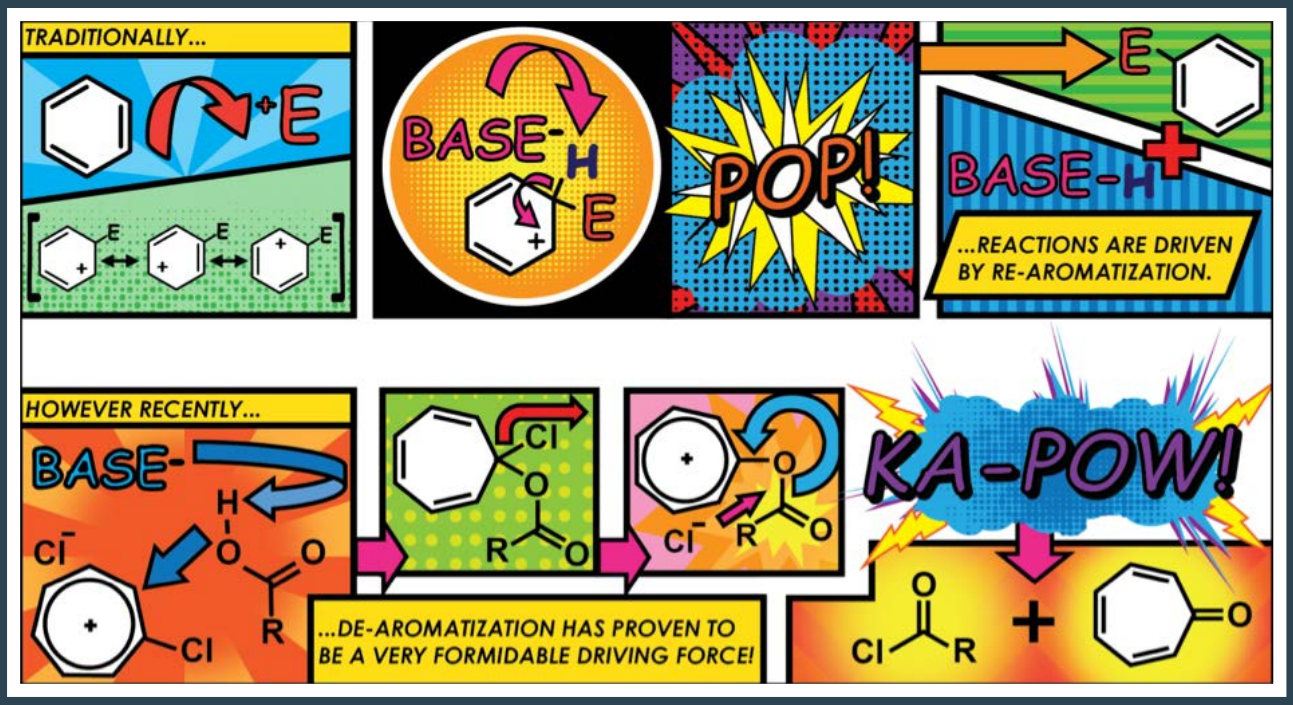


Organocatalytic chemistry by aromatic cation activation

The Nguyen group is one of the first few groups utilizing non-benzenoid aromatic ions to promote organic reactions. A new method for the nucleophilic substitution of alcohols and carboxylic acids and other substrates using aromatic tropylium cation activation has been developed in our group recently. It demonstrates, for the first time, the synthetic potential of tropylium cations in promoting chemical transformations.

Tropylium salts can be further utilized for a much broader range of applications such as Lewis acid organocatalysts, anion sensing systems, clean and efficient oxidants or chromophores in organic dyes and luminescent compounds. On the latter, our group has been able to attach tropylium moiety on biologically active frameworks to create electron push-and-pull systems, which can interconvertibly absorb light in the visible or UV range. These systems are potentially capable of combining with active functional groups commonly found in living organisms to 'stain' them for bio-imaging applications.





More information on the Nguyen group can be found at:
https://tvnguyengroup.wordpress.com/

Focus on Scientia Professor Justin Gooding

While Justin Gooding's eminence as a world-class researcher has been well established for some time now, 2016 was a particularly successful year for our Deputy Head of School. Honours and awards ceremonies for Justin came from all over the globe.

His Excellency General The Honourable David Hurley AC DSC (Ret'd), Governor of New South Wales and Patron of the Royal Society of New South Wales presenting Scientia Professor Justin Gooding with the Archibald Liversidge Medal

Justin was elected as a Fellow of the *Australian Academy of Science* – an honour bestowed on a small number of Australian trail-blazing scientists each year. His induction into the academy means we now have five academy fellows currently at UNSW Chemistry: Professors Les Field, and David Black, and Emeritus Professors Ian Dance and Michael Paddon-Row, and now Justin.

Recognised as a leading authority in sensor science, Justin was appointment by the American Chemical Society (ACS) – publisher of the most cited chemistry journals internationally – as the inaugural Editor-in-chief of *ACS Sensors*. He is the first editor-in-chief of any ACS family journal to be based outside of North America and Europe.

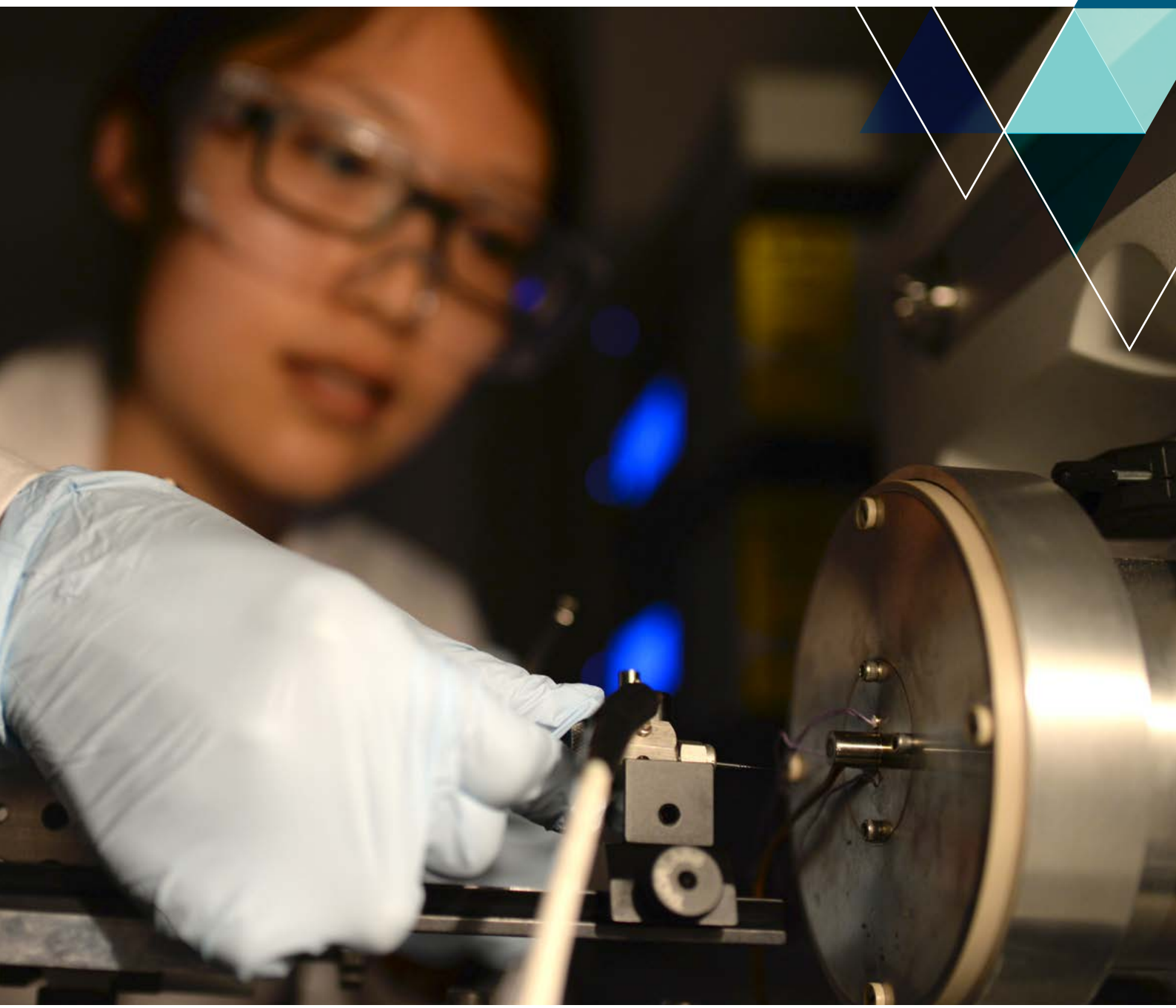
The *New South Wales Smart Sensing Network* – jointly led by UNSW and University of Sydney, and funded by the state government – was launched with Justin and Professor Benjamin Eggleton at the helm, to develop and commercialise sensors for the most challenging problems in our society.

For outstanding contributions to electrochemistry, the *Royal Society of Chemistry (UK)* awarded Justin the *2016 Faraday Medal*, in recognition of his work on biosensors, and surface chemistry for electroactive materials and devices. For these career achievements, he was also made Fellow of the *International Society of Electrochemistry*.

Back in the laboratory, research from the Gooding Group, led by Parisa Sowti Khiabani was getting noticed both in and beyond the research community. The team's creation of a wearable sensor that monitors sun exposure – a clever use of simple materials – generated attention internationally by media outlets including print, TV and radio. Another Gooding research team was awarded the *Biosensors and Bioelectronics Award*, for work on single molecule biosensing using super-resolution fluorescence microscopy.

To top off a year filled with accolades, the *Royal Society of NSW* announced that the *2016 Archibald Liversidge Medal* for chemistry, and the *Walter Burfitt Prize* for pure and applied science were both awarded to Justin.

Scientia Professor Justin Gooding is an ARC Laureate Fellow, co-director of the *Australian Centre for NanoMedicine*, Editor-in-Chief of *ACS Sensors*, and co-director of the *New South Wales Smart Sensing Network*.



TEACHING

Associate Professor Jason Brian Harper

Director of Teaching

Student numbers across our courses (and across all levels) continue to grow, with a strong flow through of increases in the numbers at lower years through to our higher year courses, including our honours year. These strong numbers are allowing development of the teaching curricula with a solid foundation of undergraduate students.

Director of Teaching Report

Several significant developments for the School's offerings occurred in 2016. Initially, the Bachelor of Science (Nanotechnology) programme, which has been a very successful specialist degree programme for the School for more than ten years, was relaunched as the Bachelor of Nanoscience. With modifications to the programme content to address the changing requirements of students, this new programme immediately saw an increase in intake at first year and it is hoped that this will continue into the future.

The very successful skills based assessment developed for the labs over the past few years (which has been mentioned in this forum previously) received further recognition this year. The project team of A/Prof. Steve Colbran, Dr Ron Haines, Dr Luke Hunter, Professor Scott Kable and Dr Scott Sulway were awarded a Vice-Chancellor's Award for Teaching Excellence in the area of Contributions to Student Learning. This recognition is well deserved given not only the amount of work that has been put in, but the clear improvement in student outcomes as a result.

A significant project launched in 2016 was based on extending the skills based assessment beyond the laboratory environment. With the cooperation of the School of Chemical Engineering, a specialist first year course was developed; this new course will incorporate the core knowledge model into the assessment of both the theory and practical components. Whilst much work is required in the development of the processes, the advantages of this model are manifold; from ensuring a minimum level of knowledge at higher years through to simplifying final examinations. The roll out of this will happen in 2017 with the potential to expand to other first year courses into the future.

Also undergoing significant development in 2016 were the curricula of our higher year courses. After considering the changing demands of our undergraduate students, a significant review of our second year courses was undertaken. Whilst the course 'shells' will remain the same as previously, notable changes in content were put in place to streamline our offerings (reducing double teaching) and to update the content to ensure they reflect the current state-of-the-art. Further, the skills assessment model will be incorporated into the laboratories for these new courses. These changes will be put in place in 2017, with the equivalent evaluation and revision of the third year offerings to be carried out also.

Finally, late in 2016, it was announced that the University would move to a trimester model (the 'UNSW 3+' model) in 2018. Whilst requiring significant investment in terms of workload to convert our existing courses to the shorter terms, this trimester model offers significant opportunities – including increased flexibility for our students (limiting problems we have now with progression difficulties) and the potential to offer different courses. All of the planned revisions to our upper year courses will take these upcoming changes into account; in many ways, we are ahead of the game as we are modifying our courses and will be able to assess the changes prior to the transition to the trimester model.

Dr. Luke Hunter

1st Year Coordinator

First Year Chemistry remained a popular choice for UNSW students in 2016.

First Year Chemsitry

There were 2,437 enrolments in total across our various offerings (see below). This overall figure was only slightly lower than the sharp peak (2,506 enrolments) that we experienced in 2015. Although the overall numbers were similar from 2015 to 2016, there was some movement of students between our courses, most notably a boost of ~30 enrolments in each of the regular-level mainstream courses (CHEM1011, CHEM1021) and a corresponding drop in the higher-level offerings (CHEM1031, CHEM1041).

Session 1:		Session 2:		Session 3:	
CHEM1001	**66**	CHEM1011	**388**	CHEM1021	**95**
CHEM1011	**574**	CHEM1021	**417**		
CHEM1031	**493**	CHEM1041	**186**		
CHEM1051	**14**	CHEM1061	**11**		
CHEM1151	**12**	CHEM1829	**78**		
CHEM1831	**103**				

As well as being popular with students, our First Year Chemistry courses are exceptionally well rated by them. When asked whether they were satisfied with the overall quality of their course, 97% of students in our large mainstream courses responded positively. This level of agreement is more than 5 percentage points higher than the Faculty of Science average.

We have a strong culture of innovation in our teaching methods. There were several examples of this during 2016. We enhanced our revolutionary “skills assessment” model of laboratory assessment by initiating a new demonstrator training course, which led to a Vice-Chancellor’s Award for Teaching Excellence for the project team. We made our lectures more engaging, by developing a series of portable experiments that can be safely transported about the UNSW campus and performed in any teaching space. We performed a time-and-motion study to help us optimise the layout of our laboratory manuals. We also put in place some big plans to revolutionise the way we assess the theory aspects of our courses, but more on that in a future report.

All of this success is driven by a large team of lecturers, tutors, demonstrators and technical staff members, who all perform their duties with passion and professionalism. Thank you all.

Associate Professor John Arron Stride

Honours Coordinator

The term 'Honours Program' in the School of Chemistry covers several UNSW undergraduate Programs.

Honours Program

Our Honours cohort includes students enrolled in the (i) Bachelor of Science majoring in Chemistry, (ii) the Bachelor of Advanced Science majoring in Chemistry, (iii) the Bachelor of Science in Medicinal Chemistry, and (iv) the Bachelor of Science in Nanoscience. Students from several other degree programs, such as the Bachelor of Environmental Science majoring in Chemistry, may also enroll in the Bachelor of Science program majoring in Chemistry for Honours.

In the first two 'chemistry' focused degrees, students undertake their entire fourth year in the School of Chemistry. This comprises a research project in collaboration with a member of the academic staff and contemporary chemistry courses delivered by formal lectures. In the 'medicinal chemistry' focused degree, students follow the above but also have a greater interaction with academic staff in the Pharmacology section of the School of Medical Sciences, including collaborative projects.

The BSc Nanoscience students undertake a research project that represents just over 80% of their final year. This is carried out in the School of Chemistry, the School of Physics and/or the School of Materials Science and Engineering, and is supplemented by a number of undergraduate courses taught by these three Schools.

In 2016, fourteen (14) students completed Honours through the Bachelor of Science and Advanced Science BSc Programs, fourteen (14) completed Honours through the Bachelor of Medicinal Chemistry, with a further four (2 Chemistry, 1 Medicinal Chemistry and 1 Nanotechnology) beginning Honours in July 2016. Four (4) students completed their Bachelor of Science in Nanoscience with research projects in the School of Chemistry.

Susannah Brown (BSc Adv. Sci.) and Jack Duncan (BSc Med. Chem.) both received University Medals for outstanding performance across their degree programs. Susannah Brown was also awarded the Angyal Prize for the best performance in a Chemistry Honours thesis.

Postgraduate Research Coordinator

In 2016, the School had 157 PhD, 5 MSc and 1 MPhil students actively enrolled. Out of these 163 students, 19 PhD and 1 MSc student have successful completed their thesis and have been awarded the title of a PhD or MSc, respectively. A further 12 PhD students out of the 157 student have submitted their thesis and they expect to graduate in 2017. Most students completed their thesis in less than 4 years and the school had only two overtime enrolments in 2016.

The students' progress was showcased in various research days from seminars given by first and third year students and poster presentation prepared by second year students. These research days are not only an opportunity to present the various research activities within the school, but also an excellent opportunity to celebrate the success of our students.

Professor Martina Stenzel

Post Graduate Coordinator

Postgraduate research (HDR) student enrolments continue to grow rapidly in 2016, with 36 new HDR students enrolled over both the sessions.

Professor Naresh Kumar

Outreach and Marketing Coordinator

The School has been actively engaging with the community and prospective students via outreach programs and marketing activities. Many of our academics, staff and students are actively involved in these efforts, which promote our presence locally and internationally; they also help draw attention to our teaching programs, facilities and research strengths.

Outreach and Marketing Coordinator

The following activities were undertaken in 2016:

UNSW/Matrix Chemistry Practical Day

The School of Chemistry hosted a visit from Matrix College Year 12 students on 23 January 2016. Over 110 HSC students attended the UNSW/Matrix Practical Day, which concentrated on the HSC Chemistry topic "Acidic Environment". The students thoroughly enjoyed the visit and the feedback from Matrix has been extremely positive. In particular the students enjoyed working in real chemistry laboratories and undertaking experiments relevant to the HSC syllabus.

Science Teachers' Association of NSW (STANSW) Chemistry Conference

The School has continued to maintain strong links with the Science Teachers' Association of NSW (STANSW), hosting their annual chemistry conference on 01 April 2016. Dr Scott Sulway gave a workshop on "Getting hands-on with theory & sliding the scale of inquiry", which involved a practical activity that can be performed in any classroom. The presentation demonstrated that practical activities, with only simple adaptations or modifications, could transform from structured activity to more open inquiry. The School participated in the STANSW forum on "Bridging the gap between high school chemistry teaching and university first year chemistry" where Dr Kakali Chowdhury was one of the panel members, and Prof Naresh Kumar moderated the discussion. STANSW also presented an Outstanding Service Award to Prof Kumar for being a significant person in the success of the STANSW Chemistry conferences since 2012.

Titration Competition

We hosted both a NSW heat (17 June) and national finals (10 September) of the *RACI Titration competition*. There were over 80 students from more than 7 high schools in the competitions. This was an event for students who enjoy chemistry to develop their skills and precision. The winning team took home the *Trevor Appleton Memorial Trophy* until next year. This was a great opportunity to showcase our teaching facilities.

School Visits

A total of 125 Year 12 students from *Sydney Boys High* (23 June) and *Orange High School (*8 September) visited. They heard all about our school, saw some demonstrations, and got their hands into some experiments in a real chemistry lab.

Orange High requested to hear from our students about their projects. We received fantastic feedback from these visits – "exceptional tour".

UNSW TV "Science Behind…"

In the lead-up to *National Science Festival* in August, UNSW TV filmed Dr Luke Hunter doing demonstrations for their video series *Science Behind...* Methanol Gun and Chromatography videos are now on YouTube and on our Facebook page. The *Science Behind...* videos were provided to Fairfax media for use during *National Science Festival*.

Australian Museum Science Festival and Science on the Road

As in previous years, our school was actively involved in the *Science Festival* event from 23–26 August. Our demonstrators engaged the attending high school students with a range of chemistry demonstrations. The festival is a fun way to cultivate the interests of budding scientists. We also used this opportunity to advertise Open Day to the high school students attending.

Dr Scott Sulway took a group of our student demonstrators to Albury on 2 & 3 November for a science expo, and chemistry workshops for primary and high school students from Riverina. This regional event receives local media interest and was thoroughly enjoyed by the young students.

Participation in the outreach programs organised by the Faculty of Science

We were again involved in many of the Faculty's outreach events this year:

UNSW Science and Engineering Parent and Student Night on 23 March 2016

The School actively participated in the highly successful UNSW Science and Engineering Parent and Student Night on 23 March 2016. The School organised hand-on chemistry activities and answered a number of queries from year 11 and year 12 students keen to do science at the university level.

UNSW International Office staff visit on 30 May 2016

The School also hosted a visit from UNSW International Office staff on 30 May 2016, showcasing the outreach and marketing activities offered by the School.

Nura Gili Winter Schools Program, 5 July: Thirty indigenous students in years 10 – 12 took part in "Fun and Magic in Chemistry" at our school. The students loved the chemistry part of the *Winter Schools Program* with many commenting that it was the highlight of the program.

Singapore Republic Polytechnic Visit, 20 September: Twenty-four university students came to see our facilities and hear about our school. We promoted possibilities of future studies and research at our School to this group.

National Youth Science Forum visit, 8 July: The program is designed to show students entering year 12, who are interested in STEM, the variety of study and career options available. We hosted 12 of these students in Chemistry, and provided demonstrations and some hands-on experience.

UNSW Open Day, 3 September: Open Day was a huge success. The talks drew large crowds, with people spilling into the aisles. This year we included talks from our students and industry representatives to our presentations – this was very well received. Academics at the advisory desks were kept busy right to the end. There were bursts of interested students heading to ask questions about our programs after both lectures. The demonstrations at the Chemistry tent were crowd pleasers, and lab tours were also very popular. All in all, there was a great deal of interest in chemistry.

Postgraduate Information Evening, 13 October: Prof Martina Stenzel and Dr Alex Donald advised students interested in postgrad studies in Chemistry.

Science Majors Expo, 6 October: New idea from Science Student Centre to help advise students who still have not declared their majors. Ally Tingey (undergrad student), Dr Ron Haines, and Steve Yannoulatos worked at the advisory desks.

L'Oréal Girls in Science Visit, 27 October: More than 200 girls from schools all over Sydney came to UNSW for the *L'Oréal Girls in Science Forum*, with the newly announced *L'Oréal Women in Science Fellows*. After the forum, 40 girls toured teaching facilities in our School, and the Mark Wainwright Analytical Centre. These students were very keen who have just had their appetites whetted from the forum.

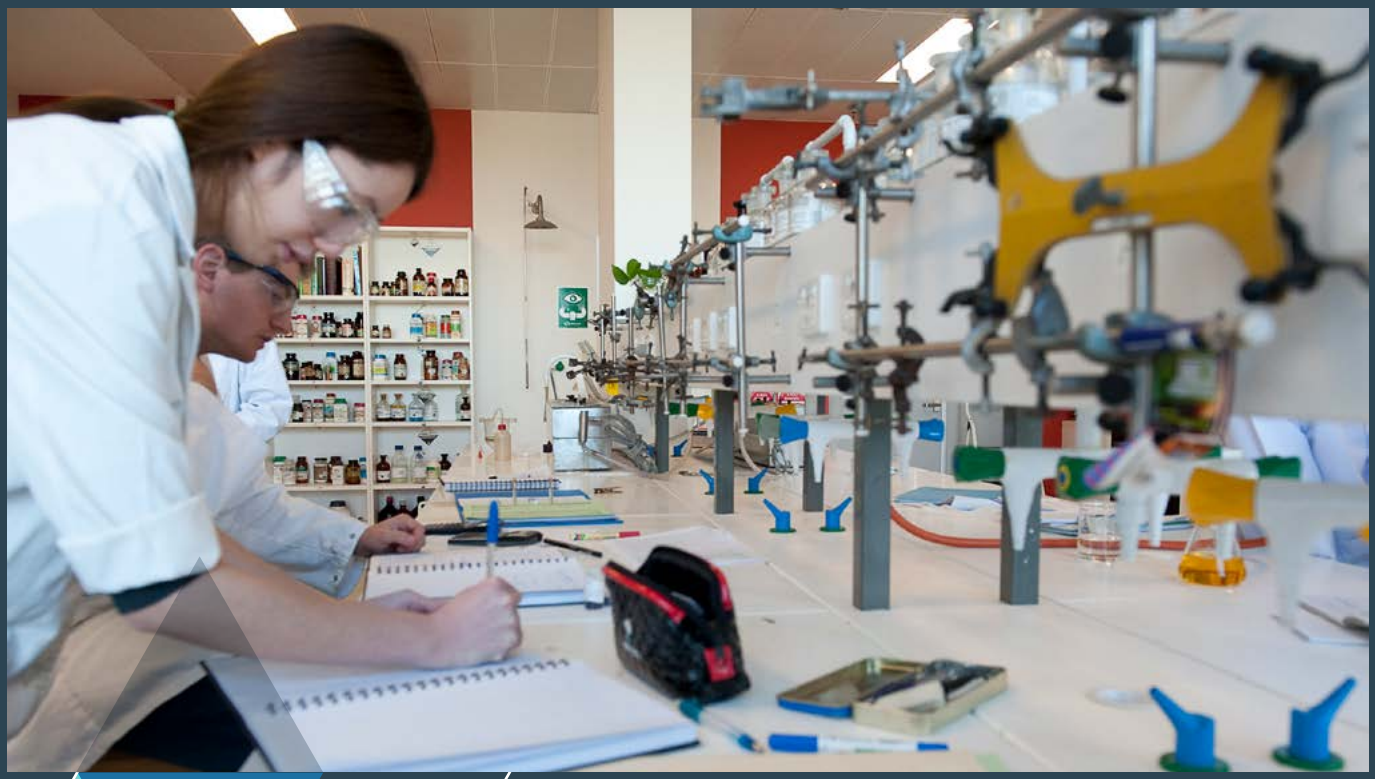
Work Experience, 30 November: With the aim to make this event more useful a new format was trialed this year. The Year 10 work experience students, who were in our school for one day, shadowed researchers, asking questions and making videos. They edited their videos to explain research in Chemistry, in their own words. Thank you to Prof Scott Kable, Prof Naresh Kumar, Assoc. Prof Shelli McAlpine, Prof Martina Stenzel, and the Analytical Centre for volunteering to host these students.

UNSW Info Day, 17 December: This year the info day was held on 17 December so that the academic advisors can speak with students just after they receive their ATAR results – to help them either feel assured that they made the right decisions on their course preferences, or to make changes to their preferences. The advisory desk was staffed by Dr Graham Ball, Assoc. Prof Steve Colbran, Dr Ron Haines, and Prof Naresh Kumar.

Social Media:

We were again active on Social media. Our school Facebook page has close to 3000 followers. We post stories, on average, one per week about the achievements of staff and students. Many students and several academics are active on Facebook. Through this activity, people can see that we have pride in our school, and support our colleagues. We also advertised our MedChem and Nanoscience Programs on Facebook.

UNSW Family Day, 23 November: We were the only school providing activities for this event, and our contribution is appreciated, “your demonstrations are so popular with the kids, they absolutely love it”.



Degrees Awarded 2016

Master of Science by Research (Program MSc 2910 & MPhil 2475)

Candidate	Research Area	Supervisor
John Henry Reed	Application of the Diene-Regenerative Diels-Alder Reaction to the Synthesis of Natural Product-like Scaffolds	A/Prof. Jonathan Morris

Doctor of Philosophy (Ph. D, Program 1870)

Candidate	Research Area	Supervisor
Xinyany Wei		A/Prof. Chuan Zhao
Asim Khan	Tuning the electrodes and electrolytes towards efficient oxygen reduction for applications in fuel cells and metal-air batteries	A/Prof. Chuan Zhao
Sinead Teresa Keaveney	Understanding and predicting organic reaction outcomes in ionic liquids	A/Prof. Jason Harper
Bradley James Butler	Solvent effects of ionic liquids on a reaction at a phosphorus centre	A/Prof. Jason Harper
Veronica Tecchio	Development of Heterocyclic Scaffolds as Inhibitors of Splicing Kinases	A/Prof. Jonathan Morris
Daniel Twycross	Catalytic Applications of N-Terphenyl Carbene Organometallics and Related Studies	A/Prof. Marcus Cole
Ekaterina Nam	Surface-bound Light-activated Redox Enzyme Cascades	A/Prof. Pall Thordarson
Yen Chin Koay	Design, synthesis and evaluation of C-terminal heat shock protein 90 (Hsp90) modulators as anticancer agents	A/Prof. Shelli McAlpine
Yao Wang	Changing the paradigm on heat shock protein 90 inhibitors: Demonstration that C-terminal inhibitors are highly effective chemotherapeutics	A/Prof. Shelli McAlpine
Yuan Yuan	Development and Application of Noble Metal Based Catalysts for Bio-oil Upgrading Process	Dr Leigh Aldous
Md Mokarrom Hossain	Ionic Liquids and Electrochemical approaches to Lignocellulosic Biomass Processing	Dr Leigh Aldous
Sandra Choy	Bimetallic rhodium complexes for various catalysed C-X bond formation reactions: Synthesis, and investigation of structure and mechanism using experimental and computational methods	Prof. Barbara Messerele/ Scientia Prof. Justin Gooding
Kam Chung Kenneth Hong	Synthesis of chromene based natural products	Prof. Naresh Kumar
NripendraBiswas	Novel Small Molecules for Modulation of Bacterial Signaling Pathways	Prof. Naresh Kumar
Devi Dwijayanthi Liana	A Fully Integrated Paper-Based Readout System, Sensor and Battery	Scientia Prof. Justin Gooding
Chin Min Wong	From Homogeneous to Heterogeneous Catalysis: Hybrid Rhodium and Iridium Complexes on Carbon	Scientia Prof. Justin Gooding
Cheng Jiang	Protein-resistant electrode for biosensing	Scientia Prof. Justin Gooding
Ying Yang	Light Activated Electrochemistry on Silicon Electrodes: Application to the Isolation and Characterization of Single Cells	Scientia Prof. Justin Gooding
Xun Lu	Understanding and characterizing biointerfaces via quantitative study using localization based single molecule fluorescent microscopy	Scientia Prof. Justin Gooding

Postgraduate Research Completions

These students have had their thesis examined and will graduate in 2016

Master of Science by Research (Program MSc 2910 & MPhil Program 2475)

Candidate	Research Area	Supervisor
YeeYee Khine	Dual-Responsive pH and temperature sensitive micelles for triggered release of drugs	Prof Martina Stenzel

Doctor of Philosophy (Ph. D, Program 1870)

Candidate	Research Area	Supervisor
Christian Gunawan	Scanning Electrochemical Microscopy of Switchable Redox Enzyme	A/Prof. Chuan Zhao
Kai Buys	A Study of Bis-NHC Pincer Complexes of s- and p-Block Elements	A/Prof. Marcus Cole
Alistair Laos	Controlling Energy Transfer and Assembly in Protein Based Light-Harvesting Systems	A/Prof. Pall Thordarson
Alexander Mason	Polymersomes as synthetic cell scaffold	A/Prof. Pall Thordarson
Robert Healy	The Supramolecular Chemistry of Natural Sweeteners	A/Prof. Pall Thordarson
Toby Mills	Analysis of microorganism derived compounds for drug discovery	Dr Alex Donald
Benjamin McVey	Solution synthesis, optical properties and tunability of low toxic semiconductor nanocrystals	Prof. Richard Tilley
Kin Long Kelvin Lee	On the photodissociation dynamics and spectroscopy of atmospheric molecules	Prof. Scott Kable
Mitchell Quinn	The Photodissociation of Small Aldehydes: A refined understanding of prototypical dynamical systems	Prof. Scott Kable
Maryam Parviz	Dual sensing of cells attachment and spreading using electrochemical impedance spectroscopy and fluorescence microscopy	Scientia Prof. Justin Gooding
Aravind Ramachandran	A study on electron transfer in microbe	Scientia Prof. Justin Gooding
Parisa Sowiti Khiabani	UV Sensors Based on Photocatalytic Properties of Titanium Dioxide	Scientia Prof. Justin Gooding

UNSW Chemical Society

The UNSW Chemical Society assists in the organisation of the School Seminar Series, a weekly program of talks from distinguished academics around Australia and the world. In addition the society organises a number of prestigious, endowed lectureships each year, and in 2016 it played host to the following Lecture series.

The Andrews Lectures, 4th, 5th and 6th October 2016:

Prof. Keji Maruoka, Kyoto University

Lecture 1: Asymmetric Phase-Transfer Catalysis: Basic Design of Maruoka Catalyst® and the Industrial Applications

Lecture 2: Design of Bifunctional Organocatalysts by Experimental and Computational Studies

Lecture 3: New Organoradical Chemistry: Rational Design of Chiral Organoradical Catalysts

The Howard Lectures, 1st November2016:

Prof Peter H. Seeberger Max-Planck Institute for Colloids and Surfaces Free University of Berlin and University Potsdam, Germany

Automated Glycan Assembly as Basis for Vaccine Development and Material Science

The Cavill Lecture, 29th November 2016:

Prof Véronique Gouverneur, Oxford University

Fluorine Chemistry and Radiochemistry – From Basic to Clinic

The Jeffrey Lectures, July 2016:

Prof. Juliet Gerrard, University of Auckland

Lecture 1: Quaternary structure of proteins: evolutionary happenstance or a higher level of structure-function relationships that opens new avenues in drug design?

Lecture 2: Quaternary structure of proteins: Assembling protein building blocks for use in nanotechnology

Lecture 3: Protein nanotechnology: approaches to generating useful nanomaterials using protein nanostructures

The Mellor Lecture, August 2016:

A/Prof MaryKay Orgill, University of Nevada

Do they see what we see? Developing chemistry students, representational competence

SOCS 2016 Presidents Report

Yet another busy year for the Students of Chemistry Society, with a number of successful student events being run alongside several School of Chemistry functions.

The executive were elected (see below) and the planning for the year ahead commenced quickly.

PRESIDENT
Jonathon Ryan

TREASURER
Rebecca Hawker

SECRETARY
Jeffrey Black

SOCIAL COORDINATOR
Karin Schaffarczyk-McHale

PUBLICITY OFFICER
Timothy Elton

MERCHANDISE
Christopher Barnett

ARC REPRESENTATIVE
Stephen Wearmouth

HIGHER YEAR REP
Connor Newdick

NANO. REP
Kuan Li

The social events were kicked off for 2016 with a barbecue on the Alumni Park to welcome first year students to the School. The annual SOCS trivia night followed shortly thereafter, which was a huge success; every table in the room was taken. A special thank you to A/Prof. Jason Harper as usual for organising the questions and being Quizmaster on the night, as well as to Dr. Jon Beves for assisting him.

Undoubtedly the biggest event of the year was the SOCS Chem Ball, now in its 14th year! Held at Darling Harbour, it was one of the biggest Chem Balls yet, and with almost every table occupied by research groups and their supervisors, it was truly a whole-school celebration. The dance floor has probably never seen so many PhDs and PhD-candidates.

Apart from these big-ticket events, SOCS was strongly involved in a number of smaller school events, organising drinks and food for the school research poster day, named lecture series and special seminars, the school End of Year Party and PhD presentations, among other events. In every case, the executive was on hand to provide support and ensure the smooth running of the event.

The central role SOCS plays in bringing the various research groups and disciplines together from across the school continues to be a major part of what makes the UNSW School of Chemistry a great place to do research. All of the members of the executive deserve a huge thank you for their part in this; their enthusiasm and willingness to get involved defines SOCS and ensures our society will continue to play an important part in the School.

The support runs two ways of course, and so thanks must also go to the School, in particular Prof. Scott Kable, who has been very generous and supportive of SOCS throughout the year. ARC continues to support us as well, providing financial support for several of our events.

Jonathon Ryan
SOCS President 2016


Arc CLUB
STUDENTS OF CHEMISTRY SOCIETY
Arc

Undergraduate Student Prizes

Honours Prize Winners

The Angyal Prize
Best performance in Honours Chemistry
Susannah Louise Brown

The Cavill Prize
Best performance in Honours Medicinal Chemistry
Jack Wade Duncan

The Nanoscience Honours Prize
Best performance in Honours Nanoscience
Mohammed Said Saleh Al-Farsi

Third Year Prize Winners

The E&FJ Cowper Prize in Chemistry
and
School Medal for best performance in Level 3 Chemistry
Eric Dylan Benjamin Foley

Medicinal Chemistry Prize
Best performance in Level 3 Medicinal Chemistry
Tess Louise Mutton

The RACI Analytical Chemistry Group Prize
Best performance in Level 3 Analytical Chemistry
Bryan Yuk-Wah Tang

The University of New South Wales Chemical Society Dwyer Prize
Best performance in Level 3 Inorganic Chemistry
Eric Dylan Benjamin Foley

The Inglis Hudson and Jeffery Bequests
Best performance in Level 3 Organic Chemistry
Eric Dylan Benjamin Foley

The Bosworth Prize
and
Medal for best performance in Level 3 Physical Chemistry
Eric Dylan Benjamin Foley

The University of New South Wales Chemical Society Parke-Pope Prize
Meritorious performance in Level 3 Chemistry Courses
Bryan Yuk-Wah Tang

Second Year Prize Winners

The School of Chemistry Prize
and
School Medal for best performance in Level 2 Chemistry
Albert Fung

Howard Prize Level 2 Analytical Chemistry
Samuel Ho Nam Wan

Howard Prize Level 2 Inorganic Chemistry
Rebecca Yong Lai

Howard Prize Level 2 Organic Chemistry
Albert Fung

Howard Prize Level 2 Physical Chemistry
Thomas Zhou

The University of New South Wales Chemical Society George Wright Prize
Meritorious performance in Level 2 Chemistry Courses
Rebecca Yong Lai

Year 10 Prize Winner

The School of Chemistry Prize
For Excellence and Enthusiasm in Chemistry for Year 10 students
Janelle Sheen – Sydney Girls High School

First Year Prize Winners

The June Griffith Memorial Prize
and
School Medal for best performance in Level 1 Chemistry
Christopher Benjamin Cunio

Howard Prize Chemistry 1A
Thomas Andrew William Cox

Howard Prize Chemistry 1B
Constantine Tsounis

Howard Prize Higher Chemistry 1A
Lucas Kento Haywood

Howard Prize Higher Chemistry 1B
Christopher Benjamin Cunio

Howard Prize Medicinal Chemistry 1A
Eloise Charlotte Smith

Howard Prize Medicinal Chemistry 1B
Eloise Charlotte Smith

The University of New South Wales Chemical Society Prize
Meritorious performance in Level 1 Chemistry Courses
Lachlan Andrew Emerson

Postgraduate Prize Winner and Scholarships

Don Craig Memorial Prize
For academic excellence in a research project in the area of Crystallography
Anthony Leverett

Paddon- Row Scholarship
For the highest ranked commencing local PhD student
Laura Jeffress

Black Scholarship
For the highest ranked commencing international PhD student
Wanfeng Yang

Teaching Fellows

Jeffrey Black, Laura Buckton, Stephen Butler, James Christian, Aaron Kennedy, Jessica Kho, Anthony Leverett, James Mc Pherson, Jess Onie, Giulia Oss, Kieran Rowell, Jonathon Ryan and Muhammad Zenaidee

Postgraduate Student Awards and Prizes

7th Biennial Western Sydney University Symposium on NMR, MRI and Diffusion

- Neil Mallow (Supervisor: Dr Jon Beves), Poster prize *" Photochromic Switching Behaviour of Donor-Acceptor Stenhouse Adducts in Organic Solvents"*

7th International Nanomedicine Conference

- Manish Sriram (Supervisor: Scientia Professor J. Justin Gooding), ACS Sensors Poster Prize *".*
- Alistair Laos (Supervisor: Professor Pall Thordarson), *"Cooperative subunit refolding of a light-harvesting protein through a self-chaperone mechanism"*

24th Annual RACI R&D Topics Conference

- Laura Jeffress (Supervisor: Dr. W. Alex Donald), 2nd in Poster Prize,
- Muhammad Zenaidee (Supervisor: Dr. W. Alex Donald), 3rd in Oral Prize.

27th International Conference on Organometallic Chemistry

- Peter Jurd (Supervisor: Professor Les Field), Poster Prize *"Coupling reactivity of carbon dioxide and acetylene mediated by iron phosphine complexes".*
- Matthew Mudge (Supervisor: A/Prof Stephen Colbran), European Journal of Inorganic Chemistry Poster Prize "*A dixanthene scaffold for cooperative catalysis"*

42nd International Conference on Coordination Chemistry, ICCC

- Kai Buys (Supervior: A/Prof Marcus Cole) Poster Prize *"Using Pincer Ligands to Study s- and p-Block Halides and Hydrides"*

Australasian Society for Biomaterials and Tissue Engineering

- A. Taunk (Supervisor: Professor Naresh Kumar), Conference Travel Award

Gordon Research Conference on Biointerface Science

- Alex Mason (Supervisor: Professor Pall Thordarson), 1st place in Poster Prize *"Rational design of polymers to control membrane protein orientation in vesicles"*

Royal Australian Chemical Institute (RACI) NSW, Natural Product Symposium

- Aggie Lawer (Supervisor: Dr Luke Hunter) Runner-up oral presentation, *"Stereoselective fluorination: A tool to control peptides' conformation and biological activity*".

Royal Australian Chemical Institute (RACI) NSW, Annual General Meeting

- Catherine Au (Supervisor: Dr Luke Hunter) RACI Pat Rogers Postgraduate Student Award.

Royal Australian Chemical Institute (RACI) NSW, One-Day Chemistry Symposium

- Elysha Taylor (Supervisor: A/Prof. Jonathon Morris), Best oral presentation: *"Using the AAL(S) scaffold for the selective inhibition of Ceramide Synthase 1"*

Royal Australian Chemical Institute (RACI) NSW, Inorganic One-Day Synposium

- Hasti Iranmanesh (Supervisor: Dr Jon Beves), Poster prize: *"Chiral Ruthenium(II) Complexes as Supramolecular Building Blocks for Heterometallic Self-Assembly"*

Royal Australian Chemical Institute (RACI) NSW, Natural Products Chemistry Group Annual One-Day Synposium

- R. Jwad (Supervisor: Dr Luke Hunter), Poster prize: *"Finetuning" the shape of a cyclic peptide using selective fluorination chemistry"*

Royal Australian Chemical Institute (RACI) NSW, Physical Chemistry Student Conference

- Blair Welsh (Supervisor Prof. Timothy Schmidt), Best undergraduate talk: *"Dicarbon Dissociation"*

Royal Australian Chemical Institute (RACI) NSW, Organic One-Day Synposium

- Mohanad Hussein (Supervisor: Dr VInh Nguyen), Runner-up Poster Prize: "*N-Heterocyclic Carbene Promoted Appel Reaction"*

Royal Australian Chemical Institute (RACI) NSW, Medicinal Chemistry and Chemical Biology Conference

- Elysha Taylor (Supervisor A/Prof. Jonathon Morris), runner-up Best Oral Presentation, *"Using the AAL(S) scaffold for the selective inhibition of Ceramide Synthase 1"*
- Steven Wearmouth (Supervisor A/Prof. Jonathon Morris), Poster prize, *"Development of selective kinase inhibitors using the variolin B scaffold 1"*

SCANZ Maslen Award

- Hasti Iranmanesh (Supervisor: Dr Jon Beves), to attend the 14th Conference of the Asian Crystallographic Association, Vietnam: *"Chiral Ruthenium(II) Complexes as Supramolecular Building Blocks for Heterometallic Self-Assembly"*

School of Chemistry – Research Poster Prizes

The four School Poster Prizes were awarded to:

- Catalysis Cluster (John Morris Prize): Rebecca Hawker (Supervisor: Associate Professor Jason Harper) *"Correlating Structure with Reactivity: Substrates and Solvents"*
- Energy Cluster (Thermo Fisher Scientific Prize): Richard Gondosiswanto (Supervisor: Associate Professor Chuan Zhao) *"Salt-on-a-chip: Miniaturised Ionic Liquids System for Gas Sensing Application*"
- Medicinal Chemistry Cluster (Thermo Fisher Scientific Prize): Shashidhar Nizalapur (Supervisor: Professor Naresh Kumar) *"Design, Synthesis and Biological Evaluation of Glyoxamide-Based Antimicrobial Peptide Minics as Novel Antimicrobial Agents and Biofilm Inhibitors"*
- Nanoscience Cluster (Shimadzu Prize): Ken Wong (Supervisor: Professor Pall Thordarson) *"Anisotropically-shaped Fluorescent Polymersomes"*

School of Chemistry Don Craig Memorial Prize

- Hasti Iranmanesh (Supervisor: Dr Jon Beves).

UNSW Faculty of Science 1-Minute Thesis Competition

- James Christian (Supervisor: Dr. Neeraj Sharma), People's Choice Award
- Parisa Sowti Khiabani (Supervisor: Scientia Professor J.Justin Gooding), 2nd place

Student Conference Presentations 2016

ICONN, Canberra, 9th February 2016

- **Lucy Gloag**
  Structural characterisation and growth study of Au-Ru core-branched nanoparticles
- **Ben McVey**
  Doped Si nanocrystals

Australasian Metallosupramolecular Symposium, UNSW, 12th February 2016

- **Hasti Iranmanesh.**
  Chiral Ruthenium(II) Complexes as Supramolecular Building Blocks for Heterometallic Self-Assembly

European Materials Research Society, Lille, 2nd – 6th May 2016

- **Ben McVey**
  Doped Si nanocrystals

10th World Biomaterials Congress, Montreal, Canada, 17th – 22nd May 2016

- **A. Taunk, Kitty Ho, George Iskander, Mark Willcox, Naresh Kumar**
  Immobilization of quorum sensing inhibitors to develop antibacterial biomaterials

7th Australasian Symposium on Ionic Liquids, Newcastle, Australia, 23rd – 26th May 2016

- **Majid Asnavandi**
  Hydrogen Bubbles-assisted electrodeposition of metal nanoparticles from protic ionic liquids for electrocatalysis
- **Richard Gondosiswanto**
  Salt-on-a-chip: miniaturized ionic liquids system for gas sensing applications
- **William E.S. Hart, Jason B. Harper, Leigh Aldous**
  Fractionation of lignin through the use of ionic liquids
- **Rebecca R. Hawker, Ronald S. Haines and Jason B. Harper**
  Effect of an ionic liquid solvent on an S_NAr reaction of a heteroaromatic system
- **Sinead T. Keaveney, Ronald S. Haines and Jason B. Harper**
  Ionic liquid solvent effects on simple pericyclic rearrangements
- **Karin S. Schaffarczyk McHale, Ronald S. Haines and Jason B. Harper**
  Investigating microscopic interactions to explain ionic liquid effects in bimolecular nucleophilic substitution processes

Gordon Research Seminar: Biointerface Science, Les Diablerets, Switzerland, 11th – 12th June 2016

- **Alexander Mason, Pall THordarson**
  Rational design of polymers to control membrane protein orientation

29th Reactive Organometallics Symposium, UNSW, June 2016

- **Kai Buys**
  Bis(NHC) Pincer Ligands to Study s- and p-Block Metals
- **Vera Diachenko**
  Super Bulky Diiminopyridine Complexes of Group 13/14

7th International Nanomedicine Conference, Sydney, Australia 27th – 29th June 2016

- **Jonathan P. Wojciechowski, Celine Heu, Adam D. Martin, Pall Thordarson**
  Designing Supramolecular Heat-Set Hydrogels for 3D Cell Culture

23rd IUPAC Conference on Physical Organic Chemistry, Sydney, 3rd – 8th July 2016

- **Alistair J. Laos, Jacob C. Dean, Zi S. D. Toa, Krystyna E. Wilk, Gregory D. Scholes, Paul M. G. Curmi, Pall Thordarson**
  Cooperative subunit refolding of a light-harvesting protein through a self-chaperone mechanism
- **Sinead Keaveney, Ronald S. Haines, Jason B. Harper**
  Ionic liquid solvents: the importance of microscopic interactions in predicting organic reaction outcomes

RACI Materials One-Day Symposium, UNSW, August 2016

- **James Christian**
  Carbon-based electrodes for better batteries
- **Marine Hardinguindeguy**
  Alkali-ion substitution in $LiCoO_2$
- **Divya Sehrawat**
  Cs doped P2-Na_xMnO_2 as an electrode material for sodium ion batteries

17th International Congress on Photosynthesis Research Maastricht, Netherlands, 7th – 12th August 2016

- **Alistair Laos, Jacob C. Dean, Zi S. D. Toa, Krystyna E. Wilk, Gregory D. Scholes, Paul M. G. Curmi, Pall Thordarson**
  Cooperative subunit refolding of a light-harvesting protein through a self-chaperone mechanism

International Symposium on Next Generation Batteries, University of Wollongong, 9th – 14th August 2016.

- **James Christian**
  Carbon-based electrodes for better batteries
- **Damian Goonetilleke**
  In-situ neutron powder diffraction studies of 26650 lithium-ion batteries

- **Divya Sehrawat**
  Cs-doped P2-Na_xMnO_2 as an electrode material for sodium-ion batteries

XXIV European Federation for Medicinal Chemistry International Symposium, Manchester, UK, 28th August – 1st September 2016

- **S. Nizalapur, David Black, Naresh Kumar**
  Novel antimicrobial agents and biofilm inhibitors derived from N-aryl- and N-acylisatins

RACI Physical Chemistry Student Conference, Katoomba, NSW, Australia, 25th September 2016

- **Andrew Danos**
  The Role of Spin in Triplet Triplet Annihilation Upconversion
- **Cameron Dover**
  The role of the excimer state in singlet fission
- **Elham Gholizadeh**
  Novel Material for Improving Upconversion Efficiency
- **Yu Liu**
  Chemical Bonding Motifs from a Tiling of the Many-electron Wavefunction
- **Tim Sanderson**
  Quantum dot clusters for luminescence solar concentration
- **Vineeth Yasarapudi**
  Forster energy transfer dynamics in solar-concentrator dyes using Optical Kerr Gating
- **Blair Welsh**
  Dicarbon dissociation

Australian X-ray and Analytical Association Student Day, University of Sydney, September 2016

- **Divya Sehrawat**
  Alkali metal doped P2-Na_xMnO_2 as an electrode material for sodium-ion batteries

RACI Natural Products Chemistry Group Annual One-Day Symposium, University of Wollongong, 30th September 2016

- **Aggie Lawer.**
  Stereoselective fluorination: A tool to control peptides' conformation and biological activity

RACI Medicinal Chemistry and Chemical Biology Symposium, Sydney, Australia, 6th – 9th November 2016

- **Adrian Pietkiewicz**
  Mechanistic evaluation of linked trithiazoles that mimic RITA
- **Elysha Taylor**
  Using the AAL(S) scaffold for the selective inhibition of Ceramide Synthase 1

30th Reactive Organometallics Symposium, Australian National University, 18th November 2016

- **Christopher D. Barnett**
  Understanding the effects of NHC electronics
- **Timothy Elton.**
  Investigating Organic Hydride Donor Metal Complexes for CO2 reduction
- **Kirsty S. Evans**
  Investigation of the origin of catalytic activity in β-diketiminate palladium complexes used for cross-coupling reactions
- **Nicholas Konstandaras**
  On correlating structure and reactivity. Electronic and strain effects in a range of systems

36th Australian PolymerSymposium, Lorne, Victoria, 20th – 23rd November 2016

- **Chin Ken Wong, Alexander F. Mason, Martina H. Stenzel, Pall Thordarson**
  Non-spherical polymersomes: Unusual shapes obtained through fine-tuning of p -p stacking interactions

RACI NSW Organic One-Day Inorganic Chemistry Symposium, UNSW, 24th November 2016

- **Timothy Elton**
  Investigating Organic Hydride Donor Metal Complexes for CO_2 reduction
- **Peter Jurd**
  Toward the Catalytic Syntheses of Acrylic Acid from Carbon Dioxide and Ethylene
- **Aaron Kennedy**
  Self-assembled molecular cages
- **Surabhi Naik**
  "Organometallic Polymers: Dinuclear Acetylide-bridged Ruthenium Complexes containing Rigid Non-aromatic Spacers
- **James D. Watson**
  Towards the Synthesis of Ruthenaindenes with Electron-Donating and Withdrawing Groups on the Aryl Ring

7th Biennial Western Sydney University Symposium on NMR, MRI and Diffusion, Sydney 29th November 2016

- **Rebecca R. Hawker, William S. Price, Ronald S. Haines, Jason B. Harper**
  Rational control of reaction outcome using ionic liquids: predicting microscopic interactions using diffusion measurements

RACI NSW Organic One-Day Symposium, Macquarie University, 30th November 2016

- **Nicholas Konstandaras, Marcus L. Cole, Jason B. Harper**
  On correlating structure and reactivity. Electronic and strain effects in a range of systems
- **Aggie Lawer.**
  Stereoselective fluorination: A tool to control peptides' conformation and biological activity
- **Demelza Lyons**
  The Curious Case of Tropylium Ion

Combined Australian Materials Societies (CAMS), Melbourne, 6th – 8th December 2016

- **Hangjuan Ren**
  Nanoporous BiVO4 photoanode for solar water splitting

Conference Posters 2016

Protein Homeostasis in Health and Disease, New York, USA, 18th – 22nd April 2016

- **Laura Buckton**
  Design, synthesis and biological evaluation of heat shock protein 90 inhibitors that target the C-terminus
- **Marwa N. Rahimi**
  Design, synthesis and evaluation of heat shock protein 90 inhibitors that directly impact the C-terminus

7th Australasian Symposium on Ionic Liquids, Newcastle, Australia, 23rd – 26th May 2016

- **Alyssa Gilbert, Sinead T. Keaveney, Ronald S. Haines and Jason B. Harper.**
  Identifying ionic liquid effects on an SN1 process

29th Reactive Organometalics Symposium, UNSW, June 2016

- **Vera Diachenko.**
  Super Bulky Diiminopyridine Complexes of Group 13/14
- **Kai N. Buys**
  Bis(NHC) Pincer Ligands to Study s- and p-Block Metals

Gordon Research Conference: Biointerface Science, Les Diablerets, Switzeralnd, 12th – 17th June 2016

- **Alexander Mason, Pall Thordarson**
  Rational design of polymers to control membrane protein orientation

20th Annual Green Chemistry and Engineering Conference, Portland, Oregon, USA, 14th - 16th June 2016

- **William E. S. Hart, Leigh Aldous and Jason B. Harper.**
  Fractionation of lignin through the use of ionic liquids

Gordon Research Conference on Heterocyclic Compounds, Rhode Isalnd, USA, 19th – 24th June 2016

- **Yuqi Zhang**
  Synthesis of novel 2,4-linked tris-thiazole containing molecules for anti-cancer activity

7th International Nanomedicine Conference, Sydney, Australia 27th – 29th June 2016

- **Eric Du, Pall Thordarson**
  Properties of peptide hydrogels and cardiac stem cells
- **Genevieve Duche, Matthew Kearnes, Pall Thordarson**
  Encapsulating self-assembled peptide hydrogels in liposomes for drug delivery and aesthetic therapy
- **Abbas Darestani Farahani, Adam D. Martin, Mohan M. Bhadbhade, Hasti Iranmanesh, Pall Thordarson**
  Effect of Aromatic Capping Group on Packing of Amino Acids
- **Md. Musfizur Hassan, Pall Thordarson**
  Rational and Strategic Design of Hydrogelators for Controlled Drug Delivery
- **Robert D. Healey, Angela Finch, Christopher Marquis, Pall Thordarson**
  Tag-specific and residue-specific fluorescent labelling of a GPCR protein drug
- **Kenneth Ho, A. Taunk, Mark Willcox, Naresh Kumar**
  Immobilization of quorum sensing inhibitor dihydropyrrolones as antibacterial agents
- **Susan Ireland, Angela Finch, Pall Thordarson**
  The Molecular Pharmacology of the Sweet Taste Receptor
- **Alistair J. Laos, Jacob C. Dean, Zi S. D. Toa, Krystyna E. Wilk, Gregory D. Scholes, Paul M. G. Curmi, Pall Thordarson**
  Cooperative subunit refolding of a light-harvesting protein through a self-chaperone mechanism
- **Ian Lin, Jonathan P. Wojciechowski, Adam D. Martin, Pall Thordarson**
  Impact of Increasing Hydrophilicity on Hydrogel Biocompatibility
- **Alexander F. Mason, Pall Thordarson**
  Engineered polymersomes with asymmetric membranes for protein encapsulation
- **Manish Sriram**
  Single plasmonic nanoparticles for digital biosensing
- **Kristel Tjandra, Joshua A McCarroll, Maria Kavallaris, Pall Thordarson**
  Active Targeting of Doxorubicin through Conjugation to Phage Display-Selected Peptide
- **Andrew B. Robinson, Keith McLean, Pall Thordarson**
  The Effect of Amino Acid Constituents on the Properties of Self-assembled Peptide Hydrogels for Medical Application
- **Chin Ken Wong, Alexander F. Mason, Martina H. Stenzel, Pall Thordarson**
  Non-spherical polymersomes obtained through fine-tuning of p-stacking strength in perylene-containing diblock terpolymers

17th Tetrahedron Symposium, Sitges, Spain 28th June – 1st July 2016

- **Aggie Lawer**
  Stereoselective fluorination: A tool to control peptides' conformation and biological activity

- **Elysha Taylor**
  Using the AAL(S) scaffold for the selective control of Ceramide Synthase 1 (CerS1)

23rd IUPAC International Conference of Physical Organic Chemistry, 3rd – 8th July 2016

- **Alexandra Daryl Ariawan**
  The cyclic peptide unguisin A is a selective anion receptor
- **Eric Du, Pall Thordarson**
  Peptide hydrogel properties and cardiac stem cells
- **Genevieve Duche, Matthew Kearnes, Pall Thordarson**
  Combining liposomes and self-assembled peptide hydrogels for drug delivery and aesthetic therapy
- **Morphy Dumlao**
  Internal energies of benzlammonium ions formed by low temperature plasma mass spectrometry: Effects of different waveforms on molecular ion survival, ionization efficiency and power consumption
- **Abbas Darestani Farahani, Adam D. Martin, Mohan M. Bhadbhade, Hasti Iranmanesh, Pall Thordarson**
  Effect of Aromatic Capping Group on Packing of Amino Acids
- **William E. S. Hart, Leigh Aldous and Jason B. Harper.**
  Fractionation of lignin through the use of ionic liquids
- **R. Jwad**
  The cyclic peptide unguisin A is a selective anion receptor
- **Alyssa Gilbert, Sinead T. Keaveney, Ronald S. Haines, Jason B. Harper**
  Identifying ionic liquid effects on an S_N1 process
- **Md. Musfizur Hassas, Pall Thordarson**
  Rational and Strategic Design of Hydrogelators for Controlled Drug Delivery
- **Rebecca R. Hawker, Ronald S. Haines, Jason B. Harper**
  Ionic liquid effects on organic processes: Can we rationally design a better solvent?
- **Robert D. Healey, Angela Finch, Christopher Marquis, Pall Thordarson Thordarson**
  Tag-specific and residue-specific fluorescent labelling of a GPCR protein drug
- **Celine Heu, Jonathan P. Wojciechowski, Eric Du, Renee Whan, Pall Thordarson**
  The relationship between structure, biocompatibility, local and bulk rheological properties in self-assembled hydrogels for in vitro 3D cellular models
- **Nicholas Konstandaras, Marcus L. Cole and Jason B. Harper.**
  Correlating structure and reactivity: Electronic and strain effects in a range of systems
- **Ian Lin, Jonathan P. Wojciechowski, Adam D. martin, Pall Thordarson**
  Impact of Increasing Hydrophilicity on Hydrogel Biocompatibility
- **Neil Mallo**
  Photochromic Switching Behaviour of Donor-Acceptor Stenhouse Adducts in Organic Solvents
- **Alexander F. Mason, Pall Thordarson**
  Di- and tri-block copolymers synthesized by SET-LRP that self-assemble in water to form polymersomes with asymmetric membranes
- **Andrew B. Robinson, Keith McLean, Pall Thordarson**
  The Effect of Polarity and Chirality on the Properties of Self-assembled Peptide Hydrogels
- **Yuvixza Lizarme-Salas**
  Stereoselective fluorination: A conformational tool for optimising the properties of bioactive molecules
- **Karin S. Schaffarczyk McHale, Ronald S. Haines, Jason B. Harper**
  Investigating microscopic interactions to explain ionic liquid effects in bimolecular nucleophilic substitution processes
- **Krystal Tjandra**
  Synthesis of multivalent peptide scaffold for the targeting of cancer cells
- **Huixin Wang**
  High and low energy collision induced dissociation of supercharged protein ions formed by electrospray ionization
- **James A.E. Webb, Kai Chen, Alexander Falber**
  Ultra-Fast Energy Transfer in Fluorescent Perylene Arrays
- **Jonathan P. Wojciechowski, Celine Heu, Adam D. Martin, Pall Thordarson**
  Designing Supramolecular Heat-Set Hydrogels for 3D Cell Culture
- **Chin Ken Wong, Alexander F. Mason, Martina H. Stenzel, Pall Thordarson**
  Non-spherical polymersomes obtained through fine-tuning of p-stacking strength in perylene-containing diblock terpolymers

Warwick Polymer Conference, Warwick, UK, 11th – 14th July 2016

- **Chin Ken Wong, Alexander F. Mason, Martina H. Stenzel, Pall Thordarson**
  Non-spherical polymersomes: Unusual shapes obtained through fine-tuning of p-p stacking interactions

42nd International Conference on Coordination Chemistry, Brest, France, 3rd – 8th July 2016

- **Christopher Barnett, Marcus L. Cole, Jason B. Harper**
  Control of N-Heterocyclic Carbene Properties
- **Kai Buys**
  Using Pincer Ligands to Study s- and p-Block Halides and Hydrides
- **Vera Diachenko**
  The Kinetic Stabilisation of Group 13/14 Complexes with a Super Bulky Diiminopyridine
- **Anthony R. Leverett**
  Exploring thallium organometallic/ organoamide coordination chemistry

Controlled Release Society Annual Meeting and Exposition, Seattle, Washington, USA, 17th – 20th July 2016

- **Md. Musfizur Hassan, Pall Thordarson**
  Rational and Strategic Design of Hydrogelators for Controlled Drug Delivery

27th International Conference on Organometallic Chemistry (ICOMC 2016) Melbourne, Australia, 17th – 22nd July 2016

- **Vera Diachenko**
  The Kinetic Stabilisation of Group 13/14 Complexes with a Super Bulky Diiminopyridine
- **Lida Ezzedinloo**
  Electrocatalytic reduction of carbon dioxide by organo-transition metal complexes
- **Hasti Iranmanesh**
  Chiral Ruthenium(II) Complexes as Supramolecular Building Blocks
- **Peter Jurd: Poster Prize Winner**
  Coupling reactivity of carbon dioxide and acetylene mediated by iron phosphine complexes
- **Nicholas Konstandaras**
  Correlating structure and reactivity: Electronic and strain effects in a range of systems
- **Anthony R. Leverett**
  Exploring thallium organometallic/ organoamide coordination chemistry
- **Ena Luis.**
  Sexipyridine: functionalised components for photocatalytic cages
- **James McPherson**
  Dipyridylpyrrolato anion analogues of terpyridine metal complexes
- **Matthew Mudge: Poster Prize Winner**
  A dixanthene scaffold for cooperative catalysis

5th International Conference on Molecular Sensors and Molecular Logic Gates, Bath, UK, 24th – 28th July 2016

- **Abbas Darestani Farahani, Hasti Iranmanesh, Pall Thordarson**
  Inside Gelation Processes Through X-ray Crystallography

7th Heron Island Conference on Reactive Intermediates and Unusual Molecules, Heron Island, QLD Australia, July 2016

- **Rebecca R. Hawker, Ronald S. Haines, Jason B. Harper**
  Effect of an ionic liquid solvent on an SNAr reaction of a heteroaromatic system
- **Nicholas Konstandaras**
  Correlating structure and reactivity: Electronic and strain effects in a range of systems

67th Annual Meeting of the International Society of Electrochemistry, The Hague, Netherlands, August 2016

- **Majid Asnavandi**
  Promoting water oxidation of nife hydroxide by tuning the oxygen vacancy

Gordon Research Conference: Drug Carriers in Medicine and Biology, Waterville Valley, New Hampshire, USA, 7th – 12th August 2016

- **Genevieve Duche, Matthew Kearnes, Pall Thordarson**
  Designing a novel drug delivery system used in aesthetic therapy, by encapsulating self-assembled peptide hydrogels in liposomes
- **Kristel Tjandra, Joshua A McCarroll, Maria Kavallaris, Pall Thordarson**
  Active Targeting of Doxorubicin through Conjugation to Phage Display-Selected Peptide

21st International Mass Spectrometry Conference (IMSC), Toronto Canada, 20th - 26th August 2016

- **Morphy Dumla.**
  Solid-phase microextraction low temperature plasma mass spectrometry for the direct and rapid analysis of chemical warfare simulants in complex mixtures

27th Southern Highland Conference on Heterocyclic Chemistry, Bowral, NSW, 28th – 30th August 2016

- **Kenneth Hong, Graham Ball, David Black, Naresh Kumar.**
  Carbocation vs ortho-quinone methide intermediates in the synthesis of dependensin, kamalachalcone A and rottlerin
- **Jonathan P. Wojciechowski**
  Designing Supramolecular Heat-Set Hydrogels for 3D Culture & supramolecular.org

8th International Symposium on Photochromism, Shanghai, September 2016

- **Neil Mallo**
  Photochromic Switching Behaviour of Donor-Acceptor Stenhouse Adducts in Organic Solvents

RACI NSW Natural Products Symposium, University of Wollongong, 30th September 2016

- **Alexandra Daryl Ariawan**
  The cyclic peptide unguisin A is a selective anion receptor
- **R. Jwad**
  The cyclic peptide unguisin A is a selective anion receptor
- **Yuvixza Lizarme-Salas**
  Stereoselective fluorination: A conformational tool for optimising the properties of bioactive molecules

Drug Delivery Australia (DDA), UNSW, 27th – 28th October 2016

- **Genevieve Duche**
  Design of novel drug delivery systems using self-assembled hydrogels in liposomes
- **MD. Musfizur Hassan**
  Rational and Strategic Design of Hydrogelators for Controlled Drug Delivery
- **Kristel Tjandra.**
  Active Targeting of Doxorubicin through Conjugation to Phage Display-Selected Peptide

RACI NSW Medicinal Chemistry and Chemical Biology Symposium, 7th – 9th November 2016

- **Catherine Au**
  Fluorination of 4-guanidinobutanoic acid: effects on molecular conformation and bioactivity
- **Stephen Butler**
  Synthesis of Small Molecule Inhibitors of PRP4 Kinase
- **Tom Hawtrey**
  The development of potent and selective inhibitors of kinases involved in alternative splicing
- **S. Nizalapur, D. Black, N. Kumar**
  Amphipathic guanidine-embedded glyoxamide-based peptidomimetics as novel antimicrobial agents
- **Steven Wearmouth**
  Development of selective kinase inhibitors using the variolin B scaffold

7th Biennial Western Sydney University Symposium on NMR, MRI and Diffusion, November 2016

- **Neil Mallo**
  Photochromic Switching Behaviour of Donor-Acceptor Stenhouse Adducts in Organic Solvents

RACI NSW Branch One-Day Inorganic Chemistry Symposium, UNSW, 24th November 2016

- **Christopher D. Barnett, Marcus L. Cole, Jason B. Harper**
  Control of N-Heterocyclic Carbene Properties
- **Timothy Elton**
  Organic Hydride Donor Metal Complexes for CO_2 reduction
- **He, M.; Hong, K.K.C; Ball, G.E.**
  NMR studies of intramolecular exchange in reactive alkane complexes
- **Hasti Iranmanesh**
  Chiral Ruthenium(II) Complexes as Supramolecular Building Blocks for Heterometallic Self-Assembly
- **Peter Jurd**
  Toward the Catalytic Syntheses of Acrylic Acid from Carbon Dioxide and Ethylene
- **Neil Mallo**
  Photochromic Switching Behaviour of Donor-Acceptor Stenhouse Adducts in Organic Solvents
- **Surabhi Naik**
  Organometallic Polymers: Dinuclear Acetylide-bridged Ruthenium Complexes containing Rigid Non-aromatic Spacers
- **James D. Watson**
  Towards the Synthesis of Ruthenaindenes with Electron-Donating and Withdrawing Groups on the Aryl Ring

RACI NSW Organic One-Day Symposium, Macquarie University, 30th November 2016

- **VR Aldilla, S. Nizalapur, , A. Martin, E. Yee, P. THordarson, D. Black, N. Kumar**
  Novel glyoxylamide peptide-mimics based on N-acylisatins as Self-assembled gels for drug delivery
- **Alexandra Daryl Ariawan**
  Exploiting Fluorine Gauche Effect for Applications in Medicinal and Supramolecular Chemistry
- **Christopher D. Barnett, Marcus L. Cole, Jason B. Harper**
  Control of N-Heterocyclic Carbene Properties
- **Stephen Butler**
  Design and Synthesis of Small Molecule Inhibitors of PRP4 Kinase
- **Reece Crocker**
  N-Heterocyclic Carbene Promoted Synthesis of Organosulfur Compounds
- **Lliya Dragutinovic**
  Synthesis of polysubstituted pyrrolo[1,2-c]pyrimidin-5(4aH)-ones
- **Alyssa Gilbert, Jason B. Harper**
  Identifying ionic liquid effects on an SN1 process
- **William E. S. Hart, Leigh Aldous and Jason B. Harper.**
  Ionic liquids and their effect on an ether cleavage
- **Rebecca R. Hawker, Ronald S. Haines, Jason B. Harper**
  Effect of an ionic liquid solvent on an S_NAr reaction of a heteroaromatic system
- **Tom Hawtrey**
  The development of potent and selective inhibitors of kinases involved in alternative splicing
- **Mohanad Hussein**
  N-Heterocyclic Carbene Promoted Appel Reaction

- **Yuvixza Lizarme-Salas**
  Stereoselective fluorination: A conformational tool for optimising the properties of bioactive molecules
- **S. Nizalapur, D. Black, N. Kumar**
  Amphipathic guanidine-embedded glyoxamide-based peptidomimetics as novel antimicrobial agents
- **Guilia Oss**
  Functionalization of Tertiary Amines via Hydride Abstraction with Tropylium Salts
- **Jonathon Ryan**
  Total Synthesis of Ancistrotanzanine A and Ancistrotectorine C
- **Karin S. Schaffarczyk McHale, Ronald S. Haines, Jason B. Harper**
  Investigating ionic liquid solvent interactions with species along the reaction coordinate for S_N2 processes
- **Uyen Tran**
  New C(sp^3)-C(sp^3) Coupling Method in Flow
- **Steven Wearmouth**
  Development of selective kinase inhibitors using the variolin B scaffold

30th Reactive Organometallics Symposium, Australian National University, November 2016

- **Christopher D. Barnett**
  Understanding the effects of NHC electronics
- **Kirsty S. Evans**
  Investigation of the origin of catalytic activity in β-diketiminate palladium complexes used for cross-coupling reactions

RACI NSW Organic Symposium, University of Western Sydney, November 2016

- **Nicholas Konstandaras**
  On correlating structure and reactivity. Electronic and strain effects in a range of systems

RACI NSW Organic One-Day Symposium, Macquarie University, 30th November 2016

- **R. Jwad**
  Exploiting Fluorine Gauche Effect for Applications in Medicinal and Supramolecular Chemistry

UNSW Medicinal Chemistry and Chemical Biology Meeting, November 2016

- **R. Jwad.**
  Finetuning" the shape of a cyclic peptide using selective fluorination chemistry,.

14th Conference of the Asian Crystallographic Association (AsCA), University of Science and Technology, Hanoi, Vietnam 3rd-7th December 2016

- **Hasti Iranmanesh**
  Chiral Ruthenium(II) Complexes as Supramolecular Building Blocks for Heterometallic Self-Assembly

3rd International Conference on Sodium Batteries, Deakin University 7th – 9th December 2016

- **James Christian**
  Carbon-based electrodes for better batteries
- **Divya Sehrawat**
  Cs doped P2-Na_xMnO_2 as an electrode material for sodium ion batteries

Undergraduate and Postgraduate Enrolments

Enrolment statistics 2016

	2010	2011	2012	2013	2014	2015	2016
ENROLMENTS in CORE CHEMISTRY COURSES							
First Year	1844	1966	1966	2445	2117	2506	2237
Second Year	219	336	352	340	399	383	384
Third Year	137	102	187	215	219	233	198
Level III CHEM electives	63	80	99	128	137	116	99
ENROLMENTS in SERVICE COURSES							
First Year	898	954	1024	1233	1022	764	649
Second Year	94	275	367	330	350	303	336
Third Year	13	75	67	60	65	48	36
Honours	18	15	29	35	38	36	35
POSTGRADUATE RESEARCH STUDENTS							
MSc (Research) Program 2910	4	6	8	11	8	3	5
PhD Program 1870	86	88	78	88	106	116	157

Honours Enrolments

The following Honours students were enrolled during all or part of the 2016 reporting period.

Student	Student
Chemistry Honours Students:	
Susannah Brown	Dr Alex Donald
Cameron Chapman	A/Prof. Marcus Cole
Nicholas De Haas	Dr Jonathon Beves
Kirsty Evans	A/Prof. Marcus Cole
Alyssa Gilbert	A/Prof. Jason Harper
Arien Kadribasic (*)	Dr Jonathon Beves
Jaimee Kindynis	Professor Scott Kable
Niamh Kyriacou	A/Prof. Marcus Cole
Ian Lin	Professor Pal Thordarson
Peter O'Mara	Professor Justin Gooding
Surabhi Naik ($)	Professor Les Field
Justin Tan (*)	A/Prof. Marcus Cole
Matthew Teusner	Dr Jonathon Beves
Blair Welsh ($)	Professor Timothy Schmidt
Hon Ching Yu (*)	Professor Scott Kable
Tsz Tin Yu	Professor Naresh Kumar

Student	Student
Medicinal Chemistry Honours Students:	
Chun Hong Chan	Dr Alex Donald
Jack Duncan	A/Prof. A/Prof Jonathan Morris
Calvin Howell	A/Prof. A/Prof Jonathan Morris
Jane Jung	Professor Naresh Kumar
Michael Lawler ($)	Professor Pal Thordarson
John Nesvaderani	Dr Luke Hunter
Sheena Nguyen	Scientia Professor Martina Stenzel
Hongji Oh	Dr Hongxu Lu
Nicole Richardson	A/Prof. Shelli McAlpine
Justin Sin	Dr Luke Hunter
Michael Stramandinoli	A/Prof. Shelli McAlpine
Glen Surjadinata	Dr Luke Hunter
Daniel Tran	A/Prof. Shelli McAlpine
Sandy Wong	Scientia Professor Martina Stenzel
You Dan Xu	Scientia Professor Martina Stenzel
Nanotechnology Honours Students:	
Habib Sadiq Abdulkhaliq	Dr. Lee Aldous
Mazin Abdullah Al Maimani ($)	Professor Richard Tilley
Cameron Dover	Professor Timothy Schmidt
Timothy Sanderson	Professor Timothy Schmidt

* Mid-year entry, July 2015-June 2016

$ Mid-year entry, July 2016-June 2017

Postgraduate Research Enrolments

The following postgraduate research students were enrolled during all or part of the reporting period for 2016

Master of Science by Research (Program MSc2910 & MPhil 2475)

Candidate	Research Area	Supervisor
Mushi HE	NMR Studies of organic photochemical reactive intermediates.	Dr Graham Ball
Kecheng LI	Conduction block copolymer for protein delivery	Professor Martina Stenzel
Vidia Afina NURAINI	New heterocyclic systems related to biologically active natural products	Professor David Black
Jiaying SU	Investigation into the cellular uptake of soft and hard nano particles.	Professor Martina Stenzel
Xiao ZHANG	Surface modification for biosensors	Scientia Professor Justin Gooding

Doctor of Philosophy, Chemistry (Program 1870)

The following postgraduate research students were enrolled during all or part of the reporting period for 2016 and who have not completed or submitted their thesis in 2016

Candidate	Research Area	Supervisor
Hassan Abdullah Alzahrani	Thermoelectrogalvanic cells for waste heat to energy	Dr Leigh Aldous
Christopher PRACEY	Studies of drug-DNA interactions using molecular modelling and NMR spectroscopy	Dr Graham Ball
Thomas MACDONALD	Supramolecular chemistry	Dr Jon Beves
Aaron KENNEDY	Metallosupramolecular chemistry	Dr Jon Beves
Ena Thea LUIS	Supramolecular chemistry	Dr Jon Beves
Hasti IRANMANESH	Photo-gated supramolecular interactions	Dr Jon Beves
Neil MALLO	Supramolecular chemistry	Dr Jon Beves
Vina Rizki ALDILLA	New heterocyclic systems related to biologically active natural products	Professor David Black
Matthew MUDGE	Transition metal chemistry and catalysis	A/Prof. Steve Colbran
James McPHERSON	Transition metal and lanthanoid chemistry of dipyridylpyrrolato ligands	A/Prof. Steve Colbran
Timothy ELTON	Small molecule activation organo-transition metal complexes	A/Prof. Steve Colbran
Lida EZZEDINLOO	A bio-mimetic approach to chemical reduction	A/Prof. Steve Colbran
Christopher BARNETT	Development of tools for the predictive application of catalysts	A/Prof. Marcus Cole
Vera DIACHENKO	Heavy metal hydrides.	A/Prof. Marcus Cole
Anthony LEVERETT	Heavy main group organohydride chemistry	A/Prof. Marcus Cole
Hyun Eui LEE	Capturing Reactive High-Valent Iron-oxo Intermediates of Catalytic Cycles using Theta-capillary Nanoelectrospray Ionisation	Dr W. Alex Donald
Muhammad BIN ZENAIDEE	Top down protein mass spectroscopy; biophysical chemistry	Dr W. Alex Donald

Candidate	Research Area	Supervisor
Laura JEFFRESS	Single cell mass spectrometry	Dr W. Alex Donald
Huixin WANG	Top - down protein mass spectrometry	Dr W. Alex Donald
Morphy DUMLAO	Imaging mass spectrometry, novel ionisation methods, and surface chemistry	Dr W. Alex Donald
Peter JURD	Organometallic activation of CO2. Developing new metal complexes for binding, activating and enhancing reactivity of CO2.	Professor Leslie Field
Yong LU	Developing Nanofabricated Surfaces for Cell Biology and Cell-based Biosensors	Scientia Professor Justin Gooding
Fan HAN	Nanomedicine	Scientia Professor Justin Gooding
Safura TAUFIK	An Antifouling Electrode for the Detection of Haemoglobin and Glycosylated Haemoglobin	Scientia Professor Justin Gooding
Fida'A ALSHAWAWREH	Immunosensors	Scientia Professor Justin Gooding
Manish SRIRAM	Single molecule sensors	Scientia Professor Justin Gooding
Ranjana PIYA	Silicon Biosensors	Scientia Professor Justin Gooding
Duyen NGUYEN	3D printing of cells	Scientia Professor Justin Gooding
Saimon MORAES SILVA	Biosensors	Scientia Professor Justin Gooding
Kelly ZONG	Polymeric extracellular matrix	Scientia Professor Justin Gooding
Vincent TAN	3D printing of cells	Scientia Professor Justin Gooding
Lachlan CARTER	Developing an Quantitative Super Resolution Microscopy Technique	Scientia Professor Justin Gooding
Leila ZAREI	Biosensors	Scientia Professor Justin Gooding
Manchen ZHAO	Nanomedicine.	Scientia Professor Justin Gooding
Sanjun FAN	Modified electrodes	Scientia Professor Justin Gooding
Bijan POURYOUSEFI MARKHALI	Comprehensive assessment of graphene - based modified electrochemical sensors for pharmaceutical drugs	Scientia Professor Justin Gooding
Raheleh PARDEHKHORRAM	Developing an optical filter (based on Modified Porous Silicon) for detection of phosphoinositide kinases and phosphatases activities	Scientia Professor Justin Gooding

Candidate	Research Area	Supervisor
Abu Sadat Md. SAYEM RAHAN	Synthesis of Cu-Au Alloy Nanoparticles for Electrochemical Reduction of CO2	Scientia Professor Justin Gooding
Yanfang WU	Surface modification	Scientia Professor Justin Gooding
Mehran BOLOURIAN KASHI	Light-activated electrochemistry: Understanding the important variables	Scientia Professor Justin Gooding
Mohaddeseh KAHRAM	Electrically switchable polymers	Scientia Professor Justin Gooding
Karin SCHAFFARCZYK McHALE	Ionic liquid solvent effects	A/Prof. Jason Harper
Nicholas KONSTANDARAS	Correlating structure and reactivity. Electronic and strain effects in a range of systems.	A/Prof. Jason Harper
Benjamin Boon Yuen LAU	Extraction and depolymerisation of lignin from rice husk using partially hydrated hydroxides.	A/Prof. Jason Harper
Rebecca HAWKER	Controlling reaction outcome through rational selection of the components of an ionic liquid solvent	A/Prof. Jason Harper
William HART	Synthesis and simulation of ionic liquids for biomass applications.	A/Prof. Jason Harper
Jeffrey BLACK	Thermoelectrochemical cells for harvesting waste heat	A/Prof. Jason Harper
Giulia OSS	Organocatalytic chemistry	A/Prof. Jason Harper
Mohanad Abdulameer HUSSEIN	Organic Chemistry: Catalytic synthesis and biological activity of polycyclic compounds	A/Prof. Jason Harper
Renecia LOWE		Dr Luke Hunter
Gabriella MARCOLIN	Radiolabelled RGD peptides	Dr Luke Hunter
Flora MANSOUR	Fluorinated bioactive peptides	Dr Luke Hunter
Yuvixza LIZARME SALAS	Towards a treatment for stroke	Dr Luke Hunter
Ahmed AHMED	Fluorinated heterocyclic surfactants	Dr Luke Hunter
Yun LEUNG	Synthetic organofluorine chemistry	Dr Luke Hunter
Catherine Kin Tung AU	Fluorinated Peptides	Dr Luke Hunter
Rasha Saad JWAD	Fluorinated peptides	Dr Luke Hunter
Aggie LAWER	Fluorinated peptides	Dr Luke Hunter
Alexandra ARIAWAN	Fluorinated RGD peptides for tumour imaging and treatment	Dr Luke Hunter
Callan WILCOX	Contribute to the scientific understanding of Secondary Organic Aerosol aggregation from Volatile Organic Compounds.	Professor Scott Kable
Keiran ROWELL	Reaction dynamics of hot roaming products in the atmosphere	Professor Scott Kable
Alireza KHARAZMI	Atmospheric chemistry	Professor Scott Kable
Aditi TAUNK	Antibacterial biomaterials based on quorum sensing inhibitors	Professor Naresh Kumar

Candidate	Research Area	Supervisor
Daniel WENHOLZ	Discovery and Development of Novel Bacterial RNA Polymerase Holoenzyme Formation Inhibitors	Professor Naresh Kumar
Basmah ALMOHAYWI	Disrupting Chemical Communication in Bacteria: Design and synthesis of Quorum Sensing inhibitors	Professor Naresh Kumar
Jeremy DOBROWOLSKI	Novel OCT3 analogues for potential treatment and diagnosis of depression	Professor Naresh Kumar
Rajesh KUPPUSAMY	Novel peptide mimics for the disruption of chemical communication in bacteria	Professor Naresh Kumar
Shashidhar NIZALAPUR	Exploitation of bacterial transcription initiation as a target for new antimicrobials	Professor Naresh Kumar
Ming Han Eugene YEE	Synthesis of Novel Flavonoid Hybrids and Development of their Delivery Systems.	Professor Naresh Kumar
Samantha ZAITER	Synthesis of heat shock protein inhibitors	A/Prof. Shelli McAlpine
Jessica KHO	Synthesis of heat shock protein inhibitors	A/Prof. Shelli McAlpine
Marwa RAHIMI	Synthesis and biological analysis of Hsp90 C-terminal inhibitors	A/Prof. Shelli McAlpine
Laura BUCKTON	Medicinal chemistry: organic synthesis and evaluation of biological assays	A/Prof. Shelli McAlpine
Yuqi ZHANG	Design, synthesis and biological activity evaluation of novel anti-tumour heterocycle containing cyclic peptide: Marthiapeptide A.	A/Prof. Shelli McAlpine
Adrian PIETKIEWICZ	Synthesizing macrocyclic peptides from the sanguinamide b and marthiapeptide classes	A/Prof. Shelli McAlpine
Sunhwa LEE	Synthesis of biologically active natural products	A/Prof Jonathan Morris
Benjamin PETERSON	Organometallic Chemistry and Catalysis	A/Prof Jonathan Morris
Iliya DRAGUTINOVIC	Design of small molecule kinase inhibitors	A/Prof Jonathan Morris
Stephen BUTLER	Synthesis & Biology of PRP4 Kinase Inhibitors	A/Prof Jonathan Morris
Tom HAWTREY	Synthesis of Kinase Inhibitors.	A/Prof Jonathan Morris
Elysha TAYLOR	Synthesis of Biologically Active Compounds	A/Prof Jonathan Morris
Jonathon RYAN	Total synthesis of biologically active natural products	A/Prof Jonathan Morris
Joana Elisa DA ROCHA	Design of kinase inhibitors	A/Prof Jonathan Morris
Stephen WEARMOUTH	Total Synthesis of Natural Products	A/Prof Jonathan Morris
Demelza LYONS	Organic Chemistry: Organocatalysis and Synthesis of Bioactive Compounds	Dr Vinh Nguyen
Reece CROCKER	Organic Chemistry: Organocatalysis and Synthesis of Bioactive Compounds	Dr Vinh Nguyen
Uyen Phuoc Nhat TRAN	Synthetic organic chemistry	Dr Vinh Nguyen
Andrew DANOS	The Role of Spin in Triplet-Triplet Annihilation Upconversion	Professor Timothy Schmidt

Candidate	Research Area	Supervisor
Vineeth YASARAPUDI	Molecular approaches to third generation photovoltaics	Professor Timothy Schmidt
Elham MORTEZA GHOLIZADEH	Optimisation of interdigitated back contact prototype crystalline silicon solar cells	Professor Timothy Schmidt
Yu LIU	Spectroscopy and quantum chemistry	Professor Timothy Schmidt
Divya SEHRAWAR	Electrode materials for lithium and sodium ion batteries	Dr Neeraj Sharma
Damian GOONETILLEKE	In situ studies of electrode materials and lithium lanthanum zirconium oxides as solid state electrolytes	Dr Neeraj Sharma
Junnan LIU	New electrode materials for lithium and sodium-ion batteries	Dr Neeraj Sharma
James CHRISTIAN	Carbon-based materials for sodium and magnesium-ion batteries.	Dr Neeraj Sharma
Jeaniffer ELIEZAR	Origami with triblock copolymers	Professor Martina Stenzel
Janina NOY	Development of polymeric nanoparticles for the co - delivery of two anti - cancer drugs for the treatment of sarcoma	Professor Martina Stenzel
Fan CHEN	Development of drug delivery systems for proteins as anti-cancer drugs	Professor Martina Stenzel
Guannan WANG	3D printing of hydrophilic scaffolds via novel photoinitiators	Professor Martina Stenzel
Russul Ridha MAMDOOH	Drug loaded nanoparticles for the treatment of cancer	Professor Martina Stenzel
Mingxia LU	Sugar coated particles for the delivery of ruthenium drugs	Professor Martina Stenzel
Alberto PILONI	Fluorine containing nanoparticles for imaging	Professor Martina Stenzel
Haiwang LAI	Polymer coated nanodiamonds for drug delivery	Professor Martina Stenzel
Cheng CAO	Scattering analysis of Block copolymers	Professor Martina Stenzel
Yee Yee KHINE	Nanoparticles for drug delivery	Professor Martina Stenzel
Catherine ONIE	Gemini surfactants and Janus particles - introducing light-sensitive functionalities	A/Prof. John Stride
Timothy D'ADAM	Molecular magnets studied using 3He spin filters on TOF neutron scattering instruments	A/Prof. John Stride
Zhichen YAN	Graphene-reacted materials chemistry for technical applications	A/Prof. John Stride
Md Musfizur HASSAN	Self assembly & drug delviery	Professor Pall Thordarson
Eric DU	Supramolecular chemistry	Professor Pall Thordarson
Genevieve DUCHE	Nanomedicine, self-assembly and peptides	Professor Pall Thordarson
Jonathan WOJCIECHOWSKI	Supramolecular Chemistry	Professor Pall Thordarson

Candidate	Research Area	Supervisor
Chin Ken WONG	Self-assembled FRET-able multifunctional nanocarriers for drug delivery investigations	Professor Pall Thordarson
Andrew ROBINSON	Therapeutic Peptides and Peptide Hydrogelators for Medical Application	Professor Pall Thordarson
Abbas DARESTANI FARAHANI	Self assembled peptide hydrogels for biomedical applications	Professor Pall Thordarson
Kristel TJANDRA	Self-assembly and peptide synthesis	Professor Pall Thordarson
Lucy GLOAG	Synthesis of bimetallic nanostructures	Professor Richard Tilley
Cameron KELLY	Synthesis, characterisation and catalytic properties of Au-Pd nanoparticles	Professor Richard Tilley
Bryan SURYANTO	Nanomaterial for Electrochemical Energy conversion	A/Prof. Chuan Zhao
Majid ASNAVANDI	Electrodeposition and optimisation of metallic alloy catalysts for efficient electrochemical reduction of oxygen	A/Prof. Chuan Zhao
Tim FANG	Elctrochemical energy systems	A/Prof. Chuan Zhao
Xin BO	Electrochemical energy systems	A/Prof. Chuan Zhao
Richard GONDOSISWANTO	Microfabrication and Understanding of Miniaturised Ionic Liquid Systems for gas sensing.	A/Prof. Chuan Zhao
Wanfeng YANG	Electrochemical energy conversion and storage	A/Prof. Chuan Zhao
Mengchen GE	Electro Chemical Energy and Sensors	A/Prof. Chuan Zhao

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Book Chapters

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Grants and Research Fellowships

AUSTRALIAN RESESARCH COUNCIL

Discovery Projects

Investigator(s)	$	Project
Prof. N. Kumar, Prof. D. Black, Prof. M. Willcox	105,000	Novel peptide mimics for the disruption of chemical communication in bacteria
Dr L. Hunter, Dr E. Pasquier	115,000	Fine-tuning the conformations of cyclic peptides: a paradigm for optimising synthetic efficiency and biological activity
Prof. M. Stenzel, A/Prof. J.C. Morris, Prof. Pourgholami	130,000	Polyion complex micelles as smart nano-sized drug carriers for proteins.
Prof. S.H. Kable, Prof. T. Schmidt	165,300	Reactive Intermediates in Atmospheric and Combustion Chemistry
Prof. J.J. Gooding, Prof Ciampi	124,700	Light Activated Electrochemistry: Microelectrode Arrays with just one wire
A/Prof. C. Zhao, Prof. D.B. Hibbert	133,300	Miniaturised Ionic liquid Systems: Design, Electrochemistry and Application
Dr J. Beves, Dr. E. Moore	151,500	Light-driven Supramolecular Reactors **(New)**
Prof M. Stenzel; Dr A. Walther; Dr C. Garvey	136,800	Origami with triblock copolymers **(New)**
A/Prof. SB Colbran, Prof. LD Field, Dr GE Ball, Prof. E. Norlander	144,500	Adding hydride punch to transition metal complexes for CO2 electroreduction **(New)**
Dr W. Alex Donald	90,000	Rapid ultra-sensitive protein structure information by mass spectrometry **(New)**
A/Prof. C. Zhao	120,000	Three-dimensional, precious-metal-free electrolysis of water **(New)**
Prof. S.H. Kable, A/Prof. M. Jordan, Prof. Y.P. Lee	170,500	Atmospheric Photochemistry – it's a lot more complicated than we thought **(New)**
Prof. M Willcox, Prof N.h Kumar; Dr C. Cranfield	26,300	Effect of a novel immobilised antimicrobial peptide on bacteria **(New)**

ARC Laureate Fellowship

Investigator(s)	$	Project
Prof. J.J. Gooding	595,564	The first generation of single entity measurement tools for analysis

Future Fellowship

Investigator(s)	$	Project
Prof. P. Thordarson,	102,857	Moving Supramolecular Assembly of Functional Systems into Water
Prof. T.W. Schmidt	206,244	Nanostructured upconvertors for advanced solar energy harvesting

Centre of Excellence

Investigator(s)	$	Project
Prof. J.J. Gooding, Prof. P. Thordarson, et al	318,200	ARC Centre of Excellence in Convergent Bio-Nano Science and Technology

Linkage Program

Investigator(s)	$	Project
M. Willcox, Prof. N. Kumar, N. Cole, N. James	75,004	Novel antimicrobial surface coatings for Cochlear implants
Prof. J.J. Gooding, Prof. T.P. Davis, Prof. M. Kavallaris	80,000	The development of tuneable materials to allow the three-dimensional printing of cells
Prof. P. Thordarson, Dr J.M. Hodgkiss, Dr A. Falber	51,000	Controlling light-harvesting with complex perylene arrays
Prof. J.J. Gooding, Prof. Williams (Agamatrix), Prof. M. Kavallaris	135,000	A gold-coated magnetic nanoparticle biosensor for detecting microRNA
Prof. P. Thordarson, Prof. T. Schmidt, Prof. R. Tilley, Dr. J.M. Hodgkiss Dr A. Falber	45,000	Precision luminescent solar concentrators from robust quantum dot arrays **(New)**
Prof. R. Nordon, Prof P. Thordarson, Prof. L. Bilston	38,000	Scaling manufacture of three-dimensional microstructures for the medical devices industry **(New)**

LIEF: Linkage Infrastructure, Equipment and Facilities Funding

Investigator(s)	$	Project
Prof. M. Stenzel, et al	265,000	Nanoparticle characterization facilities for nanomedicine

DECRA: Discovery Early Career Researcher Award

Investigator(s)	$	Project
Dr. H. Lu	115,000	Nanoparticle uptaking of cell culture grown on micropatterned surfaces
Dr. V. Nguyen	120,000	Organocatalysis: A new horizon for synthesis of organic structures
Dr. P. Xiao	129,425	Surface coated nanodiamonds as drug delivery carriers and simultaneous imaging
Dr. N. Sharma	129,918	A new method to realise zero thermal expansion materials **(New)**

NATIONAL HEALTH & MEDICAL RESEARCH COUNCIL

Investigator(s)	$	Project
Dr A. H. Soeriyadi	77,359	Peter Doherty Fellowship: Photonic Crystals for Probing Enzyme Activity: Single cells vs Bulk Measurement.
Prof. J.J. Gooding	185,854	HbA1c biosensor
Prof. J.J. Gooding, Prof. M. Kavallaris, Prof. T. Davis, Prof. Lock	318,983	recision nanomedicine-based diagnostics and therapeutics for refractory malignancies
Dr. A. D. Martin	117,940	NHMRC-ARC Dementia Research Fellowship: Self-assembled hydrogels as a model for neurodegeneration **(New)**
A/Prof. Jonathon Morris	119,684	New Drugs to Counteract the Side Effects and Premature Aging Caused by Chemotherapy **(New)**

UNIVERSITY OF NEW SOUTH WALES GRANTS

Science Faculty Research Grant

Investigator(s)	$	Project
A/Prof. Marcus Cole	25,000	Catalytic Bond Activation at Al and Ga,
A/Prof. Jason Harper	15,000	Designer solvents to control reaction outcome: Ionic liquids for solvent-controlled reactivity
A/Prof. John Stride	5,000	Unlocking magnetic interactions and molecular dynamics using neutron scattering
Dr. Leigh Aldous	5,000	Biomass air batteries for the dual production of energy and value-added chemicals
Dr. Pu Xiao	7,500	Development of High Performance Photoinitiating Systems for 3D Printing
A/Prof. Shelli McAlpine	25,000	Synthesizing compounds that target Heat shock protein 70: blocking cancer cell growth
Dr. Neeraj Sharma	10,238	Scaffolding layered structures: A crystal engineering solution to dramatically improve insertion electrodes
Dr. Vinh Nguyen	15,000	A novel approach to C(sp3)-C(sp3) bond formation for efficient synthesis of complicated organic structures
Dr. Yuanhui Zheng	5,238	Multifunctional plasmonic architectures for anti-counterfeiting and security applications

Gold Star

Investigator(s)	$	Project
Dr G.E. Ball	40,000	Transforming alkanes with transition metal cations
A/Prof. Jonathon Morris	40,000	Diene Regenerative Diels-Alder Reactions to Access Chemical Scaffolds

UNSW Learning & Teaching: Innovation Grant

Investigator(s)	$	Project
Dr R.S. Haines, Dr S. A. Sulway, Dr L. Hunter, A/Prof. S. C. Colbran, Prof. S. H. Kable	10,000	Bringing Lectures to Life: Chemistry Demonstrations designed for modern teaching spaces

AUSTRALIAN GRANTS

Investigator(s)	$	Project	Source
Prof J.J. Gooding, Chaffey (Panorama Synergy)	88,655	Development of a MEMS based Hydrogen Detector using LumiMEMS	Research Connections Grant
Prof. P. Thordarson	100,000	Prototype study on dyes	Research Connections Grants
Prof. N. Kumar	54,696	Bone substitute	Australian Industry
Dr N. Sharma	26,288	Electrodes for new battery systems - Phd scholarship	Australian Institute of Nuclear Science and Engineering
Prof. N. Kumar	50,000	Fabrication of synthetic bone substitute	Department of Industry & Science / Research Connections Contract
A/Prof. J. Stride	142,509	Environmentally friendly surfactants	Research Connections
A/Prof. J.B. Harper	10,000	23rd IUPAC Conference on Physical Organic Chemistry	NSW Department of Industry
Dr N. Sharma	3,000	Structural evolution of positive electrodes in sodium-ion batteries under extreme electrochemical conditions	International Synchrotron Access Program
A/Prof. J.A. Stride	50,097	Solving the Energy Roadblock	Science and Industry Endowment Fund

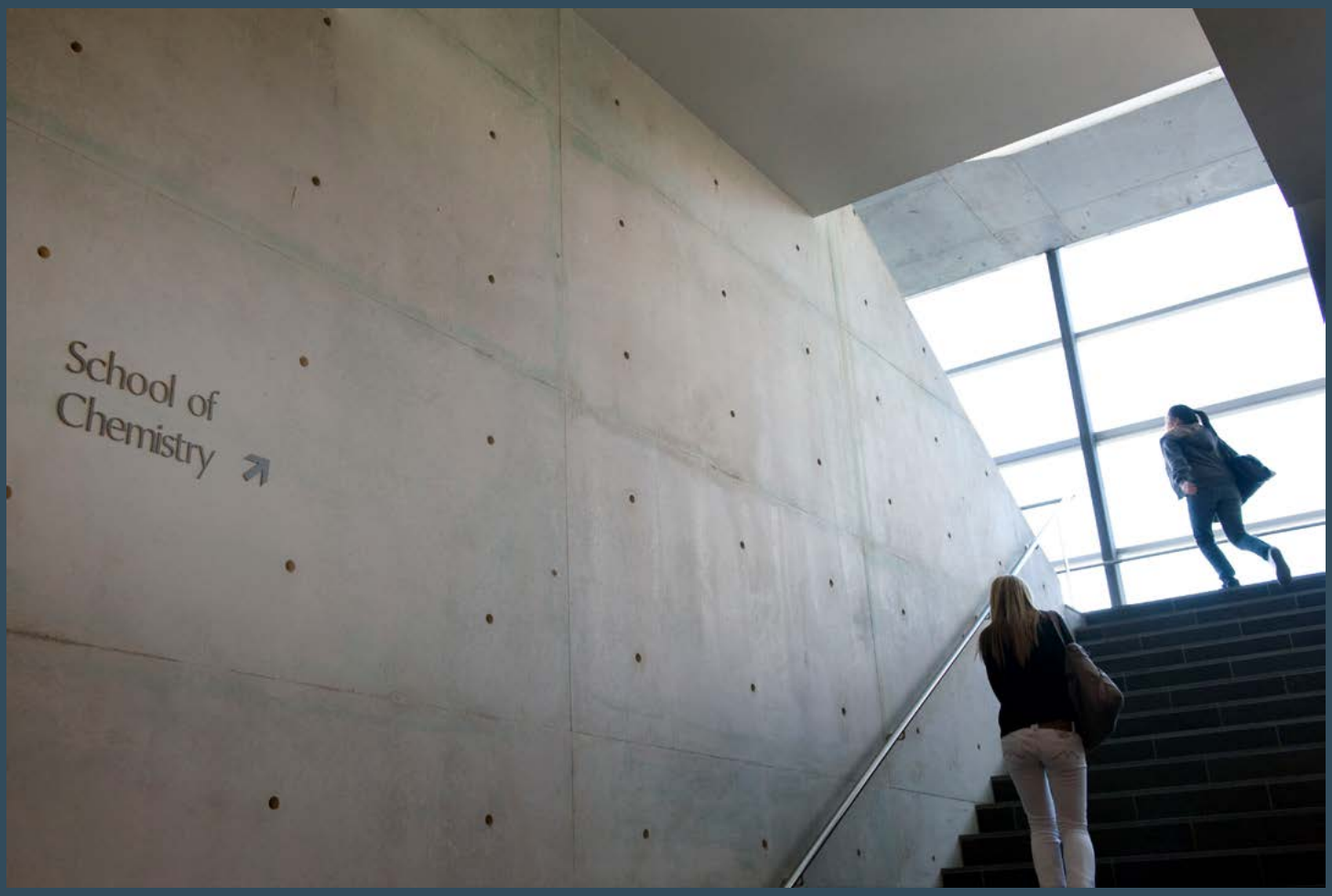
INTERNATIONAL GRANTS

Investigator(s)	$	Project	Source
A/Prof. J.C. Morris	52,256	Consulting services agreement	EXONATE LTD (UK)
A/Prof. J.C. Morris	27,256	Design of SRPK1 Inhibitors	EXONATE LTD (UK)
A/Prof. C. Zhao	675,316	3D Oxygen Electrodes	Torch Project

Industry and Community Interaction

Listed below are the companies, government authorities, societies and educational institutions that academic staff interacted with in 2016.

- Agamatrix Inc.
- AINSE
- Allegra Orthopedics
- ANSTO
- Arizona State University
- Armstrong Legal
- Australian Centre for Nanomedicine
- Australian Racing Forensic Laboratory
- Australian Synchrotron
- Australasian Society for Biomaterials and Tissue Engineering
- AUTEX (Association of European Textile Departments)
- AWTA (Australian Wool Testing Authority)
- Bannisters Lawyers
- Bragg Institute
- Cambridge University
- Cardiff University
- CEA, France
- Centre for Bio-NanoScience
- Centre for Marine Bio-Innovation, UNSW
- Chemicentrum, Lund University
- Children's Cancer Institute Australia (CCIA)
- CICerergigune, Spain
- Clockwerk Pty Ltd.
- Cochlear Pty
- CSIRO Plant Industry
- Curtin University
- Dalhousie University, Canada
- Deakin University – Institute of Frontier Materials
- Donghua University, Shanghai, China
- Elie Rahme Lawyers
- Ettason Pty Ltd.
- Exonate Pty Ltd
- Faculty of Medicine, UNSW
- Ferranova Pty Ltd
- Freje University, Berlin, Germany
- Futan University, China
- Garvan Institute
- Greyhound Racing (Vic, Tas & NSW)
- Griffith University
- Hargreaves
- Harness Racing NSW
- Hebei Normal University
- Henan University, China
- Heriot-Watt University, Edinburgh, Scotland
- Imperial College London
- Institute of Textiles & Clothing, Hong Kong
- Institut de Science des Matériaux de Mulhouse IS2M, UMR CNRS 7361, France
- Institut de Chimie Radicalaire ICR – UMR CNRS 7273, Aix-Marseille Université, France
- Inventia Life Sciences
- Ixom (formerly Orica Chemicals)
- Journal of Inclusion Phenomena and Macrocyclic Chemistry
- Karlsruhe Institute of Technology
- Kohodo Sunshine Energy Pty Ltd
- Legal Aid Victoria
- Longton Legal
- Lowy Cancer Research Centre
- Macquarie Lawyers
- McCabes Lawyers
- Memorial University of Newfoundland, Canada
- Metrobiotech UNSW
- Minter Ellison
- Mochtar Riady Institute for Nanotechnology, Jakarta, Indonesia
- Mologic Ltd, Bedfordshire, UK
- Monash Institute of Pharmacy
- Monash University
- Mutah University, Jordan
- National Research Foundation of South Africa
- National Taiwan University
- National University of Singapore
- NZ Racing
- Panorama Synergy
- Pharmaxis
- Prince of Wales Clinical School
- Princeton University
- Quaid-i-Azam University, Pakistan
- Questacon
- Qingdao University, China
- Racing NSW
- Rodda lawyers
- Royal Society of Chemistry
- RR Medsciences Pty Ltd.
- School of Chemical Engineering UNSW
- School of Physics UNSW
- Shaanxi Normal University
- Siloam Hospitals, Indonesia



- Society of Controlled Release
- Universitas Gadjah Mada, Yogyakarta, Indonesia
- University of Adelaide
- University of California, Davis, USA
- University of Cape Town
- University of Kentucky
- University of Kiel
- University of Malaya
- University of Melbourne
- University of Newcastle
- University of Nijmegen
- University of Parma, Italy
- University of South Australia
- University of Strasbourg, France
- University of Sydney
- University of Technology Sydney
- University of Texas
- University of Wellington
- University of Western Australia
- University of Wollongong
- UNSW Torch Innovation Precinct
- Valence Technologies
- Volvo Group
- Xinova
- Yigitaku

SCHOOL VISITING COMMITTEE 2016

The Committee has representatives from our key stakeholder organisations – industry, government, schools and government research institutes. The terms of reference for the committee are as follows:

1. **To appraise the School programs in light of the needs of the School stakeholders (industry, government, schools and research institutions).**
2. **To provide advice about the direction that the School should take to best enhance future interactions with our stakeholders.**
3. **To provide advice about the changing needs of industry, research and government organisations to best prepare the School's graduates for future opportunities.**
4. **To receive and discuss the School of Chemistry's Annual Report.**
5. **To aid the development of the School in any other way possible.**

External Representatives from Industry, Government and Education

Prof. Bruce Sutton (Chair)
Honorary Professor (Agronomy), The University of Sydney

Prof. Brian Yates
Executive Director for Engineering, Mathematics and Information Sciences - ARC

Dr. Christopher Armstrong
Director, Office of the NSW Chief Scientist and Engineer

Dr. Cathy Foley
Chief, CSIRO Materials Science & Engineering

Dr. Paul Kelly
Managing Director – OneVentures

Mr Leo Hyde
DuPont

Mrs Roslynne Moxham
Principal, Fort Street High School

Dr. Timothy Wright
Headmaster, Shore Grammar

Ex Officio Members

Professor Scott Henderson Kable
Head, School of Chemistry

Scientia Professor Justin Gooding
Deputy Head, School of Chemistry

Professor Pall Thordarson
Director of Research, School of Chemistry

A/Prof. Jason Harper
Director of Teaching, School of Chemistry

Professor Gordon Hillis Aylward

26th April 1925 – 27th September 2016

Professor Gordon Hillis Aylward was a member of the UNSW School of Chemistry from 1959 to 1966, when he moved to Macquarie University.

He was largely influential in establishing the UNSW Summer Schools for Senior Teachers of Chemistry, which ran annually from 1960 to 1969. One of the results of these Summer Schools was the publication of a book of chemical data. What followed was the publication of two editions of “Chemical Data Book” and six editions of “SI Chemical Data” by Gordon Aylward and Tristan Findlay. Funds from the earlier editions helped to establish the David Mellor Chemical Education Lecture and Medal.

Much of Gordon’s work from 1973 onwards was promoting chemical education overseas, in countries such as Thailand, Indonesia and Pakistan. He was awarded Thailand’s Order of the White Elephant.

He died in Coffs Harbour, NSW on 27th September 2016.