

# FINANCE

## Financial Summary

The School continued its success in obtaining funding through the Australian Research Council's competitive grants schemes, thus the financial strategy in 2005 was again to be focused on consolidation and upgrading of resources required to support both new and ongoing research. However, whilst expenditure on small to medium items of research and IT equipment to replace old and obsolete items continued, purchases of new items of larger equipment were deferred due to the fire/explosion which occurred in the Birch Building on 5th August.

In addition to recurrent income, the research contracts with biotechnology company Progen Industries Ltd and ORICA (Australia) Ltd continued throughout the year, as did the UniChe Project, part of the DEST Higher Education Innovation Program. Funding was also received through the Australian Research Council's Discovery and Linkage Schemes, plus from a variety of other external sources, the details of which are given below. In addition the School continued to make patent applications for work carried out by several of the research groups, and work was undertaken for external clients by the Microanalytical Unit, the Mass Spectrometry Unit, and the Glass and Mechanical Workshops. The annual recurrent grant for the School (\$10,707,000) was supplemented by external income of \$5,908,174.

## Outside Grants and Contracts

The recipients and sources of external grants are as follows:

\*\* denotes a new grant in 2005

### *Protein Structure and Function*

*Professor N E Dixon and Dr G Schenk \*\**

*An integrated approach towards development of highly specific chemotherapeutics*

Australian Research Council, Discovery Project, January 2005–December 2007

*Professor N E Dixon and Dr G Coia*

*New methods for directed molecular evolution of novel protein functions*

Australian Research Council and Evogenix Pty Ltd, Linkage Project, March 2004–December 2005

*Dr K Ozawa*

*Subunit contacts in the replicative DNA polymerase: A new paradigm for protein-protein interactions*

Australian Research Council, Linkage–Postdoctoral Fellowship (CSIRO), October 2003–October 2006

*Professor N E Dixon and Professor G Otting*

*Enabling technologies for structural genomes*

Australian Research Council, Discovery Project, January 2003–December 2005

### *Protein Crystallography and Engineering*

*Dr P D Carr \*\**

*Cytokine receptor complex (cytokine, alpha and beta) structure determination*

ANSTO, Australian Synchrotron Research Program, August 2005

*Professor D L Ollis*

*Directed evolution used to probe protein structure and function: new enzymes for bio-remediation and industry*

Australian Research Council, Discovery Project, January 2003–December 2005

### *Biomolecular NMR*

*Professor G Otting*

*New methods for structural biology in solution*

Australian Research Council, Federation Fellowship, January 2002–December 2006

*Professor G Otting*

*New methods for structural biology in solution*

Australian Research Council, Discovery Project, January 2003–December 2007

Professor G Otting and Professor N E Dixon  
*Enabling technologies for structural genomes*

Australian Research Council, Discovery Project, January 2003–December 2005

### **Coordination Chemistry and Spectro-electrochemistry**

Dr G A Heath

*The first development of multi-dimensional spectro-electrochemistry and its application to crucial transformations in inorganic systems*

Australian Research Council, Discovery Project, January 2004–December 2006

### **Disordered Materials**

Dr D J Goossens \*\*

*Diffuse neutron scattering from deuterated p-terphenyl, (C<sub>18</sub>D<sub>14</sub>)*

ANSTO, Access to Major Research Facilities Program, November 2005

Dr D J Goossens \*\*

*Finding the ferromagnetic direction in BaPrO<sub>3</sub> using high magnetic field neutron powder diffraction*

AINSE, Access to Facilities Program, July 2005

Dr D J Goossens \*\*

*Neutron diffuse scattering in p-terphenyl*

AINSE, Access to Facilities Program, June 2005

Professor T R Welberry \*\*

*Diffuse scattering from statically and dynamically disordered crystals*

ANSTO, Australian Synchrotron Research Program, July 2005

Professor T R Welberry

*Development of methods and strategies for the measurement, interpretation and analysis of diffuse X-ray scattering from disordered materials*

Australian Research Council, Discovery Project, January 2003–December 2005

Professor T R Welberry, Professor R L Withers, Professor A Pring and Dr N Ishizama

*The effects of local strain on the crystal structure of solid solutions*

Australian Research Council, Discovery Project, January 2003–December 2005

### **Inorganic Stereochemistry and Asymmetric Synthesis**

Professor S B Wild and Dr M L Coote \*\*

*Quantum chemical design of stereoregular polyphosphine for nanowires*

Australian Research Council, Discovery Project, January 2005–December 2007

Professor S B Wild

*Asymmetric synthesis of chiral phosphines, arsines and stilbines*

Australian Research Council, Discovery Project, January 2003–December 2005

### **Synthesis and Mechanism**

Professor M G Banwell and Mr T Bilski \*\*

*The development of new, non-steroidal anti-asthma drugs with novel modes of action*

Australian Research Council and Cryptopharma Pty Ltd, Linkage Project, December 2005–December 2007

Professor M G Banwell \*\*

*Development of 3NTA-DTDA*

Lipotek Pty Ltd, May–August 2005

Professor M G Banwell \*\*

*Generation of novel fermentation products and their exploitation in the synthesis of biologically-active organic compounds with therapeutic potential*

Australian Research Council, Discovery Project, January 2005–December 2008

Professor M G Banwell and Ms L Fearnside

*Chemoenzymatic routes to novel dendritic architectures suitable for pharmaceutical applications*

Australian Research Council and Starpharma Ltd, Linkage Project, March 2004–December 2006



**Professor M G Banwell and Associate Professor M J Garson**  
*Synthetic, molecular and biological studies on novel marine metabolites isolated from Great Barrier Reef sponges*

Australian Research Council, Discovery Project, January 2004–December 2006

**Professor M G Banwell and Mr M P Friend**

*Development of chemoenzymatic methods for the selective elaboration of polyfunctional therapeutic agents to oligomers with improved efficacy*

Australian Research Council and Biota Holdings Ltd, Linkage Project December 2003–December 2006

**Professor M G Banwell**

*Progen phase III synthesis and identification of novel, heparinoid mimetics and development of the heparanase enzyme as a diagnostic and therapeutic target*

Progen Industries Ltd, October 2002–September 2005

### **Biochemical Reactions and Molecular Recognition**

**Professor C J Easton \*\***

*Development of optimised processes for manufacturing melamine–urea–formaldehyde resins, and improved resins and reconstituted woods products derived from resins*

Australian Research Council and ORICA Australia Pty Ltd, Linkage Project, December 2005–December 2008

**Professor C J Easton and Professor S F Lincoln**

*Supramolecular assemblies as nanoscale devices to control chemical and physical processes*

Australian Research Council, Discovery Project, January 2004–December 2008

**Professor C J Easton**

*Amino acid and peptide radicals in biochemistry and synthesis*

Australian Research Council, Discovery Project, January 2003–December 2005

**Professor C J Easton and Dr M Casarotto**

*Synthetic compounds to specifically activate or inhibit ryanodine receptor calcium ion channels*

Australian Research Council and Biotron Ltd, Linkage Project, January 2003–December 2005

### **Organic Synthesis**

**Professor L N Mander**

*Preparation of photo–affinity molecular probes for the identification of gibberellin receptors*

Australian Research Council, Discovery Project, January 2003–December 2005

### **Organic Synthesis, Methodology and Host–guest Chemistry**

**Associate Professor M S Sherburn \*\***

*Domino approaches to polycyclic natural products*

Australian Research Council, Discovery Project, January 2005–December 2007

**Associate Professor M S Sherburn and Professor M Paddon-Row**

*New horizons in Diels–Alder chemistry*

Australian Research Council, Discovery Project, January 2003–December 2005

### **Synthetic Organometallic and Coordination Chemistry**

**Professor A F Hill and Professor M I Bruce \*\***

*Towards nano–circuits: 2- and 3-dimensional carbon-wired nano-architectures*

Australian Research Council, Discovery Project, January 2005–December 2007

**Professor A F Hill**

*Metallaboratrans: Soft scorpionates and masked metal bases*

Australian Research Council, Discovery Project, January 2003–December 2005

### **Solid State Inorganic Chemistry**

**Professor R L Withers, Dr B Kennedy and Dr C Howard \*\***

*Understanding phase transitions through precise structural studies*

Australian Research Council, Discovery Project, January 2005–December 2007

**Professor R L Withers \*\***

*Temperature-dependent structural studies of the  $A_3\text{CoNb}_2\text{O}_9$  ( $A=\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ ) 1:2 b-site substituted complex perovskites*

AINSE, Access to Facilities Program, January–December 2005

**Professor R L Withers \*\***

*Structural Studies of  $\text{Sr}_{3-x}\text{Ba}_x\text{CoNb}_2\text{O}_9$  triple perovskites*

ANSTO, Australian Synchrotron Research Program, January–February 2005

**Professor R L Withers, Professor T R Welberry, Professor A Pring and Dr N Ishizama\*\***

*The effects of local strain on the crystal structure of solid solutions*

Australian Research Council, Discovery Project, January 2003–December 2005

**Theoretical Chemical Physics****Professor M A Collins and Associate Professor M Zhang**

*The energetics and dynamics of chemical reactions of polyatomic molecules involving multiple electronic states*

Australian Research Council, Discovery Project, January 2004–December 2006

**Computational Quantum Chemistry, Polymer Chemistry****Dr M L Coote \*\***

*Computer-aided design of agents for controlling free-radical polymerisation*

Australian Research Council, Discovery Project, January 2005–December 2007

**Dr M L Coote and Professor S B Wild\*\***

*Quantum chemical design of stereoregular polyphosphine for nanowires*

Australian Research Council, Discovery Project, January 2005–December 2007

**Dr M L Coote**

*Hydrogen abstraction in chemical, biochemical and polymerisation processes*

Australian Research Council, Postdoctoral Research Fellowship, June 2002–June 2005

**Liquid State Chemical Physics****Professor D J Evans, Associate Professor E M Sevick, Dr T J Senden and Dr D R M Williams \*\***

*A pico-Newton scale force measurement apparatus for polymer physics and nonequilibrium statistical mechanics*

Australian Research Council, Linkage Infrastructure Equipment Facilities, January 2005–December 2005

**Professor D J Evans and Dr D J Bernhardt**

*Fluid properties and chaotic dynamics in equilibrium and nonequilibrium states*

Australian Research Council, Discovery Project, January 2004–December 2008

**Professor D J Evans and Associate Professor E M Sevick**

*Experimental demonstrations of violations of the Second Law of Thermodynamics*

Australian Research Council, Discovery Project, January 2003–December 2005

**Polymers and Soft Condensed Matter****Associate Professor E M Sevick, Professor D J Evans, Dr T J Senden and Dr D R M Williams \*\***

*A pico-Newton scale force measurement apparatus for polymer physics and nonequilibrium statistical mechanics*

Australian Research Council, Linkage Infrastructure, Equipment and Facilities, January 2005–December 2005

**Associate Professor E M Sevick and Professor J S Williams and Professor B W Ninham**

*Salt, sugar and sequence: The effect of molecular forces on polymer conformation*

Australian Research Council, Discovery Project, January 2004–December 2006

**Associate Professor E M Sevick and Professor D J Evans**

*Experimental demonstrations of violations of the Second Law of Thermodynamics*

Australian Research Council, Discovery Project, January 2003–December 2005

### Molecular Electrochemistry

Dr R D Webster

*In situ electrochemical NMR spectroscopy*

Australian Research Council, Queen Elizabeth II Fellowship,  
June 2001–June 2006

### Solid State Molecular Science

Dr A Jackson \*\*

*Surfactant distribution in aggregates within high internal phase emulsions*

ANSTO, Access to Major Research Facilities Program,  
November 2005

Dr A Jackson \*\*

*Microphase structure in block copolymers*

AINSE, Access to Facilities Program, November–December  
2005

Professor J W White \*\*

*Structure of pristine oil/water interface: surfactant-free emulsions*

ANSTO, Access to Major Research Facilities Program,  
August 2005

Professor J W White \*\*

*Drying of dairy proteins – denaturation of proteins at interfaces at the nanometer scale*

Dairy Ingredients Group of Australia, July 2005–December  
2006

Dr P A Reynolds \*\*

*Interfacial structure of block copolymers at the oil/water interface / Cosurfactant stabilisation of high phase emulsions / Differential effects in mixed diblock copolymer amphiphiles at the air/aqueous interface*

ANSTO, Access to Major Research Facilities Program, May  
2005

Dr J Zank \*\*

*Lamellar structures formed from diblock copolymers / Aggregation of sugar/protein complexes*

ANSTO, Access to Major Research Facilities Program,  
April 2005

Dr A Jackson \*\*

*Polymeric surfactant aggregation in high internal phase emulsions / Polymeric surfactant micelle formation in high internal phase emulsions*

ANSTO, Access to Major Research Facilities Program,  
March 2005

Professor J W White

*Designer surfactants for creation of emulsion properties*

Australian Research Council and ORICA (Australia) Ltd,  
Linkage–Project, 2004–2008

Professor J W White

*High internal phase emulsions – structure and rheology control*

ORICA (Australia) Ltd, April 2004–March 2005

Professor J W White

*Making film-stars: Nano-composite films for solar energy capture*

DEST, Innovation Access Program, March 2004–May 2006

Professor J W White

*Drying of dairy proteins – strategies for preserving functional properties during dehydration*

Food Science Australia, January 2004–December 2006

Professor J W White

*The UnIChe project*

DEST, Higher Education Innovation Program, January  
2004–December 2005

Mr A Perriman

*Protein behaviour at interfaces*

Australian Institute of Nuclear Science and Engineering  
Student Award, July 2003–February 2006