

## 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 2004 again focused on consolidation and up-grading of resources required to support both new and on-going research. Several new items of equipment were purchased, and the ongoing programme of expenditure on small to medium items of research and IT equipment to replace old and obsolete items was continued.

In addition to recurrent income, the research contracts with biotechnology company Progen Industries Ltd and ORICA (Australia) Ltd continued throughout the year. The UniChe Project, part of the DEST Higher Education Innovation Programme, was renewed for a further two years. 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 (\$10,742,000) was supplemented by external income of \$5,369,287.

### Outside Grants and Contracts

\*\* denotes a new grant in 2004

The recipients and sources of external grants are as follows:

#### *Biochemical Reactions and Molecular Recognition*

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

*Platform technology for new pharmaceuticals*  
ACT Government, March 2003–March 2004

Professor C J Easton \*\*

*29th international symposium on macrocyclic chemistry and 20th Royal Australian Chemical Institute Organic Chemistry Conference*  
DEST, Innovation Access Program, February 2004–July 2004

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-Projects, January 2003–December 2005

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

*Supramolecular Assemblies as nanoscale devices to control chemical and physical processes*  
Australian Research Council, Discovery-Projects, January 2004–December 2008

#### *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-Projects, January 2003–December 2007

Professor G Otting and Dr N E Dixon

*Enabling technologies for structural genomes*  
Australian Research Council, Discovery-Projects, January 2003–December 2005



## Computational Quantum Chemistry, Polymer Chemistry

Dr M L Coote

*Hydrogen abstraction in chemical, biochemical and polymerisation processes*

Australian Research Council, Postdoctoral Research Fellowship, June 2002–June 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-Projects, January 2004–December 2006

## Disordered Materials

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-Projects, January 2003–December 2005

Professor T R Welberry \*\*

*An energy resolved study of diffuse neutron scattering from benzil the temperature dependence of diffuse neutron scattering from benzil*

ANSTO, Access to Major Research Facilities Program, January 2004

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-Projects, January 2003–December 2005

Dr D Goossens \*\*

*Structure and magnetic order in  $Ln_{1-x}Sr_xCoO_3$  ( $Ln = Y, Ho$ ) using neutron powder diffraction*

AINSE, Access to Facilities Program, March 2004

Dr D Goossens \*\*

*Study of the structural phase transition in d-benzil using neutron powder diffraction*

AINSE, Access to Facilities Program, June 2004

Dr D Goossens \*\*

*Phonon softening at the structural transition in d-benzil  $C_{14}D_{10}O_2$*

ANSTO, Access to Major Research Facilities Program, October 2004

## Electrochemistry

Dr R D Webster

*In situ electrochemical NMR spectroscopy*

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

## Inorganic Stereochemistry and Asymmetric Synthesis

Professor S B Wild

*Asymmetric synthesis of chiral phosphines, arsines and stibines*

Australian Research Council, Discovery-Projects, January 2003–December 2005

## Liquid State Chemical Physics

Professor D J Evans and Dr E M Sevick

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

Australian Research Council, Discovery-Projects, January 2003–December 2005

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

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

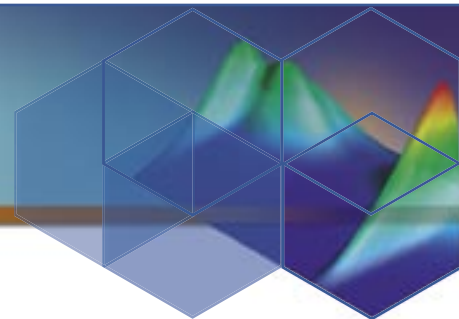
Australian Research Council, Discovery-Projects, January 2004–December 2008

## Organic Synthesis

Professor L N Mander

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

Australian Research Council, Discovery-Projects, January 2003–December 2005



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

Dr M S Sherburn

*New cascade routes to biologically important molecules*

Australian Research Council, Discovery-Projects, January 2002-December 2004

Dr M S Sherburn and Professor M Paddon-Row

*New horizons in Diel-Alder chemistry*

Australian Research Council, Discovery-Projects, January 2003-December 2005

### *Polymers and Soft Condensed Matter*

Dr E M Sevick and Professor D J Evans

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

Australian Research Council, Discovery-Projects, January 2003-December 2005

Dr 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-Projects, January 2004-December 2006

### *Protein Crystallography and Engineering*

Professor D L Ollis

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

Australian Research Council, Discovery-Projects, January 2003-December 2005

Dr P D Carr \*\*

*Structural studies of the cytokine receptor complexes involved in IL-3, IL-5 and GM-CSF signalling*

ANSTO, Access to Major Research Facilities Program, February 2004

Dr P D Carr \*\*

*Interactions of the epsilon subunit of E coli DNA polymerase III with nucleotides*

ANSTO, Australian Synchrotron Research Program, February 2004

Dr P D Carr \*\*

*Cytokine receptor complexes involved in IL-3,IL-5 and GM-CSF sign*

ANSTO, Australian Synchrotron Research Program, November 2004

### *Protein Structure and Function*

Dr N E Dixon, Dr E Liepinsh and Dr J Carazo

*Structures and functions of bacterial replisomal proteins*

Australian Research Council, Discovery-Projects, January 2002-December 2004

Dr N E Dixon and Professor G Otting

*Enabling technologies for structural genomes*

Australian Research Council, Discovery-Projects, January 2003-December 2005

Dr 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-Projects, 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

### *Solid State Inorganic Chemistry*

Dr R L Withers \*\*

*The crystal structure of some photocatalytic 1:1 and 1:2 B-site substituted complex perovskites*

AINSE, Access to Facilities Program, June 2004



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-Projects,  
January 2003–December 2005

### *Solid State Molecular Science*

Professor J W White \*\*

*The UniChe project*

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

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 \*\*

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

DEST, Innovation Access Program, March 2004–May  
2006

Professor J W White \*\*

*High internal phase emulsions – structure and rheology  
control*

ORICA (Australia) Ltd, April 2004–March 2005

Professor J W White \*\*

*Designer surfactants for creation of emulsion  
properties*

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

Professor J W White \*\*

*Protein structure at oil-water surfaces*

AINSE, Access to Facilities Program, June 2004

Professor J W White \*\*

*Structure of titanium oxide films at solid surfaces*

AINSE, Access to Facilities Program, August 2004

Professor J W White \*\*

*Mechanisms of the structure formation in templated  
growth of metal oxide films*

ANSTO, Access to Major Research Facilities Program,  
August – December 2004

Professor J W White \*\*

*Interfacial structure of block copolymers at the air-  
water interface; kinetics of the absorption of lysozyme  
at the air-water interface; interfacial structure of block  
copolymers at the oil-water interface; cosurfactant  
stabilization of high internal phase emulsions*

ANSTO, Access to Major Research Facilities Program,  
September – December 2004

Professor J W White and Dr S A Holt

*The nanoscale structure of milk: Stability implications  
for milk products*

Dairy Research and Development Program, January  
2001–June 2004

Professor J W White, Dr P A Reynolds, Dr R J  
Goodridge and Dr C Such

*High internal phase emulsions – structure and rheology  
control*

Australian Research Council and ORICA Australia Ltd,  
Linkage-Projects, January 2002–December 2004

Professor J W White and Dr M Henderson \*\*

*The aggregation behaviour of protein/sugar complexes*

AINSE, Access to Facilities Program, August – October  
2004

Professor V James \*\*

*A study of the diffraction patterns of hair with disease*

ANSTO, Access to Major Research Facilities Program,  
January 2004

Mr A Perriman

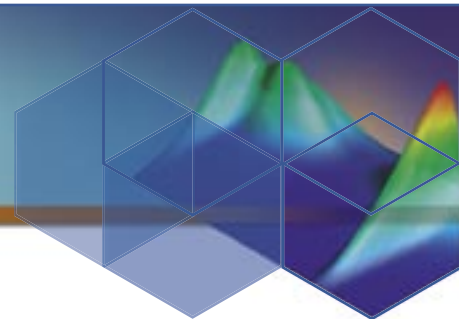
*Protein behaviour at interfaces*

Australian Institute of Nuclear Science and  
Engineering Student Award, July 2003–June 2004

Dr P A Reynolds \*\*

*Aggregation in high internal phase emulsions*

ANSTO, Access to Major Research Facilities Program,  
February 2004



## Synthesis and Mechanism

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

Professor M G Banwell

*Generation and exploitation of fermentation products in the chemical synthesis of biologically active compounds with therapeutic potential*

Australian Research Council, Discovery–Projects, January 2002–December 2004

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–Projects, December 2003–December 2006

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–Projects, 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–Projects, January 2004–December 2006

## Synthetic Organometallic and Coordination Chemistry

Professor A F Hill

*Metallaboratranes: Soft scorpionates and masked metal bases*

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