

## **WELCOME TO:**

- **Sarah Ng**, a mid-year entry honours student under the supervision of Dr Jason Smith.
- Mid-year entry 1<sup>st</sup> year students.

## **FAREWELL TO:**

- **Peter Molesworth**, who returns to Warwick University UK this week to complete his studies after 3 months here on an exchange program. From all reports Peter enjoyed his stay in Tasmania.
- **Dr Phil Zakaria** who has resigned his position as a postdoctoral research fellow with ACROSS to take up a position as the laboratory technician at the Bay of Fires Winery – a Hardy Company Winery near Pipers Creek. The position involves managing the winery laboratory, performing all the analysis during the winemaking process and implementing and maintaining various safety systems, etc – and of course tasting his fair share of wine!!

## **CONGRATULATIONS TO:**

- **Dr Andy Bowie** and colleagues from the Antarctic Climate & Ecosystems CRC and CSIRO Marine Research who have recently been successful in an application to the Australian Government's Department of Education, Science and Training under the Innovation Access Program (FAST scheme). The award will support a major French-Australian oceanographic program, KEOPS: "Origin of elevated Southern Ocean productivity and its influence on atmospheric carbon dioxide". Fieldwork under the project will focus on the 'export' response to natural iron fertilisation and will take place in the Indian sector of the Southern Ocean near the Kerguelen plateau region in 2005, with subsequent workshops taking place in Marseille and Hobart in 2006. The exact amount of funding allocated to the project will be decided next month when contracts with DEST have been finalised, but is likely to be approximately \$60K, leveraging an in-kind contribution of \$3.5M from French and Australian Governments.
- **Professor Paul Haddad** and **Dr Greg Dicoski** on success of an ARC Linkage Grant application for \$120,000 over 3 years from the ARC plus \$30,000 from Orica Watercare entitled "Extraction of gold from thiosulfate leach liquors using selective magnetic ion exchange (MIEX) resins".
- **Elijah Marshall** on successful completion of his Bachelor of Science Honours Course.
- **Suraphan Powanusorn** on successful completion of his Master of Applied Science (Chemistry) course.
- **Dr Jason Smith** on his award from the Royal Australian Chemical Institute, Division of Organic Chemistry, Divisional Lectureship for Recently Appointed Staff, for 2005 in support of visits to other centres in Australia to meet members of the Division.
- **Fang Wang** on submission of her Master of Science thesis.

## **CONFERENCES & FIELD TRIPS**

- **Computational Chemistry Travels**  
In June, **A/Prof Brian Yates** and **Dr David Graham** travelled to **Sydney** to participate in the first Australian "**Gaussian Workshop**". This was designed to give experienced users a better overview of the latest theoretical methods and capabilities available in computational chemistry. Several big names attended from the USA and it was a great opportunity to mix with other scientists from Australia and New Zealand. Dave presented a poster on nitrogen activation which was well received. Many hands-on sessions were held and Dave had fun teaching Brian how to use the computer software! Dave and Brian then attended the **Molecular Modelling 2004** conference (also held in Sydney) where they each presented a talk. Dave had the difficult task of following one of the leaders in the field but acquitted

himself very well. Brian brought up the rear with his invited talk and gave the very last presentation of the conference to a surprisingly full and enthusiastic audience.

- **Dr Mirek Macka** travelled overseas to attend the **27th International Symposium on Capillary Chromatography (ISCC)** in **Riva del Garda** in **northern Italy**, where he delivered a talk "New Approaches to Simultaneous Separations of Inorganic Anions and Cations by Capillary Electrophoresis: Use of High-Magnitude EOF Capillaries and UV-Transparent Fluoropolymer Capillary" co-authored by Cameron Johns, Wenchu Yang, Chris J Evenhuis, Rosanne M Guijt (Roos), and Paul R Haddad, and presented a poster "Ion-exchange Polymeric Monolithic Capillary Columns for Preconcentration of Anions in Sea Water and Separation by CEC" co-authored by Joseph Hutchinson, Nebojsa Avdalovic and Paul Haddad. The ISCC series of conferences is one of the best series of conferences on separation science in general, and specifically with a focus on capillary separations. It alternates between Riva del Garda and a location in USA.

On the way to Riva, Mirek stopped in Innsbruck, Austria, following an invitation from A/Prof Andreas Zemmann, a pioneer of contactless conductivity detection in CE and LC who also introduced the technique in ACROSS during his visit in 2000. In Innsbruck Mirek gave a seminar entitled "Miniaturisation: many faces, same goals". After the Riva conference Mirek enjoyed almost 4 weeks of his annual holiday, travelling through Italy, Switzerland, Austria, Germany, and Czech Republic.

His return to Australia coincided with the start of the biannual Australian international multidisciplinary conference **Interact 2004** at Gold Coast. Mirek presented a talk " $\mu$ TAS @ UTAS" co-authored by Oscar Potter, Rosanne M. Guijt, Brett Paull, and Paul R. Haddad, trying to spread the message in Australia that ACROSS has a new research stream in the area of microfluidics. This talk won the award for the best talk title, originally invented by Roos, however, although the organisers thought it was the best title, they seemed to struggle with getting it right - the official award and two subsequent attempts resulted in all different AND wrong titles!

- **Guest Lecturer**

For the second year in a row **Doug McLean** (PhD student) gave two three hour lectures in Melbourne (May 31 and June 7) on papermachine wet-end chemistry for OMNI Continental (Vancouver, Canada) to students at the APPITA (**A**ustralia/**N**ew Zealand **P**ulp and **P**aper Industry **T**echnical **A**ssociation) week-long paper machine operations course. Approximately thirty students from New Zealand and Australia attended each course. Feedback from the students was very positive.

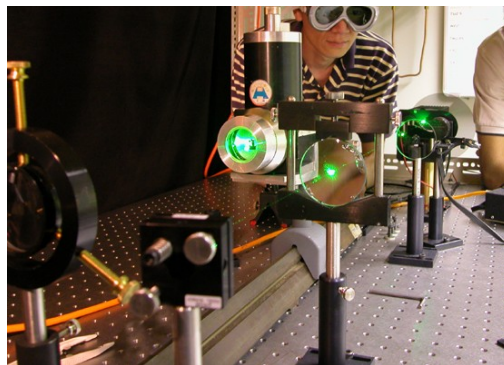
- **Chemistry Honours – A National Experience**

**Bryce Lockhart-Gillett**, honours student under the joint supervision of Dr Vicki Tolhurst and A/Prof Brian Yates, recently spent a week at the ANU in Canberra completing experimental nonlinear optical (NLO) measurements on synthetic products from his honours project.

Bryce's honours project combines the synthesis of cluster compounds envisaged to have NLO activity, with computational modelling to predict their NLO activity.

Prof Mark Humphrey at the Department of Chemistry, ANU, heads the Molecular Materials research group, which synthesises some NLO active metal-acetylide clusters, and through collaboration with Vicki agreed to provide Bryce with the opportunity to carry out NLO measurements with his collaborator Prof Marek Samoc.

Using the 'Z-scan' technique Bryce was able to measure the NLO response of his synthetic samples and found that some were NLO active. He now awaits the fully processed data to enable comparisons with his predicted values.



Laser set-up for the 'Z-scan

- **Cairns Interlude**

In July **Dr Michael Gardiner** and **Dr Jason Smith** attended the combined **XXIX International Symposium on Macrocyclic Chemistry (ISMC)/20<sup>th</sup> Royal Australian Chemical Institute Organic Chemistry Conference (RACIOC)** in **Cairns** where the weather was an unfortunate 27°C and sunny every day. A total of ~350 delegates participated in the two symposia which were held at the Cairns Convention Centre. The venue was impressive, as was the diving on the reef which attracted many of the participants. The presentations were of high quality, as were the informal discussions at the many pubs and restaurants around town. The standout lecture of the RACIOC program was, without a doubt, by David MacMillan, a young academic from CalTech, who went at a frantic pace for 50 minutes and covered enough material to make your head hurt at the end. However, all things must end and it was time to journey down south where for the last couple of weeks we have wished for that extra 10-15 degrees. Where to next winter, Broome???? (Next ICMS will be held in Heidelberg - in summer?).

- **Oceanographic Field Expedition**

Dr **Andy Bowie** has recently returned from an oceanographic field expedition in the western **North Atlantic Ocean**. This was the second trip

of the US-funded collaborative project **FeATMISS: "Iron ATMospheric Inputs to the Sargasso Sea"**. Despite high seas at the start of the trip, resulting in 4 lost science days and several unwell scientists(!), the cruise was successful in targeting the centre of a cyclonic eddy south of Bermuda and conducting repeated daily seawater, rain and aerosol sampling for iron and other trace elements. Although satellite observations showed that the concentration of aerosols present in the atmosphere of the region was less than the 2003 voyage, the NOAA aerosol optical depth model showed evidence of sulfate (from North America) and soil dust which may have originated as far away as North Asia. Processing of the dataset is currently underway, and in due course dissolved aluminium will be measured in archived sub-samples from the Sargasso Sea in order to fingerprint the origin of the aerosols using crustal abundance ratios.



*Left.* Filtration and analysis for dissolved iron inside a portable clean container van located on the deck of the research vessel *Weatherbird II*.

*Below.* Surface sampling for trace metals in seawater from a zodiac workboat in the Sargasso Sea.



## **SCIENCE TEACHERS FORUM**

The Faculty of Science, Engineering and Technology ran the annual science teachers' professional development forum in Hobart on 25 June. This year the theme was "EXPLORING SCIENCE, EXTENDING NETWORKS" with teachers able to select a workshop in "Investigating Space", "Environmental Monitoring" or "Plant Science". Approximately 20 teachers attended the Environmental Monitoring workshop which was conducted in the School of Chemistry by Dr Andrew Seen. After a talk on experimental errors and environmental sampling, the teachers headed for the lab to undertake a dissolved oxygen analysis. For many of the teachers memories of chemistry pracs in the first year lab came flooding back as they entered the lab. The hands-on session was followed by an overview of Waterwatch by Elizabeth Schrammeyer from the South-East Waterwatch group and the day concluded with some further ideas for environmental monitoring analyses that teachers could do with their classes. The teachers were very enthusiastic throughout the workshop and hopefully we will see some of their students entering into the new Launceston BEnvSc degree over the next few years. Thanks to Andrew Grosse for his assistance in setting up the lab for the workshop.

*The School would like to thank Dr Andrew Seen for coordinating the Chemistry component of the Workshop.*

## **THANKS TO SEMINAR SPEAKERS**

**Professor Chris Easton**, Australian National University  
"Cyclodextrins - from Industrial Waste to Applications in Pharmacy, Catalysis and Microelectronics"

**Dr Milko Novic**, National Institute of Chemistry, Ljubljana, Slovenia  
"Ion Exclusion Separation Mechanism: What do we know about it?"

**Dr Emily Hilder**, University of Tasmania  
"Porous Polymer Monoliths as Building Blocks for the Fabrication of Microseparation Devices"

**Prof Robert G Gilbert**, Key Centre for Polymer Colloids, School of Chemistry, University of Sydney  
"Starch: Understanding Biochemistry Through the Techniques of Synthetic Polymers"

**Chris Evenhuis** (PhD Introductory Seminar):  
"Capillary Electrophoresis and Electrochemical Detection of Polymer Devices".

## **CHEM CLUB ACTIVITIES**

*by Damien Stringer*

The 28<sup>th</sup> May signalled the end of 1<sup>st</sup> semester, but more importantly, the beginning of the almighty Chem. Club Cocktail Party! A formal theme was adopted this year, with beats provided by 'the funky dj' aka 3<sup>rd</sup> year student Jeremy Deverell. Around 40 people attended, sampling the concoctions the club prepared. These included the 'Black Russian', 'Tequila Sunrise', 'Fruit Tingle' and the standout favourite drink on the night, the 'Japanese Slipper'. Dr Jason Smith took it upon himself to show visiting lecturer Professor Chris Easton how to have a good time, and in the process showed himself to be a true tequila connoisseur, suggesting improvements to the Tequila Sunrise recipe all night! By the end of the night, several litres of each cocktail had been consumed, and a good time was had by all! This semester will see the return of the Chem. Club brew off, more barbecues, the annual dinner, a trivia night and more! See you there!

Thank you for your contributions for this issue of **ChemNews**.  
The next **ChemNews** will be issued on Friday, 1 October 2004  
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