

Mr Robert Bryan (son of W.H. Bryan) informed us that he will step down from the SMI Advisory Board as of 31 December 2008. Mr Bryan was one of the very small group who worked with Don McKee to establish the SMI. He has been a strong contributor to SMI directions and a vocal supporter of the Institute in external forums. We are very grateful to private citizens like Mr Bryan who are prepared to give up their time and resources to contribute to our future. Mr Bryan maintains involvement in the SMI through participation on the Advisory Committee of the BRC.

Gillian Davis from **CSRM** will be moving to **ACMER** while Brigitte Braddock is away on maternity leave. Following this, Gillian will continue working with ACMER as Course Coordinator.

Charlie Ackerly will be taking over the Administration role for **CWiMI**. Taking her place as the new SMI receptionist is Lizanne Holt.

**CRSSIS** (Centre for Remote Sensing and Spatial Information Science) moved into Sir James Foots Building in late January on a temporary basis. The group (led by Prof Stuart Phinn) will be based on level 6, rooms 618 - 622. The aim of the centre is to provide a focal point for developing geographic or spatial information science applications to understand and solve environmental, social and economic problems. For more information please visit their website: [www.gpem.uq.edu.au/crssis](http://www.gpem.uq.edu.au/crssis)

### New Staff Profiles



**Xilin Li** started working at SMI in January on a three year UQ post-doctorate fellowship, split between JKMRC and MISHC. Her PhD involved an industry project with Snowy Hydro, which had a unique focus on advanced display techniques in complex process control systems. Her new research in SMI will mainly investigate and improve human-system interactions in mineral industry process control systems. Prior to her PhD in human factors, she studied engineering and IT, and worked in industry.

**Noel Jackson** started working for CWiMI as Post Doctoral Research Fellow in late January. He holds a Bachelor in Applied Science (Geology), a Graduate Diploma in Remote Sensing and a BSc Hons (Applied Geology) from UNSW. He also did Master of Sciences studies at Old Dominion University in Norfolk Virginia USA. Returning to Australia he worked in varying capacities as a tutor and demonstrator/lecturer at UQ (St Lucia and Gatton campus) and QUT (Gardens Point). In 2001, he received and accepted the opportunity to undertake a PhD (Physical Sciences) with Dr Brad Carter at USQ in Toowoomba. In late 2008, Noel received an offer to lecture in Geological Sciences at Central Washington University (Ellensburg Campus) in Washington State in North West USA.



**Mandeep Wariach** started working for CSRM as their Administration Officer in late January. Mandeep has previous experience as an Administration Officer, working for Refugees as Survivors (New Zealand). She has a BSc (Hons) from the University of Delhi and also holds a Post Graduate Diploma in Business Management.

**Lizanne Holt** started working for SMI as our new Receptionist replacing Charlie Ackerly in mid-January. Lizanne recently moved to Australia from South Africa, where she earned a diploma in Public Relations and studied wine processing at Cape Wine Academy. Lizanne has previous experience as an Administration Officer, working for CT Lab (South Africa) and Stamford Projects (London).



### CSRSM Congratulates Graduating Student



CSRSM would like to congratulate Richard Parsons, who has recently had his PhD conferred by the UQ Research Office. The title of Richard's dissertation is **Constructions of 'community engagement' in the Australian minerals industry: A critical study**. Richard was an APAL on CSRSM's last Linkage Grant and his research focused on two of the case study sites for that project. Richard is now the second PhD student associated with CSRSM to graduate.

### Upcoming Events:

**23-27 February 2009 – Life of Mine Planning - Technical Aspects of Operation and Closure.** ACMER training course. For more information, go to:  
<http://www.acmer.uq.edu.au/training/trainingdetails/LifeofMineFeb09.html>

**8-13 February 2009 - 2009 Student-Industry-CRC Symposium.**

The fourth Student-Industry-CRC Symposium will be held from 08-13 February 2009 in Pinjarra, Western Australia. The Centre for Sustainable Resource Processing (CSRP), in conjunction with the other mineral and energy sector CRCs, is once again holding the Student-Industry-CRC Symposium.

The aim of the Symposium is to introduce participating students to network with other early career researchers in the mineral and energy sector as well as meeting a variety of industry representatives. The structure of the event aims to provide an informal setting in which to showcase student research across the various CRCs as well as independent programs. The benefits for students include the experience of presenting their research to industry participants as well as networking with potential employers and future colleagues. The benefit to industry is also significant, with participants gaining a first-hand look at research being conducted across the CRCs in the mineral and energy sector.

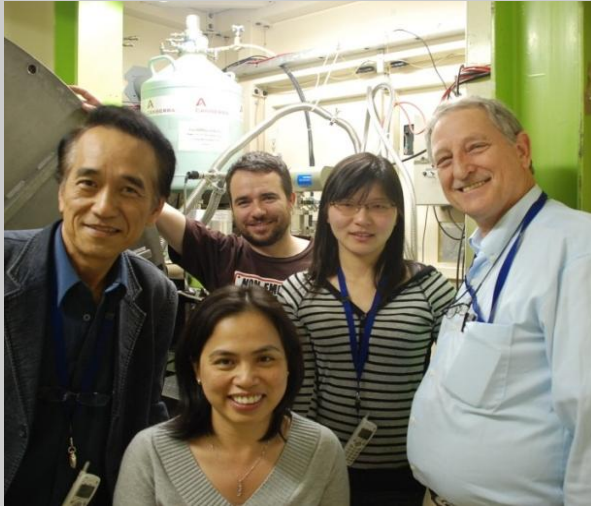
For more information, go to:

<http://www.csrsm.uq.edu.au/index.html?page=98543&pid=22863>

### Travelers' tales

**Synchrotron-induced X-ray absorption spectroscopy-Lead pathway studies at Mt Isa**  
Barry Noller CMLR

In December 2008 a group working on the Xstrata Pathways Project that is studying lead emissions at Mt Isa went to Tsukuba, Japan to use Beam Line 20B (BL20B) Photon Factory (PF) at the High Energy Accelerator Research Organisation. The group of people was: A/Prof Barry Noller, Dr. Trang Huynh and Ms JiaJia Zheng PhD Candidate from CMLR, Professor Jack Ng for EnTOX and Dr Hugh Harris from the University of Adelaide. There are over 40 beam lines within the PF.



Beam Line 20B (BL20B) has been available for Australian scientists to use for over 20 years and is designated the Australian National Beamline Facility (ANBF). Each beam line like BL20B has a steel hutch in which the samples can be exposed to synchrotron light which in our case is high intensity X-rays. The hutch has specific safety interlock features to prevent accidental opening of the door when the synchrotron light shutter is open. Synchrotron-induced X-ray absorption spectroscopy (XAS) is the accepted state of the art technique to study exact chemical form of metals in environmental and solid-phase material. XAS is applicable to study the exact chemical form of lead and other metals in a variety of solid phase environmental materials. Matching is undertaken with known lead compounds. Access to the PF

facility was sought via the Australian-managed Beamline. In order to gain more rapid access to the PF than is available via the competitive scientific pathway, Xstrata agreed to support the cost of 5 days beam time purchase as a proprietary activity.

Management of this purchase was undertaken through the Australian Synchrotron Company Ltd, Melbourne who now manages ANBF. Five days beam time was granted for 4 - 10 Dec 08. Each "day" is a 24 hour cycle and required good time tabling to ensure everyone got some sleep and enough to eat.

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The synchrotron lead study has examined the lead chemical form in a large number of samples that relate to the Lead Pathways study. These samples comprise source samples from the mine/plant sites at Mt Isa, Leichhardt river sediments and town soils samples, ore body halo samples from town, house and roof dust samples and house soil, fallout in town and a number of PM 10 fractions have been separated from soil samples and collected directly in air. In addition several lead chemicals (purchased in Japan) and lead mineral samples were scanned as model or known compounds for comparative purposes.



KEK Tsukuba Japan



The scanned synchrotron X-ray data is now being crunched to give comprehensive information on the lead chemical composition on samples; the discrete pathways of lead chemical and mineral forms that can be compared with other toxicological studies being undertaken. This study will give a much better understanding of lead sources and their discrete pathways at Mt Isa.

Trang Huynh in Tokyo rush

### Recent Travel:

- November 17 - February 11: Marco Vera from **JKMRC** went to Canada.
- November 18 - February 2: Steve Walters from **JKMRC** went to Canada, USA, Mexico, Brazil and Chile.
- January 18 - January 23: Luke Keeney from **JKMRC** went to Canada and USA
- December 1 – December 15: Claire Cote from **CWiMI** went to Chile.

### New Projects:

#### **MISHC          New Knowledge Elicitation Methods to Capture Risks Related to Controls and Displays in Haul Trucks**

This recently funded 15 month ACARP project will examine innovative techniques to collect information about equipment-related risks and potential controls. The results of the research will be a better understanding of equipment/operator related risks, and where on the hierarchy of control any controls are located (for example, training or equipment design). In addition, the knowledge elicitation techniques developed and tested could be suitable for use in other coal mining domains.

**C18013 Implementation of Effective Information Dissemination Processes in Relating to the Management of Spontaneous Combustion at an Underground Coal Mine.** Joint project with SIMTARS (DME).

#### **MISHC & BRC**

#### **Quantitative Risk Analysis (QRA): Analysis of Industry Data to Enable Quantitative Control Effectiveness Assessment in Five Significant Risk Areas**

The two SMI centres jointly applied for ACARP (Australian Coal Association Research Program) funding to carry out collaborative work to address the need for genuine quantitative risk analysis. The application has been successful and project funding is approved by ACARP. This would be the second MISHC & BRC joint ACARP application and both centres aim to continue to work in these areas.

### Project Delivery:

**CWiMI** completed a study for the Queensland Government in December. The study was looking into the potential aquifer risks associated with rapid development of coal seam gas under various scenarios of liquid natural gas plant construction. The water production rates and strategies for sampling well fields were also studied.

### **SPOTTED OUT AND ABOUT:**

The University of Queensland Vice Chancellor was spotted at Gailey Fiveways on Sunday lunchtime. He was sartorial - as always - wearing a JK Centre polo shirt!