



SUNDAY 3 FEBRUARY, 2008

17:00 – 18:00 REGISTRATION

Level 8 Foyer

MONDAY 4 FEBRUARY, 2008 (ADVANCED WORKSHOPS & SCHOOL SESSIONS FOR NEW PRACTITIONERS)

7:45 – 8:45 REGISTRATION

Level 8 Foyer

8:45 – 9:30 Welcome & Plenary Session 1. Chaired by Brian O'Connor

Mayfair 1

- O 001 The Australian Synchrotron: Industrial Applications**
Richard Garrett¹, ¹*Australian Synchrotron Research Program, c/- ANSTO, Australia*

9:40 – 10:55 Concurrent Sessions

SCHOOLS FOR NEW PRACTITIONERS

XRF Basics – 1. Chaired by Ned Blagojevic

Grosvenor Room

- 9:40 – 10:05 O 002 Introduction - XRF Basic School**
Ken Turner¹, ¹*Ken Turner Consulting, Australia*
- 10:05 – 10:30 O 003 Production of X-rays**
Ned Blagojevic¹, ¹*ANSTO, Lucas Heights, Australia*
- 10:30 – 10:55 O 004 Counting Statistics**
Ken Turner¹, ¹*Ken Turner Consulting, Australia*

XRD Basics – 1. Chaired by Brian O'Connor

Mayfair 3

- 9:40 – 10:55 O 005 Overview: Introduction to Powder Diffraction Principles, Practice and Applications**
Brian O'Connor¹, ¹*Curtin University of Technology, Australia*

ADVANCED WORKSHOPS

Quality assurance, including NATA and ISO - 1. Chaired by Janette Cawood

Mayfair 2

- 9:40 – 10:05 O 006 Quality Assurance - NATA Laboratory Accreditation**
Judy Smart¹, ¹*NATA, Australia*
- 10:05 – 10:30 O 007 Iron Ore Analysis – Are There Possible Alternatives to ISO 9516-1?**
Kai Behrens¹, Pol De Pape¹, ¹*Bruker AXS GmbH, Germany*
- 10:30 – 10:55 O 008 The Estimation of Measurement Uncertainty in the Determination of α -Quartz on a Membrane Filter by X-ray Analysis**
Gregory E. O'Donnell¹, James Hurst¹, Robert Geyer¹, D. Brynn Hibbert², ¹*TestSafe Australia, Chemical Analysis Branch, Australia,* ²*University of New South Wales, Australia*

X-ray Data Base Applications (XRF and XRD). Chaired by Robert Hart

Mayfair 1

- 9:40 – 10:05 O 009 Applications of the Powder Diffraction File for Data Mining and Total Pattern Analysis**
Timothy Fawcett¹, Justin Blanton¹, David Crane¹, Suri Kabekkodu¹, Fangling Needham¹, ¹*ICDD, United States*
- 10:05 – 10:30 O 010 Databases for Absorption, XAFS and XANES, and Future Opportunities for Research and Investigation**
Christopher Chantler¹, ¹*University of Melbourne, Australia*
- 10:30 – 10:55 O 011 Crystal Structure Databases, with Particular Reference to Rietveld Analysis**
James Kaduk¹, ¹*INEOS Technologies, United States*

10:55 – 11:25 BREAK

**MONDAY 4 FEBRUARY, 2008 (ADVANCED WORKSHOPS & SCHOOL SESSIONS FOR NEW PRACTITIONERS)****11:25 – 12:40 Concurrent Sessions****SCHOOLS FOR NEW PRACTITIONERS****XRF Basics – 2.** Chaired by Friedrich Baumgartner*Grosvenor Room*

- 11:25 – 12:40 O 012 **Introduction to Key Components in a Wavelength-dispersive Spectrometer – What it Does and How it Works**
Bruno Vrebos¹, ¹*PANalytical, Netherlands*

XRD Basics – 2. Chaired by Robert Hart.*Mayfair 3*

- 11:25 – 12:40 O 013 **Instrumental Principles**
Robert Hart¹, ¹*Curtin University of Technology, Australia*

ADVANCED WORKSHOPS**Quality Assurance, Including NATA and ISO – 2.** Chaired by Ned Blagojevic*Mayfair 2*

- 11:25 – 11:50 O 014 **Iron Ore Sampling: Validation Making Use of the Theory of Sampling for Analytical Purposes**
Janette Cawood¹, ¹*SABS, South Africa*

- 11:50 – 12:15 O 015 **Some Tools For Monitoring Instrument Performance and the Quality of Quantitative Analyses in XRD**
Nick Pearson¹, ¹*Alcoa World Alumina, Australia*

- 12:15 – 12:40 O 016 **Sample Preparation and Calibration for a ROHS/WEEE Compliant Screening Method (for ED and WD XRF)**
Kai Behrens¹, *Elvy Grigolato*², ¹*Bruker AXS, Germany*, ²*Bruker Biosciences, Australia*

X-ray Data Base Applications (XRF and XRD). Chaired by Jorg Metz*Mayfair 1*

- 11:25 – 11:50 O 017 **XRF System Calibration and Drift Correction in a Remote Location: Triumph Over Adversity or "Always Look on the Bright Shine of Life"**
Greg Moore¹, ¹*PANalytical, Australia*

- 11:50 – 12:15 O 018 **State-of-the-Art Matrix Corrections**
Ulrich Senff¹, ¹*Australian X-Ray Tubes, Australia*

- 12:15 – 12:40 O 019 **Absolute Phase Determination in XRD Rietveld Analysis**
James Kaduk¹, ¹*INEOS Technologies, United States*

12:40 – 13:40 LUNCH AND EXHIBITION

**MONDAY 4 FEBRUARY, 2008 (ADVANCED WORKSHOPS & SCHOOL SESSIONS FOR NEW PRACTITIONERS)****13:40 – 14:25 Plenary Session 2.** Chaired by Richard Garrett *Mayfair 1*

- O 020 X-rays in Security Technology**
Dudley Creagh¹, ¹*University of Canberra, Australia*

14:35 – 15:50 Concurrent Sessions**SCHOOLS FOR NEW PRACTITIONERS****XRF Basics – 3.** Chaired by Ulrich Senff *Grosvenor Room*

- 14:35 – 15:50 O 021 Sample Preparation for XRF**
Friedrich Baumgartner¹, ¹*Fritz Baumgartner Consulting, Australia*

XRD Basics – 3. Chaired by Robert Hart *Mayfair 3*

- 14:35 – 15:50 O 022 Phase Identification (1)**
Robert Hart¹, ¹*Curtin University of Technology, Australia*

ADVANCED WORKSHOPS**Rietveld Analysis at the Cutting Edge.** Chaired by James Kaduk *Mayfair 2*

- 14:35 – 15:00 O 023 Charge Flipping – a Powerful Tool for Structure Determination**
Arnt Kern¹, ¹*Bruker AXS, Germany*

- 15:00 – 15:25 O 024 Rietveld Analysis of Fast Transmission Measurements – an Efficient Way to Characterize Polycrystalline Materials**
Roger Meier¹, ¹*PANalytical BV, The Netherlands*

- 15:25 – 15:50 O 025 Corrections for Non-Standard Rietveld Analysis**
Ian Madsen¹, Nicola Scarlett¹, ¹*CSIRO Minerals, Australia*

Complementary Analytical Methods (XRF Related). Chaired by Gary Pritchard *Mayfair 1*

- 14:35 – 15:00 O 026 Recent Advances in ICP Time of Flight Mass Spectrometry**
Andrew "Flynn" Saint¹, ¹*GBC Scientific Equipment, Australia*

- 15:00 – 15:25 O 027 Laser Induced Breakdown Spectrometry Analysis by Qualitative, Quantitative, and Spectral Modelling Approaches**
Jorg Metz¹, ¹*Sharp and Howells, Australia*

- 15:25 – 15:50 O 028 Complementarity of XRF and ICP-MS**
Stephen Peacock¹, ¹*CSIRO Minerals, Australia*

15:50 – 16:20 BREAK AND EXHIBITION

**MONDAY 4 FEBRUARY, 2008 (ADVANCED WORKSHOPS & SCHOOL SESSIONS FOR NEW PRACTITIONERS)****16:20 – 17:35 Concurrent Sessions****SCHOOLS FOR NEW PRACTITIONERS****XRF Basics – 4.** Chaired by Ken Turner*Grosvenor Room*

16:20 – 16:50 O 029 **Energy Dispersive XRF - an Overview**
Caroline Suster¹, ¹*Oxford Instruments Pty Ltd, Australia*

16:50 – 17:35 O 030 **Standardless Analysis and Fundamental Parameters**
Anton Kleyn¹, Lex Harris¹, Didier Bonvin¹, Ravi Yellepeddi¹, ¹*Thermo Fisher Scientific, Switzerland*

XRD Basics – 4. Chaired by Robert Hart*Mayfair 3*

16:20 – 17:35 O 031 **Phase Identification (2)**
Robert Hart¹, ¹*Curtin University of Technology, Australia*

ADVANCED WORKSHOPS**Sample Preparation – the State of the Art.** Chaired by Rod Clapp*Mayfair 2*

16:20 – 16:45 O 032 **Fusion of Difficult Materials in XRF**
Maggi Loubser¹, Peet H van Rooyen¹, Johan P R de Villiers¹, ¹*University of Pretoria, South Africa*

16:45 – 17:10 O 033 **Sample Preparation: The Secret to Successful XRD**
Nicola Scarlett¹, Ian Madsen¹, ¹*CSIRO, Australia*

17:10 – 17:35 O 034 **Sample Preparation Using Internal Standard Fusion Fluxes for the XRF Analysis of the Major Metal Value in a Variety of Material Types**
Jorg Metz¹, ¹*Sharp and Howells, Australia*

Complementary Analytical Methods (XRD Related). Chaired by David Hay*Mayfair 1*

16:20 – 16:45 O 035 **An Overview of Small Angle X-ray Scattering (SAXS) and its Application to Hydrogen Storage Research**
Craig Buckley¹, Mark Paskevicius¹, ¹*Centre for Materials Research, Department of Imaging and Applied Physics, Curtin University of Technology, Australia*

16:45 – 17:10 O 036 **Cultural Heritage and Geological Uses of IR and IR Raman Microscopy, Synchrotron Radiation, and PIXE**
Dudley Creagh¹, ¹*University of Canberra, Australia*

17:10 – 17:35 O 037 **Reflectometry and Grazing Incidence Diffraction using Laboratory X-rays and Synchrotron Radiation**
Ian Gentle¹, ¹*The University of Queensland, Australia*

17:35 – 19:35 WELCOME RECEPTION



TUESDAY 5 FEBRUARY, 2008 (ADVANCED WORKSHOPS & SCHOOL SESSIONS FOR NEW PRACTITIONERS)

8:00 – 8:45 REGISTRATION *Level 8 Foyer*

8:45 – 9:30 **Plenary Session 3.** Chaired by Chris Kelaart *Mayfair 1*

O 038 **How X-rays are Winning the Environmental War**
Damian Gore¹, ¹*Macquarie University, Australia*

9:40 – 10:55 **Concurrent Sessions**

SCHOOLS FOR NEW PRACTITIONERS

XRF Basics – 5. Chaired by Ned Blagojevic *Grosvenor Room*

9:40 – 10:20 **O 039** **Matrix Corrections in XRF Spectrometry**
Ulrich Senff¹, ¹*Australian X-Ray Tubes, Australia*

10:20 – 10:55 **O 040** **Calibration Basics**
Stanislav Ulitzka¹, ¹*TWOTHETA Pty Ltd, Australia*

XRD Basics – 5. Chaired by Brian O'Connor *Mayfair 3*

9:40 – 10:55 **O 041** **Crystallography and Diffraction Basics for Powder Diffraction with Particular Reference to XRD Characterisation Methods**
Brian O'Connor¹, ¹*Curtain University of Technology, Australia*

ADVANCED WORKSHOPS

Energy Dispersive XRF (Bulk). Chaired by Caroline Suster *Mayfair 2*

9:40 – 10:05 **O 042** **Complex Applications of EDXRF**
Anton Kleyn¹, Lex Harris¹, Didier Bonvin¹, Ravi Yellepeddi¹, ¹*Thermo Fisher Scientific, Switzerland*

10:05 – 10:30 **O 043** **Quantitative Analysis Using Energy Dispersive Spectrometers - A Review**
Bruno Vrebos¹, Gary Pritchard², Greg Moore², ¹*PANalytical, Netherlands*, ²*PANalytical, Australia*

10:30 – 10:55 **O 044** **Analysis of Cement and Related Materials by EDXRF**
David Svolos¹, ¹*NSW Roads and Traffic Authority, Australia*

Neutrons in Industry. Chaired by Vanessa Peterson *Mayfair 1*

9:40 – 10:05 **O 045** **Opportunities for Industrial Research at the OPAL Neutron Source**
Shane Kennedy¹, ¹*Bragg Institute, ANSTO, Australia*

10:05 – 10:30 **O 046** **Applications of Neutron Scattering in Food, Biomedical and Polymer Sciences**
Catherine Kealley¹, ¹*Bragg Institute, ANSTO, Australia*

10:30 – 10:55 **O 047** **Neutron Scattering “In Depth”: Non Destructive Neutron Diffraction Methods for Industry**
Andrew Studer¹, ¹*Bragg Institute, ANSTO, Australia*

10:55 – 11:25 BREAK AND EXHIBITION

**TUESDAY 5 FEBRUARY, 2008 (ADVANCED WORKSHOPS & SCHOOL SESSIONS FOR NEW PRACTITIONERS)****11:25 – 12:40 Concurrent Sessions****SCHOOLS FOR NEW PRACTITIONERS****XRF Basics – 6.** Chaired by Ken Turner*Grosvenor Room*

11:25 – 12:00 **O 048 Basic XRF Quality Assurance**
Elvy Grigolato¹, ¹*Bruker Biosciences Pty Ltd, Australia*

12:00 – 12:40 **O 049 Trace Element Analysis using XRF**
Anton Kleyn¹, Lex Harris¹, Didier Bonvin¹, Ravi Yellepeddi¹, ¹*Thermo Fisher Scientific, Switzerland*

XRD Basics – 6. Chaired by Brian O'Connor*Mayfair 3*

11:25 – 12:40 **O 050 Rietveld Analysis (1)**
Brian O'Connor¹, ¹*Curtin University of Technology, Australia*

ADVANCED WORKSHOPS**XRF Analysis in Electron Microscopy.** Chaired by Chris Ryan*Mayfair 2*

11:25 – 11:50 **O 051 Mineral Characterisation by SEM and TEM ED-XRF**
Robert Hart¹, ¹*Curtin University of Technology, Australia*

11:50 – 12:15 **O 052 Hyperspectral Mapping and Microanalysis on an EPMA**
Colin MacRae¹, Nick Wilson¹, Aaron Torpy¹, ¹*CSIRO Minerals, Australia*

12:15 – 12:40 **O 053 Combination of EPMA and Micro-XRF Excitation in an SEM**
Michael Haschke¹, ¹*Institute for Scientific Instruments GmbH, Germany*

Emerging Capabilities in XRD. Chaired by David Hay*Mayfair 1*

11:25 – 11:50 **O 054 Grazing Incidence Ultra-Small Angle X-ray Scattering for Characterizing Nano-Fabricated Surface-Structures**
Hideo Toraya¹, Kazuhiko Omote¹, ¹*X-ray Research Laboratory, Rigaku Corporation, Japan*

11:50 – 12:15 **O 055 The Application of Detectors in High-Speed Data Acquisition**
Martijn Fransen¹, ¹*PANalytical B.V., Netherlands*

12:15 – 12:40 **O 056 2D Powder Diffraction from Areas Under 1 mm with an Intensified CCD Camera and Focussing Optics**
Rod Clapp¹, ¹*GBC Scientific Equipment, Australia*

12:40 – 13:40 LUNCH AND EXHIBITION

**TUESDAY 5 FEBRUARY, 2008 (ADVANCED WORKSHOPS & SCHOOL SESSIONS FOR NEW PRACTITIONERS)****13:40 – 14:25 Plenary Session 4.** Chaired by Ian Madsen Mayfair 1

- O 057 Shrinking Materials and Expanding Complexity - The Remarkable Properties of Framework Materials**
John Evans¹, ¹*Durham University, United Kingdom*

14:35 – 15:50 Concurrent Sessions**SCHOOLS FOR NEW PRACTITIONERS****XRF Basics – 7.** Chaired by Ken Turner Grosvenor Room

- 14:35 – 15:00 O 058 Maximising Throughput While Maintaining Precision and/or LLD**
Kai Behrens¹, Elvy Grigolato², ¹*Bruker AXS, Germany*, ²*Bruker Biosciences, Australia*
- 15:00 – 15:25 O 059 The Application of Automation in the Sample Preparation of Geological Materials for XRF Analysis**
Pierre Hofmeyr¹, ¹*South African Institute of Mining and Metallurgy, South Africa*
- 15:25 – 15:50 O 060 Hand Held X-ray Fluorescence Spectrometers**
Tim Black¹, ¹*Sietronics Pty Ltd, Australia*

XRD Basics – 7. Chaired by Brian O'Connor Mayfair 3

- 14:35 – 15:50 O 061 Rietveld Analysis (2)**
Brian O'Connor¹, ¹*Curtin University of Technology, Australia*

ADVANCED WORKSHOPS**Micro-XRF.** Chaired by Rene Van Grieken Mayfair 2

- 14:35 – 15:00 O 062 Laboratory Micro-X-ray Fluorescence**
Michael Haschke¹, ¹*Institute for Scientific Instruments GmbH, Germany*
- 15:00 – 15:25 O 063 The Application of X-ray Microfluorescence Spectrometry (Micro-XRF) in Forensic Science**
Milutin Stojilovic¹, Chris Lennard², ¹*Forensic & Technical, Australian Federal Police, Australia*, ²*National Centre for Forensic Studies, University of Canberra, Australia*
- 15:25 – 15:50 O 064 Synchrotron XRF Microanalysis and Imaging: New Methods and Advanced Detectors**
Chris Ryan^{1,7}, D. Peter Siddons³, Barbara Etschmann^{1,7}, Gianluigi De Geronimo⁴, Gareth Moorhead⁵, Robin Kirkham⁵, Angelo Dragone³, Paul Dunn⁵, Anthony Kuczewski³, Robert Hough¹, Peter Davey⁵, Murray Jensen⁵, James Ablett³, David Belton^{1,7}, John Kuczewski³, David Paterson⁶, ¹*CSIRO Exploration and Mining, Australia*, ²*School of Physics, University of Melbourne, Australia*, ³*National Synchrotron Light Source, Brookhaven National Laboratory, United States*, ⁴*Instrumentation Division, Brookhaven National Laboratory, United States*, ⁵*CSIRO Materials Science and Engineering, Australia*, ⁶*Australian Synchrotron, Australia*, ⁷*CODES Centre of Excellence, University of Tasmania, Australia*

Synchrotron Radiation in Industry. Chaired by Brian Toby Mayfair 1

- 14:35 – 15:00 O 065 The Australian Synchrotron Imaging and Medical Therapy Beamline**
Daniel Häusermann¹, ¹*Australian Synchrotron, Australia*
- 15:00 – 15:25 O 066 Unique Microanalysis Capabilities and Applications of the Microspectroscopy Beamline at the Australian Synchrotron**
David Paterson¹, ¹*Australian Synchrotron, Australia*
- 15:25 – 15:50 O 067 Synchrotron Powder Diffraction Applications**
Kia Wallwork¹, Wayne Lewis¹, Jonathan McKinlay¹, ¹*Australian Synchrotron, Australia*

15:50 – 16:20 BREAK AND EXHIBITION



TUESDAY 5 FEBRUARY, 2008 (ADVANCED WORKSHOPS & SCHOOL SESSIONS FOR NEW PRACTITIONERS)

16:20 – 17:35 Concurrent Sessions

SCHOOLS FOR NEW PRACTITIONERS

XRF Basics – 8. Chaired by Ned Blagojevic

Grosvenor Room

16:20 – 17:05 **O 068 Basic XRF Maintenance**
Mark Crompton¹, ¹*Australian X-Ray Tubes, Australia*

17:05 – 17:35 **O 069 TXRF and its Applications**
Yoshiyuki Kataoka¹, Kohnno Hisayuki¹, Richard Trett², Ulrich Senff², ¹*Rigaku Industrial Corporation, Japan*, ²*Australian X-ray Tubes Pty Limited, Australia*

XRD Basics – 8. Chaired by Robert Hart

Mayfair 3

16:20 – 17:35 **O 070 Quantitative Phase Analysis**
Robert Hart¹, ¹*Curtin University of Technology, Australia*

ADVANCED WORKSHOPS

Micro-XRD. Chaired by Nobuo Ishizawa

Mayfair 2

16:20 – 16:45 **O 071 A Combinatorial Approach to Interpretation of Micro-XRD Phase Mapping Data**
David Hay¹, ¹*CSIRO Materials Science and Engineering, Australia*

16:45 – 17:10 **O 072 In-Situ Study of Plastic Deformation in Magnesium Alloys Using White Beam X-ray Microdiffraction**
Peter Lynch¹, Andrew Stevenson¹, Ian Madsen¹, Daniel Liang¹, Nobumichi Tamura², David Parry¹, ¹*CSIRO, Australia*, ²*Lawrence Berkeley Laboratory, United States*

17:10 – 17:35 **O 073 Phase Composition Depth Profiles of Auto Paint Samples Using GADDS Coupled with Chemometric Analysis**
Kay Latham¹, Mike Adams¹, Kris Frost¹, ¹*RMIT University, Australia*

Emerging Capabilities in XRF. Chaired by Jorg Metz

Mayfair 1

16:20 – 16:45 **O 074 New Developments in X-ray Tubes**
Maarten van Andel¹, ¹*PANalytical, Netherlands*

16:45 – 17:10 **O 075 Expanding the Analytical Range of WDXRF - New XRF Analyser Crystals**
Kai Behrens¹, Elvy Grigolato², ¹*Bruker AXS, Germany*, ²*Bruker Biosciences, Austria*

17:10 – 17:35 **O 076 Advances in Hand-held EDXRF**
Anton Kleyn¹, Lex Harris¹, Didier Bonvin¹, Ravi Yellepeddi¹, ¹*Thermo Fisher Scientific, Switzerland*

17:35 – 18:35 AXAA AGM

Mayfair 1

**WEDNESDAY 6 FEBRUARY, 2008 (CONFERENCE SESSIONS)****8:00 – 8:45 REGISTRATION** *Level 8 Foyer***8:45 – 9:30 Plenary Session 5.** Chaired by Ned Blagojevic *Mayfair 1*

- O 077 Speciation of Metals by Means of X-ray Methods: from the Micro towards the Nano-level**
Koen Janssens¹, ¹*University of Antwerp, Belgium*

9:40 – 10:55 Concurrent Sessions**Commodities-1: Mineral Exploration and Mining.** Chaired By Sally Birch *Mayfair 1*

- 9:40 – 10:05 O 078 Element Mapping to Trace Signatures of Mineralisation (Invited)**
Rob Hough¹, Chris Ryan², Ravi Anand¹, Barbara Etschmann², Cathy Harland³, Francesco De Carlo⁴, ¹*CSIRO Exploration and Mining, Australia*, ²*CSIRO Exploration and Mining, Australia*, ³*ASRP, ANSTO, Australia*, ⁴*APS, Argonne National Laboratory, United States*

- 10:05 – 10:30 O 079 FPXRF for Geological in situ Sampling: Calibration and Refinement of Instrumental Precision and Accuracy for Field Measurements**
Diane Jorgensen¹, Keith Sircombe¹, Elizabeth Webber¹, ¹*Geoscience Australia, Australia*

- 10:30 – 10:55 O 080 Advances in the Use of the Compton Ratio Method for Nickel Ores (Invited)**
Yoshiyuki Kataoka¹, Hisayuki Kohno¹, Ulrich Senff², ¹*Rigaku Industrial Corporation, Japan*, ²*Australian X-Ray Tubes Pty Limited, Australia*

X-ray Forensics. Chaired by Brendan Kennedy *Mayfair 2*

- 9:40 – 10:05 O 081 Overview of X-ray Diffraction Techniques with Application to Criminal and Environmental Forensic Cases (Invited)**
Mark Raven¹, ¹*CSIRO Land and Water, Australia*

- 10:05 – 10:30 O 082 Phar Lap's Untimely Death: Poisoning, Colic or Bacterial Infection? (Invited)**
Ivan Kempson¹, Dermot Henry², ¹*University of South Australia, Australia*, ²*Museum Victoria, Australia*

- 10:30 – 10:55 O 083 Toenail Arsenic: Incorporation Patterns and Biomarker Potential**
Dora Pearce¹, Kim Dowing¹, Andrea Gerson², Malcolm Sim³, Stephen Sutton⁴, Matthew Newville⁴, ¹*University of Ballarat, Australia*, ²*University of South Australia, Australia*, ³*Monash University, Australia*, ⁴*University of Chicago, United States*

In-situ Studies. Chaired by Ian Gentle *Mayfair 3*

- 9:40 – 10:05 O 084 In-situ Diffraction for Materials and Process Design (Invited)**
Erich Kisi¹, Daniel Riley², ¹*The University of Newcastle, Australia*, ²*The University of Melbourne, Australia*

- 10:05 – 10:30 O 085 On the Dissolution of Bauxite-related Phases: An In-situ Diffraction Study (Invited)**
Matthew Rowles¹, Ian Madsen¹, Nicola Scarlett¹, ¹*CSIRO Division of Minerals, Australia*

- 10:30 – 10:55 O 086 A Breakthrough: Aluminium Hydroxide Crystal Growth Passways Revealed by Synchrotron Small Angle X-ray Scattering (Invited)**
Jun Li¹, David Cookson², Andrea Gerson¹, ¹*University of South Australia, Australia*, ²*Australian Synchrotron Research Program, United States*

10:55 – 11:25 BREAK AND EXHIBITION

**WEDNESDAY 6 FEBRUARY, 2008 (CONFERENCE SESSIONS)****11:25 – 12:40 Concurrent Sessions****Commodities-2: Iron Ore.** Chaired by Ken Turner

Mayfair 1

- 11:25 – 11:50 O 087 **Automated Glass Bead Fusion Preparation and Integrated 4-Point Loss on Ignition Determination for XRF Analysis of Iron Ore Using the New 6HAG Fusion / TGA Modular System** (Invited)
Pierre Hofmeyr¹, ¹IMP Group Pty Ltd, Australia
- 11:50 – 12:15 O 088 **Development of Standard XRF Analytical Methods for the Iron Ore Industry** (Invited)
Sally Birch¹, ¹CSIRO Minerals, Australia
- 12:15 – 12:40 O 089 **Fusion Bead Correction for Iron Ores Using Theoretical Alphas** (Invited)
Yoshiyuki Kataoka¹, Hisayuki Kohno¹, Ulrich Senff², ¹Rigaku Industrial Corporation, Japan, ²Australian X-Ray Rubes Pty Limited, Australia

Environmental Applications of X-rays. Chaired by Tim White

Mayfair 2

- 11:25 – 11:50 O 090 **Surface Mineralogy of Bungar Hills, An Ice Free Area of East Antarctica**
Damian Gore¹, Michelle Leishman¹, ¹Macquarie University, Australia
- 11:50 – 12:15 O 091 **Analysis of Fresh & Waste Water using Total Reflection X-ray Fluorescence**
Hagen Stosnach¹, Armin Gross¹, Kai Behrens² ¹Bruker AXS Microanalysis GmbH, Germany, ²Bruker AXS GmbH, Germany
- 12:15 – 12:40 O 092 **The Analysis of Alternative Fuels and Liquid Hazardous Waste by Polarizing EDXRF** (Invited)
Simon Milner¹, ¹PANalytical, Netherlands

Development of New Materials. Chaired by Ian Madsen

Mayfair 3

- 11:25 – 11:50 O 093 **Electron Density Distribution of the Low- and High-Forms of LiMn₂O₄ by Synchrotron X-ray Diffraction** (Invited)
Nobuo Ishizawa¹, ¹Nagoya Institute of Technology, Japan
- 11:50 – 12:15 O 094 **Towards New Perovskite Materials** (Invited)
Evgeny Antipov¹, Artem Abakumov¹, ¹Chemistry Department, Moscow State University, Russian Federation
- 12:15 – 12:40 O 095 **Expecting the Unexpected. Phase Transitions in Manganese Perovskites** (Invited)
Brendan Kennedy¹, ¹University of Sydney, Australia

12:40 – 13:40 LUNCH AND EXHIBITION

**WEDNESDAY 6 FEBRUARY, 2008 (CONFERENCE SESSIONS)****13:40 – 14:25 Plenary Session 6.** Chaired by Greg Moore *Mayfair 1*

- O 096 X-ray Analysis in Ecomaterials Technology**
Tim White¹, ¹*Nanyang Technological University, Singapore*

14:35 – 15:50 Concurrent Sessions**Commodities-3: Alumina.** Chaired by Brian O'Connor *Mayfair 1*

- 14:35 – 15:00 O 097 Challenges Faced by XRD in the Alumina Industry (Invited)**
Samantha Taylor¹, Nick Pearson¹, ¹*Alcoa World Alumina, Technology Delivery Group, Australia*
- 15:00 – 15:25 O 098 Developments in Australian Standards and ISO Methods for XRF in the Alumina Industry (Invited)**
Raymond Brown¹, ¹*Alcoa World Alumina, Australia*
- 15:25 – 15:50 O 099 In situ Time Resolved Synchrotron Studies of the High Temperature Bayer Process**
Mitch Loan³, Joe Murray¹, Denise Croker¹, Marc Moreau¹, Luke Kirwan², Kieran Hodnett¹, ¹*MSSI, University of Limerick, Ireland*, ²*Aughinish Alumina, Ireland*, ³*Alcoa World Alumina, Australia*

Heritage Studies with X-rays. Chaired by Dudley Creagh *Mayfair 2*

- 14:35 – 15:00 O 100 XRS for Preventive Cultural Heritage Conservation (Invited)**
Rene Van Grieken¹, ¹*University of Antwerp, Belgium*
- 15:00 – 15:25 O 101 Elemental Analyses of Roman Coins Reflect Turmoil in the Empire**
Beau Spry¹, Jaye Pont¹, Damian Gore¹, Karl Van Dyke¹, ¹*Macquarie University, Australia*
- 15:25 – 15:50 O 102 X-ray Analysis Techniques in the Study of Iron Gall Inks**
Alana Lee¹, Vincent Otieno-Alego², Milutin Stoilovic², Dudley Creagh¹, ¹*Cultural Heritage Research Centre, University of Canberra, Australia*, ²*Forensic and Technical, Australian Federal Police, Australia*

Residual Stress Characterisation. Chaired by Rod Clapp *Mayfair 3*

- 14:35 – 15:00 O 103 Using State-of-the-art Residual Stress Measurements to Improve the Structural Integrity of Aircraft Structures (Invited)**
Lyndon Edwards^{1,2}, ¹*ANSTO, Australia*, ²*Open University, United Kingdom*
- 15:00 – 15:25 O 104 Kowari - OPAL's Strain Scanner and it's Applications (Invited)**
Oliver Kirstein¹, Vladimir Luzin¹, David Tawfik², ¹*Bragg Institute, Australia*, ²*Maunsell Australia Pty Ltd, Australia*
- 15:25 – 15:50 O 105 Residual Stress Mapping at the ANBF, the APS and the Australian Synchrotron (Invited)**
John Thornton¹, ¹*DSTO, Australia*

15:50 – 16:20 BREAK AND EXHIBITION

**WEDNESDAY 6 FEBRUARY, 2008 (CONFERENCE SESSIONS)****16:20 – 17:35 Exhibitor Session – New Product Releases.** Chaired by Ian Madsen *Mayfair 1*

- 16:20 – 16:28 O 106 The World's first Field Portable Benchtop XRF**
Fred Hoetmer¹, Don Sackett², ¹*Sietronics Pty Ltd, Australia*, ²*Innov-X Systems, United States*
- 16:29 – 16:37 O 107 Turn-Key Solutions with Integrated Flexibility**
Kai Behrens¹, Karl-Eugen Mauser¹, Arnd Bühler¹, ¹*Bruker AXS, Germany*
- 16:38 – 16:46 O 108 New Developments in XRF and XRD**
Anton Kleyn¹, Lex Harris¹, Didier Bonvin¹, Ravi Yellepeddi¹, ¹*Thermo Fisher Scientific, Switzerland*
- 16:47 – 16:55 O 109 For a Compact Transportable X-ray Diffractometer, eMMA Leads the Field**
Rod Clapp¹, ¹*GBC Scientific Equipment, Australia*
- 16:56 – 17:04 O 110 The Rigaku Supermini WDXRF & Nanohunter TXRF Benchtop Spectrometers**
Yoshiyuki Kataoka¹, Norobu Moriyama¹, Takao Akai¹, Richard Trett², ¹*Rigaku Industrial Corporation, Japan*, ²*AXT Pty. Limited, Australia*
- 17:05 – 17:13 O 111 Advances in PANalytical Simultaneous XRF Instruments**
Gary Pritchard¹, ¹*PANalytical, Australia*
- 17:14 – 17:22 O 112 The Use of High Speed XRD Data Collection Systems in Routine Mining Applications**
Gary Pritchard¹, ¹*PANalytical, Australia*
- 17:23 – 17:31 O 113 Perspectives of Laser Induced Breakdown Spectroscopy as a complement to X-ray Fluorescence elemental analysis**
Bruce Chadwick¹, Doug Body¹, ¹*XRF Scientific/Laser Analysis Technologies, Australia*

17:35 – 19:35 POSTER SESSION. Chaired by Vanessa Peterson

**THURSDAY 7 FEBRUARY, 2008 (CONFERENCE SESSIONS)****8:00 – 8:45 REGISTRATION****8:45 – 9:30 Plenary Session 7.** Chaired by Shane Kennedy

Mayfair 1

- O 115 Neutrons; The Gentle Probe that Carries a Wallop**
Ron Rogge¹, John Root¹, Michael Gharghour¹, Dmitry Sediako¹, ¹*National Research Council, Canada, Canada*

9:40 – 10:55 Concurrent Sessions**Commodities-4: Mineral Sands.** Chaired by Ian Madsen

Mayfair 1

- 9:40 – 10:05 O 116 Characterisation of Mineral Sands using Electron Probe Microanalysis** (*Invited*)
Mark Pownceby¹, ¹*CSIRO Minerals, Australia*
- 10:05 – 10:30 O 117 Characterisation of Nano-Titania Using the Debye Function and PDF Analysis of X-ray Powder Data** (*Invited*)
Ian Grey¹, Pierre Bordet², Nicholas Wilson¹, ¹*CSIRO Minerals, Australia*, ²*CNRS Institut Neel, France*
- 10:30 – 10:55 O 118 Micro-Furnace for The In-situ Investigation of Ilmenite Mineral Phase Transformation using Synchrotron Radiation X-ray Diffraction**
Wei-Seng Eu¹, Marjorie Valix¹, Alex W.H. Cheung¹, Alan D. Stuart², Philip E. Grazier², ¹*The University of Sydney, Australia*, ²*Newcastle Technology Centre- BHP Billiton, Australia*

X-ray Analysis Techniques (1). Chaired by Gary Pritchard

Mayfair 2

- 9:40 – 10:05 O 119 Accurate Measurement and Physical Insight: The X-ray Extended Range Technique for High Accuracy Absolute XAFS by Transmission and Fluorescence** (*Invited*)
Christopher Chantler¹, ¹*University of Melbourne, Australia*
- 10:05 – 10:30 O 120 Diffraction Studies of Inert Anodes** (*Invited*)
Nicola Scarlett¹, Ian Madsen¹, Kathie McGregor¹, Marshall Lanyon¹, Matthew Rowles¹, Andrew Urban¹, ¹*CSIRO Minerals, Australia*
- 10:30 – 10:55 O 121 Chromite Fusions: Finally, a Conquest**
Kgabo Ramela¹, Maggi Loubser¹, ¹*University of Pretoria, South Africa*

Applications – Bioscience. Chaired by Chris Kelaart

Mayfair 3

- 9:40 – 10:05 O 122 Protein Structure Characterisation: Crystallography Complemented by XAFS and SAXS** (*Invited*)
Anthony Duff¹, ¹*ANSTO, Australia*
- 10:05 – 10:30 O 123 Control of Impurities in Active Pharmaceutical Ingredients by EDXRF** (*Invited*)
Elvy Grigolato¹, Andrew Scothern², Heiko Ress¹, ¹*Bruker Biosciences Pty Ltd, Australia*, ²*Bruker AXS, Germany*
- 10:30 – 10:55 O 124 Measurement of the Microfibril Angle and Peak Broadening in Acacia Wood**
Kevin Jarrett¹, Craig Buckley¹, Chris Garvey², ¹*Center for Materials Research, Department of Imaging and Applied Physics, Curtin University, Australia*, ²*Australian Nuclear Science and Technology Organisation, Australia*

10:55 – 11:25 BREAK AND EXHIBITION

**THURSDAY 7 FEBRUARY, 2008 (CONFERENCE SESSIONS)****11:25 – 12:40 Concurrent Sessions****Commodities-5: Metals.** Chaired by John Thornton*Mayfair 1*

- 11:25 – 11:50 O 125 **Thermo-mechanical Processes in Metals: Results and Opportunities using Modern Diffraction Methods** (*Invited*)
Klaus-Dieter Liss¹, ¹*ANSTO, Australia*
- 11:50 – 12:15 O 126 **Calibration of Residual Stress Measurement by Applied Stress and Determination of X-Ray Elastic Constants** (*Invited*)
Rod Clapp¹, ¹*GBC Scientific Equipment, Australia*
- 12:15 – 12:40 O 127 **X-ray Microdiffraction Investigation into the Mechanisms of Copper Corrosion in Potable Water Pipes**
Natasha Wright¹, ¹*CSIRO Materials Science and Engineering, Australia*

X-ray Analysis Techniques (2). Chaired by Robert Dinnebier*Mayfair 2*

- 11:25 – 11:50 O 128 **Automation of the APS 11-BM High-Resolution High-Throughput Powder Diffractometer** (*Invited*)
Brian Toby¹, ¹*Argonne National Laboratory, United States*
- 11:50 – 12:15 O 129 **Neutron-based On-line Bulk Composition Measurement in Industrial Applications** (*Invited*)
Cheryl Lim¹, ¹*CSIRO Minerals, Australia*
- 12:15 – 12:40 O 130 **Advances in XRF: Analysis of Fuel-Biofuel Mixtures using Advanced Matrix Correction Procedures**
Simon Milner¹, Peter Brouwer¹, ¹*PANalytical B.V., Netherlands*

Applications – Mineral Science. Chaired by Ian Grey*Mayfair 3*

- 11:25 – 11:50 O 131 **Characterisation of Western Australian Nickel Laterites: Strengths and Limitations of QXRD analysis**
Jian Li¹, Barry Whittington¹, ¹*CSIRO Minerals, Australia*
- 11:50 – 12:15 O 132 **Dehydroxylation of Nickeliferous Goethite from Lateritic Nickel Ore: XRD and TEM Approach**
Matthew Landers¹, Bob Gilkes¹, Martin Wells², ¹*University of Western Australia, Australia*, ²*CSIRO- Exploration and mining, Austria*
- 12:15 – 12:40 O 133 **Continuous On-line Measurement of Process Mineralogy for Quality Control and Optimisation Using X-ray Diffraction**
Peter Storer¹, ¹*FCT-ACTech Pty Ltd, Australia*

12:40 – 13:40 LUNCH AND EXHIBITION

**THURSDAY 7 FEBRUARY, 2008 (CONFERENCE SESSIONS)****13:40 – 14:25 Plenary Session 8. Chaired by Ken Turner***Mayfair 1***O 134 The future of Powder Diffraction is 2-D**

Robert Dinnebier¹, Bernd Hinrichsen², Paanerselvam Rajiv¹, Manfred Joswig³, Martin Jansen¹, ¹*Max-Planck-Institute for Solid State Research, Germany*, ²*Bruker AXS GmbH, Germany*, ³*University of Stuttgart, Germany*

14:35 – 15:50 Concurrent Sessions**Commodities-6: Coal. Chaired by Hans Fairhurst***Mayfair 1***14:35 – 15:00 O 135 Quantitative XRD Analysis of Coal and Coal Products (Invited)**

Colin Ward¹, David French², ¹*University of New South Wales, Australia*, ²*CSIRO Energy Technology, Australia*

15:00 – 15:25 O 136 EDXRF - a New Tool to Determine Phosphorus in Coal (Invited)

Sarah Jayne Giblett¹, ¹*CCI, Australia*

15:25 – 15:50 O 137 Speciation of Selenium in Coal using XANES Spectroscopy (Invited)

David French¹, Nicholas Lambropoulos¹, Kenneth Riley¹, ¹*CSIRO Energy Technology, Australia*

Remote Access Instrument Operation. Chaired by Richard Garrett*Mayfair 2***14:35 – 15:00 O 138 Remote Access via Web Services: Anywhere – Anytime (Invited)**

Douglas du Boulay¹, Clinton Chee¹, Richard Leow¹, Romain Quilici¹, Peter Turner¹, ¹*University of Sydney, Australia*

15:00 – 15:25 O 139 New Paradigm for Macromolecular Crystallography Experiments: Automated Screening and Remote Data Collection (Invited)

Michael Soltis¹, ¹*SSRL, United States*

15:25 – 15:50 O 140 Protein Crystallography Data Processing and Structure Elucidation in the Era of Web 2.0 (Invited)

Ian Atkinson², David Abramson¹, Anthony Beitz¹, Colin Enticott¹, Noel Faux¹, Ashley Buckle¹, ¹*Monash University, Australia*, ²*James Cook University, Australia*

Applications – Nanotechnology. Chaired by Robert Hart*Mayfair 3***14:35 – 15:00 O 141 New Ways to Produce Nanostructured Films – How Synchrotron X-ray and Neutron Methods Can Help (Invited)**

Ian Gentle¹, Ruggles Jeremy¹, Stephen Holt², Gary Foran³, Katie Baldwin¹, ¹*The University of Queensland, Australia*, ²*ISIS Pulsed Neutron and Muon Source, United Kingdom*, ³*Australian Nuclear Science and Technology Organisation, Australia*

15:00 – 15:25 O 142 Structural Analysis of LiMn₂O₄ Normal and Nano Materials Using X-ray, and Other Diffraction Methods

Norlida Kamarulzaman¹, Ned Blagojevic¹, Wim Klooster¹, ¹*Universiti Teknologi MARA, Malaysia*, ²*ANSTO, Australia*, ³*Nanyang Technological University & IMRE, Singapore*

15:25 – 15:50 O 143 X-ray Methods for the Characterization of Thin-layered Structures

Joachim F. Woitok¹, ¹*PANalytical B.V., Netherlands*

15:50 – 16:20 BREAK AND EXHIBITION**15:50 – 16:20 Beamline Demonstration**

Michael Soltis¹, ¹*SSRL, United States*

Mayfair 2

**THURSDAY 7 FEBRUARY, 2008 (CONFERENCE SESSIONS)****16:20 – 17:35 Concurrent Sessions****Commodities-7: Cement and Concrete.** Chaired by Nicholas Pearson *Mayfair 1*

16:20 – 16:45 O 144 **Applications of Neutron and X-ray Scattering in Cement Research** (*Invited*)
Vanessa Peterson¹, ¹*Bragg Institute, Australia*

16:45 – 17:10 O 145 **Introduction of XRD into the Clinker and Cement Manufacturing Process** (*Invited*)
Hans Fairhurst¹, ¹*Cockburn Cement Ltd, Australia*

17:10 – 17:35 O 146 **Understanding Geopolymer Composition** (*Invited*)
Ross P Williams¹, Arie van Riessen¹, ¹*Centre for Sustainable Resource Processing (CSRP) and the Centre for Materials Research, Curtin University of Technology, Australia*

X-ray Analysis Techniques (3). Chaired by Natasha Wright *Mayfair 2*

16:20 – 16:45 O 147 **Is the Euro Really as Good as they Claim? An Energy Dispersive Analysis of 2 Euro Coins from Different Countries** (*Invited*)
Bruno Vrebos¹, ¹*PANalytical, Netherlands*

16:45 – 17:10 O 148 **The Australian Synchrotron SAXS/WAXS Beamline: A New Facility for Advanced Applications** (*Invited*)
Nigel Kirby¹, ¹*Australian Synchrotron, Australia*

17:10 – 17:35 O 149 **Use of an External Standard to Check the Consistency of Normalised Rietveld Phase Concentration Estimates**
Noel A Raftery¹, Tanya Hutchins¹, ¹*Faculty of Science, Queensland University of Technology, Australia*

Applications – Mineralogy. Chaired by Brian O'Connor *Mayfair 3*

16:20 – 16:45 O 150 **In-situ Laboratory and Synchrotron X-ray Diffraction Studies into Pressure Acid Leaching of Nickel Laterite Ores** (*Invited*)
Ian Madsen¹, Nicola Scarlett¹, Barry Whittington², ¹*CSIRO Minerals, Australia*, ²*CSIRO Minerals, Australia*

16:45 – 17:10 O 151 **Resonant X-ray and Neutron Diffraction Studies of Zirconolite 2M**
Karl Whittle¹, Gregory Lumpkin¹, Katherine Smith¹, Neil Hyatt², Frank Berry³, ¹*ANSTO, Australia*, ²*University of Sheffield, United Kingdom*, ³*The Open University, United Kingdom*

17:10 – 17:35 O 152 **Synchrotron X-ray Diffraction and Neutron Diffraction Study of the Reversible Phase Transformation of Sitanakite via Dehydration**
Gordon Thorogood¹, Brendan Kennedy², Victor Luca¹, Christopher Griffith¹, Mark Blackford¹, Samantha Thorogood¹, ¹*Institute of Materials and Engineering Science, Australian Nuclear Science and Technology Organisation, Australia*, ²*School of Chemistry, The University of Sydney, Australia*

19:00 – 23:45 CONFERENCE DINNER & AWARDS*Mayfair Ballroom*



FRIDAY 8 FEBRUARY, 2008

SYNCHROTRON VISITS

Group A

- 8:00** Coaches depart The Grand Hyatt, Russell Street
9:00 – 10.30 Tour of the Australian Synchrotron
11.30 Coaches arrive back at The Grand Hyatt, Russell Street

Group B

- 9.30** Coaches depart The Grand Hyatt, Russell Street
10:30 – 12:00 Tour of the Australian Synchrotron
13:00 Coaches arrive back at The Grand Hyatt, Russell Street

The Australian Synchrotron is a major national facility, which opened in July 2007. The synchrotron supplies extremely intense 'light' (from infrared to hard x-rays) that can be used for a massive array of scientific and technological applications. The facility is available to external users from research and industry organisations as well as conducting its own research programs. For more information, visit the website at www.synchrotron.vic.gov.au.

Morning tea will be provided on the coaches.



Photo courtesy of the Australian Synchrotron.



Poster Presentations



- P 01 Theoretical XANES Study of an Organometallic Cluster**
Jack Glover¹, Christopher Chantler¹, Alexander Soldatov¹, Martin Feiters¹, ¹University of Melbourne, Australia, ²Rostov State University, United States, ³Radboud University Nijmegen, Netherlands
- P 02 XAFS and XANES Analysis: A study in Errors**
Christopher Chantler¹, Jack Glover¹, ¹University of Melbourne, Australia
- P 03 X-ray Absorption Fine Structure Calculations for Copper using New Techniques**
Jay Bourke¹, Christopher Chantler¹, ¹University of Melbourne, Australia
- P 04 Experimental Developments for QED Tests in Medium-Z Systems and Two-Dimensional Backgammon-type Detectors**
Justin Kimpton¹, Christopher Chantler¹, Andrew Payne¹, Lucas Smale¹, ¹University of Melbourne, Australia
- P 05 Absorption and Scattering Measurements for Si, Quartz and Glass from 18.8 keV to 36 keV**
Barbara Etschmann¹, Justin Kimpton¹, Christopher Chantler¹, Chanh Tran¹, Zwi Barnea¹, Nicholas Rae¹, Martin de Jonge¹, ¹University of Melbourne, Australia, ²CSIRO Exploration & Mining and School of Earth and Environmental Sciences, Australia, ³La Trobe University, Australia, ⁴XOR, Advanced Photon Source, Argonne National Laboratory, United States
- P 06 Absolute Intensity Measurements using Extended Face Crystallography**
Gerard Atkinson¹, Mark Grigg¹, Zwi Barnea¹, Christopher Chantler¹, ¹University of Melbourne, Australia
- P 07 Theoretical Determination of K α Spectra; Copper and Manganese**
Andrew Hayward¹, Christopher Chantler¹, ¹University of Melbourne, Australia
- P 08 Simulation of a Gaseous Proportional Counter using PENELOPE**
Tauhid Islam¹, Justin Kimpton¹, Christopher Chantler¹, ¹University of Melbourne, Australia
- P 09 High Accuracy Measurement of the XAFS of Zinc, Selenium and Zinc Selenide**
Nicholas Rae¹, Christopher Chantler¹, Zwi Barnea¹, Chanh Tran¹, Martin de Jonge¹, ¹University of Melbourne, Australia
- P 10 Automated Sample Preparation for XRF Analysis – Why?**
Jim Bowden¹, ¹Genalysis Laboratory Services, Australia
- P 11 A Strategy To Prepare Multiferroic Oxides**
Jimmy Ting¹, Brendan Kennedy¹, ¹The University of Sydney, Australia
- P 12 The Rare Earth Elements Analysis of Low Dilution Glass Bead Sample in Rocks by 100kV Polarized EDXRF**
Manabu Mizuhira¹, Kenichi Nakayama², Toshihiro Nakamura², ¹PANalytical, Japan, ²Department of Applied Chemistry, Meiji University, Japan
- P 13 Hydrogen Storage in Nickel-embedded Multiwall Carbon Nanotubes**
C.K. Poh¹, D. Beucher¹, Z.P. Guo¹, H.K. Liu¹, ¹University of Wollongong, Australia



- P 14** **Tuning the Electrocrystallization Parameters of Semiconducting Metal(II)-Tetracyanoquinodimethane Phases – An In-situ Synchrotron Radiation Grazing Incidence X-ray Diffraction Study**
Jean-Pierre Veder¹, Roland De Marco¹, Ayman Nafady², Alan Bond², ¹Nanochemistry Research Institute, Department of Chemistry, Curtin University of Technology, Australia, ²School of Chemistry, Monash University, Australia
- P 15** **Elemental Characterisation of Archaeological Ceramics from Pompeii using EDXRF**
Beau Spry¹, Jaye Pont¹, Damian Gore¹, ¹Macquarie University, Australia
- P 16** **Synthesis and Analysis of Alane (AlH₃) Nanoparticles for Hydrogen Storage**
Mark Paskevicius¹, Craig Buckley¹, ¹Curtin University of Technology, Australia
- P 17** **Synchrotron Microprobe Examination of Nickel Laterite**
Andrea Gerson¹, Matthew Marcus², ¹University of South Australia, Australia, ²Advanced Light Source, Lawrence Berkeley National Laboratory, United States
- P 18** **Spin Crossover Behaviour in Fe(II) Materials Incorporating 3-impy**
Patricia Donovan¹, Cameron Kepert¹, Boujemaa Moubaraki², Keith Murray², Suzanne Neville², David Price¹, ¹University of Sydney, Australia, ²Monash University, Australia
- P 19** **The Characterisation of Multi Walled Carbon Nanotubes using Advanced Analytical Techniques**
Barry Halstead¹, Narelle Brack¹, Andrew Rider², Paul Pigram¹, ¹Centre for Materials Science and Surface Science La Trobe University, Australia, ²Defence Science and Technology Organisation, Australia
- P 20** **The Materials in Valley Floor Soils of the Western Australian Wheatbelt and their Hydraulic and Geochemical Responses to Deep Drainage**
Georgina Holbeche¹, Bob Gilkes¹, ¹University of Western Australia, Australia
- P 21** **Three-dimensional Imaging in Coherent Diffraction**
Corey Putkunz¹, ¹La Trobe University, Australia
- P 22** **Trace Element Analysis in Food and Pharmaceuticals by TXRF**
Hagen Stosnach¹, Armin Gross¹, Kai Behrens², ¹Bruker AXS Microanalysis GmbH, Germany, ²Bruker AXS GmbH, Germany
- P 23** **Authenticity Test and Purity Analysis of Pharmaceuticals by Means of TXRF**
Hagen Stosnach¹, Armin Gross¹, Kai Behrens², ¹Bruker AXS Microanalysis GmbH, Germany, ²Bruker AXS GmbH, Germany
- P 24** **Analytical Application of Multilayer X-ray Optics**
Reiner Dietsch¹, Thomas Holz¹, Tillmann Leisegang², Dirk.-C. Meyer², ¹AXO DRESDEN GmbH, Germany, ²Dresden University of Technology, Germany
- P 25** **Microfocusing X-ray Equipment for the Lab**
Jörg Wiesmann¹, Jürgen Graf¹, Carsten Michaelsen¹, Christian Hoffmann¹, Uwe Preckwinkel², Ning Yang², Holger Cordes², Bob He², Lutz Brügemann³, ¹Incoatec GmbH, Germany, ²Bruker AXS Inc, United States, ³Bruker AXS GmbH, Germany
- P 26** **Structural Phase Transition of Gd₃RuO₇**
Nobuo Ishizawa¹, Kenji Tateishi¹, Saki Kondo¹, Tsuyoshi Suwa¹, ¹Nagoya Institute of Technology, Japan



- P 27** **Wavelength Dispersive X-ray Fluorescence Analysis of 42 Components in Rocks Using Fused Glass Beads**
Kenichi Nakayama¹, Yasuhiro Shibata¹, Manabu Mizuhira², Toshihiro Nakamura¹,
¹*Meiji University, Japan*, ²*PANalytical, Japan*
- P 28** **Studies on Statistics of Measured Intensity of X-ray Affected by Counting Loss**
Takashi Ida¹, Akihisa Oya¹, Hisashi Hibino¹, Nobuo Ishizawa¹, ¹*Nagoya Institute of Technology, Japan*
- P 29** **Accelerated Teaching & Training Using Virtual X-ray Diffraction (VXRD)**
Martin Schreyer¹, Tim White¹, ¹*Nanyang Technological University, Singapore*
- P 30** **Crystal Structure of Synthetic Hydrotungstite, WO₂(OH)₂(H₂O)**
James Kaduk¹, Judith Sentman¹, ¹*INEOS Technologies, United States*
- P 31** **Thermal and X-Ray Diffraction Studies of Some Lithium Iron Oxides**
Norlida Kamarulzaman¹, Azmi Bustam², Ned Blagojevic³, Wim Klooster⁴, RiHanum Subban¹,
¹*Universiti Teknologi Mara, Malaysia*, ²*Universiti Teknologi Petronas, Malaysia*, ³*ANSTO, Australia*, ⁴*Nanyang Technological University, IMRE, Singapore*
- P 32** **Determination of Niobium, Silicon, Phosphorus Etc. in Ferroniobium by X-Ray Fluorescence Spectrometry Using Remelting Technique**
Xiaoming Lu¹, Delong Jin¹, ¹*Research Institute Shanghai Baoshan Iron & Steel Co., Ltd., China*
- P 33** **Chemical Speciation of Mine Tailings Particles by μ -XANES and μ -XRD, Oxidation State of As and U at Remediated Hungarian Uranium Mine**
Anita Alseycz¹, János Osán¹, Gerald Falkenberg², Szabina Török¹, ¹*KFKI Atomic Energy Research Institute, Hungary*, ²*HASYLAB at DESY, Germany*