

Pre-Symposium Workshops

| Monday 5th February | | | | | |
|---|---|---|--|---|---|
| Andrew Liveris Building (46) University of Queensland, Brisbane (UQ, not QUT) | | | | | |
| | Room 46-402 | Room 46-968 | Room 46-913 | Room 46-441 | Room 46-442 |
| 8:30am - 10:30am | Fundamentals of Analytical and Transmission Electron Microscopy (TEM/STEM/AEM) | Monte Carlo Modelling in e-beam Techniques | | Master Class in Automated Mineralogy | Cathodoluminescence - Turning Colours into Science |
| 10:30am - 11:00am | Morning Tea | | | | |
| 11:00am - 12:30pm | Fundamentals of Analytical and Transmission Electron Microscopy (TEM/STEM/AEM) | Monte Carlo Modelling in e-beam Techniques | | Master Class in Automated Mineralogy | Cathodoluminescence - Turning Colours into Science |
| 12:30pm - 1:00pm | Lunch | | | | |
| 1:00pm - 3:00pm | Fundamentals of Analytical and Transmission Electron Microscopy (TEM/STEM/AEM) | Monte Carlo Modelling in e-beam Techniques | An Introduction and Practical Guide to Electron Backscatter Diffraction | Master Class in Automated Mineralogy | Introduction to Imaging Mass-Spectrometry (SIMS) |
| 3:00pm - 3:30pm | Afternoon Tea | | | | |
| 3:30pm - 5:00pm | Fundamentals of Analytical and Transmission Electron Microscopy (TEM/STEM/AEM) | Monte Carlo Modelling in e-beam Techniques | An Introduction and Practical Guide to Electron Backscatter Diffraction | Master Class in Automated Mineralogy | Introduction to Imaging Mass-Spectrometry (SIMS) |

Pre-Symposium Workshops

| Tuesday 6th February Andrew Liveris Building (46) University of Queensland, Brisbane (UQ, not QUT) | | | | | |
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| | Room 46-402 | Room 46-968 | Room 46-913 | Room 46-914 | Room 46-441 |
| 8:30am - 10:30am | Advances in Electron Probe Microanalysis for Beginners to Experts | EM Maintenance | Microanalysis of Biomaterials | Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICPMS) | Focused Ion Beam: Techniques and Applications (FIB) |
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Tuesday 6th February

6:00pm -
8:00pm

Welcome Reception

The Cube, Science and Engineering Centre (P Block Foyer), QUT Gardens Point
Sponsored by JEOL

Wednesday 7th February

Kindler Theatre (GP P 421) Queensland University of Technology (unless stated otherwise)

8:00am -
5:00pm

Registration

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

8:45am -
9:15am

Conference Opening

Official Opening by Conference Hosts and Welcome to Country

9:15am -
10:30am

Session 1

Applications of Microanalysis in Mineral Exploration

Keynote Speaker - Kathy Ehrig, BHP

Microanalysis and a Sustainable Mining Industry: The Olympic Dam Journey

Alex Walker, Curtin University

Mapping Heavy Minerals in Australian Regolith

Xin Wang, University of Queensland

Multifaceted Quantitative Microanalysis of Garnets from the Mount Garnet Deposit, Australia

10:30am -
11:00am

Morning Tea

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

11:00am -
12:30pm

Session 2

Emerging Technologies and Techniques in Microanalysis

Presidential Exchange - Pat Camus, Miroanalysis Society (MAS) President

Shortcomings of Using Proportional Counters in WDS Quantification

Richard Wuhrer, Western Sydney University

Improving the Wavelength Dispersive Spectrometer (WDS) with a Silicon Drift Detector (SDD)—Opening Up New Possibilities

Aurélien Moy, University of Wisconsin - Madison

Advancing Precision in Microanalysis: Novel Dead Time Expressions for WDS Intensity Correction in EPMA

Håkon Wiik Ånes, Norwegian University of Science and Technology

Kikuchipy: An Open-Source Software for Analysis of EBSD Patterns

Colin MacRae, CSIRO

Microanalysis of Hydrated and Vacuum Sensitive Minerals

12:30pm -
1:30pm

Lunch

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

Wednesday 7th February (continued)

Kindler Theatre (GP P 421) Queensland University of Technology (unless stated otherwise)

1:00pm -
1:20pm

Lunchtime Workshop

Zhao Liu, Inert Gas Sample Transfer Solutions, Enabling Microanalysis on Highly Sensitive Samples
 GP-P512
Sponsored by Thermo Fisher Scientific

1:30pm -
3:00pm

Session 3

Emerging Technologies and Techniques in Microanalysis II

Invited Presentation - **Raynald Gauvin**, McGill University

Quantitative Analysis of Lithium in Batteries and Minerals Using X-rays and EELS in the Electron Microscope

Nick Wilson, CSIRO

Quantifying Li Using EPMA and LIBS

Daniel Fanna, Western Sydney University

Investigation of Ordinary Portland Cement Hydration Mechanisms Utilising X-ray Mapping and In-situ X-ray Diffraction

Jamie Riches, Queensland University of Technology

Low Dose S/TEM Applications of an Electrostatic Beam Blanker

Richard Webster, University of New South Wales

Automated Aberration Correction for Scanning Transmission Electron Microscopy

3:00pm -
3:30pm

Afternoon Tea

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

3:30pm -
5:00pm

Session 4

Emerging Technologies and Techniques in Microanalysis III

Zsanett Pinter, CSIRO

Unravelling Multi-stage Formation and Deformation Events of REE-rich and REE-poor Anhydrite via Hyperspectral Cathodoluminescence Mapping and Analysis

Ken van't Schip, Oxford Instruments Nanoanalysis

Imaging and Elemental Analysis of Rough Samples with a New SEM-based Technique: BEX

Karen Privat, University of New South Wales

Applications of Spectral Cathodoluminescence to Correlative Research at the Nano-scale: Case Studies from the UNSW Electron Microscope Unit

Stephen Seddio, Thermo Fisher Scientific

Improved Algorithms for Processing Spectra in Modern EDS Systems

Matthew Glenn, CSIRO

Laboratory Simulation of the Formation of Sediment Hosted Zn-Pb Deposits, and EBSD/EPMA Analysis of the Resulting Sulphide

Jay Thompson, United States Geological Survey

Use of Synthetic Sphalerite to Better Understand Cathodoluminescence Response Related to the Presence of Critical Elements in Natural Samples

5:30pm -
7:30pm

Informal Social Function

Old Government House, QUT Gardens Point
Sponsored by AXT

Thursday 8th February

Kindler Theatre (GP P 421) Queensland University of Technology (unless stated otherwise)

8:30am -
5:30pm

Registration

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

9:00am -
10:30am

Session 5

Mineralogy, Geochemistry and Petrology - Extraterrestrial Materials

Keynote Speaker - Jessica Barnes, University of Arizona
 Initial Analyses of Returned Samples from Asteroid Bennu

David Saxey, Curtin University
 Geochemical Quantification of Olivine Minerals by Atom Probe Tomography

Alan Salek, RMIT University
 Carbon Structures and Defective Crystals in Ureilite Meteorites Using Electron Microscopy Techniques

Graeme Jones, Hitachi / NewSpec
 InSpire STEM SEM Outreach and Engagement Review

10:30am -
11:00am

Morning Tea

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

11:00am -
12:30pm

Session 6

Mineralogy, Geochemistry and Petrology - Extraterrestrial Materials II

Invited Presentation - Yang Liu, Jet Propulsion Laboratory
 Study of Lunar Volcanic Gas at Nano to Micrometer Scale

Di Zhang, Institute of Geology and Geophysics, Chinese Academy of Sciences
 High-precision Measurement of Trace Level Na, K, P, S, Cr, and Ni in Lunar Glass Using Electron Probe Microanalysis

Invited Presentation - Paul Carpenter, Washington University of St Louis
 Advances in EPMA and Development of the Quantitative Analysis Explorer Tool for Study of Apollo Cores 73001 and 73002

12:30pm -
1:30pm

Lunch

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

AMAS Annual General Meeting (AMAS Members Only)
 Atrium, Level 6, GP Block

Thursday 8th February (continued)

Kindler Theatre (GP P 421) Queensland University of Technology (unless stated otherwise)

1:30pm -
3:00pm

Session 7

Mineralogy, Geochemistry and Petrology - Terrestrial Materials

Renjie Zhou, University of Queensland

Textural and Compositional Complexities of Calcite: Impact on Results of U-Pb Geochronology by Laser Ablation ICPMS

John Caulfield, Queensland University of Technology

Microchemical Heterogeneity in Zircon. Insights into Sector Zoning and Mineralisation Vectors from CL Imaging and Split-stream LA-ICP-MS Analysis

John Fournelle, University of Wisconsin - Madison

EPMA of Hf in Zircon: Not a Trivial Exercise

Luís Portella, University of Aveiro

Distinct LA-ICPMS U-Pb Ages for Zircons from a Syn-kinematic Variscan Granite from Central-northern Portugal

Heather Lowers, United States Geological Survey

Conodonts: Zircon of the Sea

Will Rickard, Curtin University

Search for, and Characterisation of, Uranium Particles from Environmental Sampling of Nuclear Facilities

3:00pm -
3:30pm

Afternoon Tea

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

3:30pm -
4:45pm

Session 8

Applications of Automated Mineralogy

Marco Andres Acevedo Zamora, Queensland University of Technology

Petrographic Microscopy of Geologic Textural Patterns and Element-mineral Associations with Novel Image Analysis Methods

Justin Freeman, Thermo Fisher Scientific

Maps Mineralogy for Analysis of Fine-grained Indium-rich Minerals in Baal Gammon Waste Rock

Lisa Kearney, Queensland University of Technology

Characterising Microtextural and Mineralogical Features of Reef Rocks Using Automated Mineral Analysis

Elena Belousova, Geological Survey of Queensland

GSQ Microanalytical Techniques for Mineral Deposit Characterisation

Andrew Kostryzhev, University of Queensland

Application of Advanced Mineral Analysis and Characterisation System (AMICS) in Material Research

6:00pm -
9:30pm

Conference Dinner

Room Three Sixty (Y Block), QUT Gardens Point

Sponsored by Thermo Fisher Scientific

Friday 9th February

Kindler Theatre (GP P 421) Queensland University of Technology (unless stated otherwise)

8:30am -
3:30pm

Registration

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

9:00am -
10:30am

Session 9 Special Interests

Keynote Speaker - Rebecca Johnson AM, Chief Scientist, Smithsonian National Museum of Natural History
 Using the Past to See the Future: Stories of Analytical Science at the Smithsonian Institution

Aaron Torpy, CSIRO
 Hyperspectral Microcharacterisation of a Self Portrait of Rembrandt

Brent McInnes, Curtin University
 The AuScope EarthBank Project: Enabling the Analysis, Preservation, and Discoverability of Nationally Significant Earth and Environmental Collections Using AusGeochem

Peter Miller, Monash University
 Simulating the Impact of Magnetic Fields on a Scanned Electron Image

10:30am -
11:00am

Morning Tea

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

11:00am -
12:30pm

Session 10 Techniques in Advanced Manufacturing

Xiao Sun, Curtin University
 Characterisation of Semiconductor-based Multilayer Structures Using FIB and ToF-SIMS Analysis

Yokasundery Muniandy, University of New South Wales
 Compositional Heterogeneities in CrMnFeCoNi High-entropy Alloys

Anwar Ul-Hamid, King Fahd University of Petroleum & Minerals
 High Resolution Transmission Electron Imaging, Elemental Spectroscopy and X-ray Mapping Study of Multi-layered Zr-based Hard Coatings

Amelia Zięba, Institute of Metallurgy and Materials Science, Polish Academy of Sciences
 Microstructural Characterisation of Aluminium-based Intermetallic Alloys Applied in Catalysis

Invited Presentation - Nestor Zaluzec, University of Chicago & Argonne National Laboratory
 Challenges and Strategies for Microscopy and Microanalysis of Energy and Quantum Materials in Modern Analytical TEM/STEM Instruments

12:30pm -
1:30pm

Lunch

Level 5, Science and Engineering Centre (P Block), QUT Gardens Point

AMAS Annual Executive Meeting (Invitation Only)

Friday 9th February (continued)

Kindler Theatre (GP P 421) Queensland University of Technology (unless stated otherwise)

1:30pm -
3:00pm

Session 11 Biomaterials

Viola Bauernfeind, Adolphe Merkle Institute, University of Fribourg
Disorder in Photonic Networks in Longhorn Beetles Uncovered by Focused Ion Beam Tomography

Laurel George, Western Sydney University
Correlative Micro-CT and X-ray Mapping of Eucalyptus Leaves

Jayanti Mendhi, Queensland University of Technology
Application of Tescan Integrated Mineral Analyser (TIMA) to the Analysis of Bone Quality in Osseointegration of Dental Implants

Yaqi Zhang, Monash University
Single Cell Metabolic Profiling with ToF-SIMS Reveals Heterogeneity of Human Kidney Tubular Cells in Response to Polymyxin Treatment

Darryl Johnson, University of Melbourne
In Situ Multi-element Analysis of Splenocytes Using Laser Ablation Imaging Mass Spectrometry

Denis Korneev, Monash University
Labeling-free Precise Localization of the Region of Interest in FIB-SEM

3:00pm -
3:30pm

Closing Remarks & Moran Scientific Award for Outstanding Student Presentation - Will Rickard, AMAS President