Keynote Speakers

Richard Goldfarb
Gold deposits in metamorphic rocks: new insights or steps backwards since FUTORES I?

Steve Cox
The dynamics of fluid pathways during injection-driven failure in high fluid flux regimes: insights from ore deposits, seismicity and numerical simulations

David Cooke
Porphyry Cu-Au-Mo deposits

Jingwen Mao
Tungsten and tin deposits in China

Noel White
Low and intermediate-sulfidation epithermal deposits

Larry Meinert
Exploration for skarn deposits - major deposits and new strategies

Roger Skirrow
Iron oxide Cu-Au deposits: products of two tectonic settings and two fluids?

Cornel de Ronde
Modern seafloor hydrothermal activity

Joel Brugger
Transport of metals in hydrothermal fluids

Symposium sessions include:

Vladimir Lisitsin (invited speaker)
Mineral System Analysis and Prospectivity Modelling for Exploration Targeting – Current State and Challenges

Ariane Ford
Fit for purpose: A case study on the use of open file data vs closed file data for GIS-based prospectivity analysis

Travis Murphy
Augmenting prospectivity analysis with mining criteria: a test for viability

Carsten Laukamp (invited speaker)
Remote sensing for mineral exploration

Lee Robson
Accuracy of remotely sensed mineral maps for exploration: hyperspectral vs multispectral

Plenary Speakers

Richard Sillitoe
Exploration in and under lithocaps

Dan Wood
Growth in resources demand post-WW2 and future exploration implications

Keynote Speakers

Doug Kirwin
Fifty years of looking at rocks

Jeremy Richards
Magma fertility indicators

Roric Smith
Exploration strategy, business planning and successful execution to compress timeframes of discovery

Symposium sessions include:

Vladimir Lisitsin (invited speaker)
Mineral System Analysis and Prospectivity Modelling for Exploration Targeting – Current State and Challenges

T. Blaike
Geophysical interpretation and modelling of the 3D structural architecture of the Batten Fault Zone, south-eastern McArthur Basin

Mark Hinman
Deep mining Queensland: a new view of structural-stratigraphic-magmatic, Cu-Au-Mo prospectivity in the southern Cloncurry Belt

John McLellan
Regional to local scale linkage of deformation events and IOCG mineralisation in the Eastern Mt Isa Block

Laurie Hutton
Characterising detrital zircons spectra across the Eastern Succession, Mount Isa and links to mineralisation

Symposium sessions include:

Allan Collins
Mt Isa tectonics & deep drilling

Annette George
Carbonate sequences

Ross Large
Cycles of Ore Deposits and Mass Extinction Events - are they controlled by atmosphere oxygenation?
### PRELIMINARY PROGRAM

#### DAVID GROVES SYMPOSIUM

**New Insights in Mineral Deposit Understanding**

- **David Leach**
  - New insights into the relationships of evaporites with Mississippi Valley-Type Zn-Pb ores: a paradigm shift for exploration

- **Matthew van Ryt**
  - Short-wavelength infrared spectroscopy as a tool for characterising hydrothermal alteration at the Geita Hill gold deposit, Tanzania

#### SYMPOSIUM

**New Technologies and Approaches in Mineral Exploration**

- **Matthew van Ryt**
  - Short-wavelength infrared spectroscopy as a tool for characterising hydrothermal alteration at the Geita Hill gold deposit, Tanzania

- **Rui Wang**
  - White mica as a hyperspectral tool in exploration for Sunrise Dam and Kanowna Bell gold deposits, WA

#### SYMPOSIUM

**Tectonics, Basins and Resources**

- **Matthew van Ryt**
  - Spectral signature of alteration zones associated with iron ore deposits in the Yilgarn Craton, WA

- **Chris Cuff**
  - Does underground goal gasification (UGG) have a place in clean coal technology?

- **Steve Micklethwaite**
  - Supercharging field geology - drones and artificial intelligence for ore deposits and structural mapping

- **John McLellan**
  - Targeting epithermal systems by structural response

### Symposium sessions include:

- **Jerry Dunga**
  - The mineralogy and geochemistry of porphyry stocks and dykes and their significance to hydrothermal alteration and gold mineralisation at the Mt. Percy gold deposit, Golden Mile, WA

- **Paul Duering**
  - Spectral signature of alteration zones associated with iron ore deposits in the Yilgarn Craton, WA

- **Chris Cuff**
  - Does underground goal gasification (UGG) have a place in clean coal technology?

- **Steve Micklethwaite**
  - Supercharging field geology - drones and artificial intelligence for ore deposits and structural mapping

- **John McLellan**
  - Targeting epithermal systems by structural response

- **Clare Baxter**
  - How can implicit modelling assist in speeding up the geological modelling process.

- **Stefan Vollgger**
  - Ore shoot formation in an orogenic gold deposit

- **Jeremy Cook**
  - Application of high resolution seismic reflection to delineate low sulphidation epithermal vein systems - insights from Cracow

- **Simon Richards**
  - Results from an Atomic Dielectric Resonance (ADR) survey at Charters Towers.

- **Helge Behnsen**
  - Cu-Au fertility of arc volcanic rocks - a case study of the early Permian Lizzie Creek volcanics, NE Qld

- **Isaac Corral**
  - Fertility assessment for Au-Cu of late Carboniferous - Early Permian volcanic rocks of the Townsville-Bowen region, NE Qld
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angela Escolme</strong>&lt;br&gt;Productora Cu-Au-Mo deposit – a porphyry-related magmatic-hydrothermal breccia complex with local magnetite-apatite and porphyry mineralisation</td>
<td><strong>Bob Loucks</strong>&lt;br&gt;The effect of magmatic oxidation state, hydration state and temperature on incorporation of cerium in zircon: bad news for Ce-in-zircon oxybarometry</td>
<td><strong>Bob Henderson</strong>&lt;br&gt;Tectonic controls on mineralization in northeast Queensland</td>
</tr>
<tr>
<td><strong>Fredrik Sahlstrom</strong>&lt;br&gt;The Capsize prospect, NE Queensland, Australia: geology, geochronology and geochemistry of a porphyry and associated lithocap</td>
<td><strong>Phil Blevin</strong>&lt;br&gt;Calibration of a new magmatic oxybarometer using Uranium, Cerium and Titanium in Zircon as a pathfinder to Cu-fertile arc igneous complexes</td>
<td><strong>Zhaoshan Chang</strong>&lt;br&gt;Geodynamic setting of epithermal-porphyry mineralisation in northern Bowen Basin, NE Queensland, Australia</td>
</tr>
<tr>
<td><strong>Jaime Poblete</strong>&lt;br&gt;The Watershed scheelite skarn deposit, Far North Queensland, Australia</td>
<td><strong>Yanbo Cheng</strong>&lt;br&gt;The volcanic-plutonic connection and fertility of highly evolved magma systems: a case study from the Herberton Sn-W-Mo mineral field, Qld</td>
<td><strong>Gavin Clarke</strong>&lt;br&gt;Age-dating of igneous rocks embedded with, and later intruding the Rangal Coal Measures at Hall Creek Coal Mine, North-east Bowen Basin</td>
</tr>
<tr>
<td><strong>Kairan Liu</strong>&lt;br&gt;Wolfram Camp W-Mo-Bi deposit, NE Queensland, Australia</td>
<td><strong>Tony Christie</strong>&lt;br&gt;Evolving exploration models for epithermal Au-Ag deposits in the Hauraki goldfield, NZ</td>
<td><strong>Gregg Morrison</strong>&lt;br&gt;The relationship between Orogenic Gold and Intrusion-Related Gold Systems in the Permo-Carboniferous of northeast Queensland</td>
</tr>
<tr>
<td><strong>Stephanie Mrozek</strong>&lt;br&gt;Antamina skarn, Peru</td>
<td><strong>Adrian Fabris</strong>&lt;br&gt;Characterising footprints of the ~1.6 Ga thermal event in the eastern Gawler Craton - a case study from the Punt Hill region, SA</td>
<td><strong>Zhaoshan Chang</strong>&lt;br&gt;Sn-W-Mo Mineralisation in NE Queensland, Australia</td>
</tr>
<tr>
<td><strong>Geoff Derrick</strong>&lt;br&gt;Double skarns and triple breccias – Geological evolution of the Mary Kathleen skarn system, NW Qld</td>
<td><strong>Jim Morrison</strong>&lt;br&gt;NE Qld revisited: using new and old tools to generate targets in mature exploration areas</td>
<td><strong>Courtney Dhnaram</strong>&lt;br&gt;The Early Permian gold mineral system of Cape York, North Queensland, Australia</td>
</tr>
<tr>
<td><strong>Peter Ilig</strong>&lt;br&gt;Breccia controls on the Red Dome Au-Cu-Ag Skarn Deposit, Chillagoe District, Far North Queensland, Australia</td>
<td><strong>Antonio Arribas (invited speaker)</strong>&lt;br&gt;Early-stage porphyry Cu-Au exploration: adding value to regional stream sediment surveys by studying fluid inclusions</td>
<td><strong>David Huston</strong>&lt;br&gt;Spatial variations in the distribution of lead isotopes in the Tasmanides, eastern Australia: implications for tectonics,</td>
</tr>
<tr>
<td><strong>Zhiming Yang</strong>&lt;br&gt;Magmatic Au mineralization at the Bilhe Au deposit, China</td>
<td><strong>Chris Torrey</strong>&lt;br&gt;Lithogeochmistry of pegmatites at Broken Hill: an exploration vector to mineralisation</td>
<td><strong>Ross Cayley</strong>&lt;br&gt;Advances in Tasmanide tectonics – the giant Lachlan Orocline, a new predictive concept for eastern Australian mineral exploration under cover</td>
</tr>
<tr>
<td><strong>Michael Fuss</strong>&lt;br&gt;Sr, C and O isotope compositions of carbonates in the Ernest Henry deposit, Qld, Australia: implications for genesis and exploration</td>
<td><strong>Ravi Anand (invited speaker)</strong>&lt;br&gt;Future trends in geochemical exploration through transported cover</td>
<td><strong>T. J. Wells</strong>&lt;br&gt;Geochronological and geochemical evidence for two ore-forming events in the Northparkes district NSW</td>
</tr>
<tr>
<td><strong>Xinfu Zhao</strong>&lt;br&gt;Tectonic evolution and formation of the Preterozoic IOCG deposits in Kangdian, southwest China</td>
<td><strong>Richard Lilly (invited speaker)</strong>&lt;br&gt;Geochemistry through cover: defining geochemical exploration parameters for the Cloncurry Mineral District, Queensland</td>
<td><strong>Dominic Brown</strong>&lt;br&gt;GSQ-GSNSW-GA Southern Thomson drilling program</td>
</tr>
<tr>
<td><strong>Nicholas Dyriw</strong>&lt;br&gt;The nature of the volcanic edifice associated with a modern SMS deposit: insights from the Solwara 1 Cu-Au ore deposit</td>
<td><strong>Eline Baudet</strong>&lt;br&gt;Geochemical footprint of the Bulldog Shale, Eromanga Basin, Australia: the tyranny of cover</td>
<td><strong>Joel Fitzherbert</strong>&lt;br&gt;Southern Cobar-type Cu-Au-Pb-Zn-Ag mineralisation: turbidite-hosted intrusion-related mineralisation in central New South Wales</td>
</tr>
<tr>
<td><strong>Jason Kelly</strong>&lt;br&gt;Jessie mine, Mt Isa, Queensland, Australia: geology, geochronology and geochemistry of a porphyry and associated lithocap</td>
<td><strong>Garry Wilshire (invited speaker)</strong>&lt;br&gt;Modern SMS deposit: insights from the Solwara 1 Cu-Au ore deposit</td>
<td><strong>Julie Rowland</strong>&lt;br&gt;Inherited faults: their reactivation and influence on the localisation of arc-related epithermal systems</td>
</tr>
</tbody>
</table>
## Preliminary Program

### David Groves Symposium
**New Insights in Mineral Deposit Understanding**

- **Steffen Hagemann** (invited speaker)
  The origin of BIF-hosted Fe ore mineral system
- **Caroline Perrin**
  New evidence for controls on martite - microlapty hematite mineralisation at Mt Whaleback, Hamersley Basin, Western Australia: a holistic 3D approach
- **Harilaos Tsikos**
  Palaeoproterozoic banded iron formation (BIF)-hosted manganese deposits: myth or reality?
- **Xiangkun Zhu**
  Fe-Mg-B-isotopic constraints on the genesis of large-scale Paleoproterozoic B-(Fe) mineralization in NE China
- **R P Wilson**
  Rare earth metals - Wolverine and other hydrothermal xenotime deposits, Browns Range, NW Australia
- **Paul Slezak**
  The Yangibana LREE deposit of the Gascoyne Province, Western Australia
- **Carl Spandler**
  Geology and evolution of the Toongi rare metal deposit, central NSW

### Symposium
**New Technologies and Approaches in Mineral Exploration**

- **Benjamin Andrew**
  3D mapping of fluid/rock interaction using oxygen stable isotopes, Mount Isa, North Western Queensland
- **Dexian Zhang**
  LA ICP-MS Trace Element Analysis of Pyrite from Dabaoshan Polymetallic Deposit of North of Guangdong Province: Implications for Ore Genesis
- **Richard Lilly**
  Pyrite variation within the Mount Isa copper system
- **Wenjuan Jia**
  Thermoelectric characteristics of pyrites of Yuku Mo deposit for mineral exploration, Henan Province, China
- **Huiqing Huang**
  Accurate and precise zircon U-Pb dating by LA-ICP-MS and SIMS
- **Alex Brown**
  Aspects of practical implementation of portable XRF in exploration
- **Christa Placzek**
  Climatic and tectonic controls on exhumation patterns and abundance of porphyry and supergene copper deposits: insights from millennial scale erosion rates

### Poster sessions include:

- **Jan Marten Huizenga**
  Hydrothermal Au mineralisation caused by fluid decompression and cooling in dilatational cavities
- **Hamidoddin Yousefi**
  Studies and examination of microtermometry involved followings and their specialty in patterns get from copper Andes – Kharestan gold, SE Iran
- **G-P Zeng**
  Electron microprobe (EMP) analysis of the antimoniferous minerals in the Zhazixi Sb-W deposit, South China
- **Ariane Ford**
  A GIS-based prospectivity analysis case study for Sn-W mineralisation in north-east Qld
- **Behnam Sadeghi**
  Recognition of gold dispersion patterns in stream sediments using sinuosity index
- **Jose Luis Pacheco**
  Geochemical prospection by Au and base metals on the Pucroj River sub-basin, Huanuco, Peru
- **Joshua Philips**
  Geochemistry of PGE enriched Proterozoic Dolerites of the southwestern United States
- **Chen Mao**
  Petrogenesis and geodynamic setting of a late Paleozoic A-type granite from the eastern Xingmeng Orogen, NE China
- **S Jargalan**
  Copper porphyry mineralization in South Mongolia: metallogenesis and magmatism
<table>
<thead>
<tr>
<th>symposium</th>
<th>presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>David Groves Symposium: New Insights in Mineral Deposit Understanding</td>
<td>Teimore Nazari-Dehkordi: Petrography and mineralogy of the Wolverine HREE deposit, Browns Range, Western Australia</td>
</tr>
<tr>
<td></td>
<td>Yanbo Cheng: Mt Carbine W deposit</td>
</tr>
<tr>
<td></td>
<td>Jose Veracruz: Gilberton District: An example of an intrusion-related gold system in North Queensland</td>
</tr>
<tr>
<td></td>
<td>Sidy Morin-Ka: Characteristics of the mineralizing fluid forming the John Galt heavy rare earth element (HREE) deposit</td>
</tr>
<tr>
<td></td>
<td>Yuling Xie: New understandings of rare metal deposits in China</td>
</tr>
<tr>
<td></td>
<td>Bradley Cave: U-Pb Geochronology of Apatite and Calcite at the Ernest Henry Deposit, NW Queensland; Implications for Hydrothermal Evolution and Ore Genesis</td>
</tr>
<tr>
<td>symposium</td>
<td>l. Sunmonu: Interpretation of aeromagnetic data for mineral prospect in Igbeti-Moro area, Southwestern Nigeria</td>
</tr>
<tr>
<td></td>
<td>Thomas McCourt: Dynamic simulation for gas injection with varied grid geometries</td>
</tr>
<tr>
<td></td>
<td>Richard Lilly: The National Exploration Undercover School (NExUS)</td>
</tr>
<tr>
<td></td>
<td>Sally Worbe: Future by-product recovery of specialty trace metals from IOCGs</td>
</tr>
<tr>
<td></td>
<td>Sandra Rodrigues: Hyperspectral techniques applied to coal characterisation</td>
</tr>
<tr>
<td></td>
<td>Sunjay Sunjay: Signal processing and image analysis of sonic logging data</td>
</tr>
<tr>
<td></td>
<td>James Hewett: The Association between Gold and Pyrite Trace Element Geochemistry at the Ernest Henry Deposit, NW Queensland</td>
</tr>
<tr>
<td></td>
<td>Cassandra Lintvelt: Mineralogy and Trace Element Geochemistry of Ag and Co in the Mount Isa Copper Orebodies, NW Queensland, Australia</td>
</tr>
<tr>
<td>symposium</td>
<td>b. Lin: Progress in mine exploration in the Duolong Ore District, Tibet, China</td>
</tr>
<tr>
<td></td>
<td>Jack Maughan: Geochemical evolution of the mafic volcanic sequences in the Cloncurry District, Queensland: implications for crustal accretion and prospectivity</td>
</tr>
<tr>
<td></td>
<td>Peter Downes: Pb-isotope signatures of the high sulfide Ag–Pb veins in the Broken Hill region: implications for metallogenesis</td>
</tr>
</tbody>
</table>