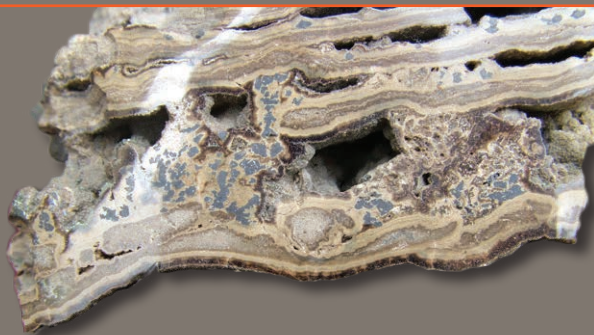




SEG

CODES

World-Class Ore Deposits: Discovery to Recovery



September 27–30, 2015
Hobart, TAS, Australia
www.seg2015.org

SEG 2015 Conference



**BHP Billiton is proud to support
SEG 2015: World-Class Ore Deposits:
Discovery to Recovery, hosted by the
Society of Economic Geologists**

BHP Billiton is a leading global resources company. We are among the world's largest producers of major commodities, including iron ore, coal, copper, nickel and uranium and have substantial interests in oil and gas.

Headquartered in Melbourne, BHP Billiton has a global presence through the ownership and operation of assets diversified by commodity, geography and market. Our unrivalled portfolio of high-quality growth opportunities ensures we continue to meet the changing needs of our customers and the resources demand of emerging economies at every stage of their growth. We are proud to supply the resources needed to support global economic growth and development. We are committed to making a broader contribution through our social investments which aim to deliver lasting economic and social benefits for the communities where we operate.



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Sunday

Student Mentoring Forum

2:30pm – 4:15pm

Presidential Address and Silver Medal Award

4:15pm – 5:00pm

Auditorium

Welcome Reception, Exhibits, and Posters

5:00pm – 7:00pm

Exhibition Foyer,
Boardwalk Gallery, and
Wellington Rooms

REGISTRATION

Lobby

Saturday: 4:00pm – 5:00pm

Sunday: 12:00pm – 7:00pm

Monday: 7:30am – 6:00pm

Tuesday: 8:00am – 6:00pm

Wednesday: 8:00am – 5:00pm

EXHIBITS and POSTERS

Exhibition Foyer, Boardwalk Gallery, and Wellington Rooms

Sunday: 5:00pm – 7:00pm

Monday: 7:30am – 6:30pm

Tuesday: 8:00am – 6:30pm

Wednesday: 8:00am – 3:45pm

See p. 23 for poster
information.

SPEAKER PREPARATION

Speaker Ready Room

Sunday 12:00pm – 7:00pm

Monday: 8:00am – 6:30pm

Tuesday: 8:00am – 6:30pm

Wednesday: 8:00am – 2:30pm



WIFI

Network: Wrest Point
Conference Centre

No Password is needed;
service is free

CONFERENCE PROCEEDINGS

Attendees should have
received an e-mailed link to a
Dropbox containing PDF files
of Conference abstracts, slide
presentations, and posters. If
you registered for the Confer-
ence and have not received
that e-mail, Please contact
JeffDoyle@segweb.org.

Monday

Welcome

Bruce Gemmill, Chairman
Organizing Committee
8:15am – 8:30am
Auditorium

Plenary-Keynote Session

8:30am – 10:00am
Auditorium

Morning Break

10:00am – 10:30am
Boardwalk Gallery and
Wellington Rooms

Trifecta Technical Session

10:30am – 12:30pm
Olympic Dam IOCG Deposit
Red Dog SEDEX Deposit
Auditorium

Lunch

12:30pm – 1:30pm
Boardwalk Gallery and
Wellington Rooms

Technical Sessions

1:30pm – 3:00pm
Auditorium and
Tasman Rooms

Afternoon Break

3:00pm – 3:30pm
Boardwalk Gallery and
Wellington Rooms

Technical Sessions

3:30pm – 4:30pm
Auditorium and
Tasman Rooms

Reception, Exhibits, Posters

4:30pm – 6:30pm
Exhibition Foyer,
Boardwalk Gallery and
Wellington Rooms

Evening at MONA Reception and Cocktails

6:30pm – 10:00pm

Tuesday

Plenary-Keynote Session

8:30am – 10:00am
Auditorium

Morning Break

10:00am – 10:30am
Boardwalk Gallery and
Wellington Rooms

Trifecta Technical Session

10:30am – 12:30pm
Pebble Porphyry Deposit
Ladolam Epithermal Deposit
Auditorium

Lunch

12:30pm – 1:30pm
Boardwalk Gallery and
Wellington Rooms

Technical Sessions

1:30pm – 3:00pm
Auditorium and
Tasman Rooms

Afternoon Break

3:00pm – 3:30pm
Boardwalk Gallery and
Wellington Rooms

Technical Sessions

3:30pm – 4:30pm
Auditorium and Tasman
Rooms

Reception, Exhibits, Posters

4:30pm – 6:30pm
Exhibition Foyer,
Boardwalk Gallery and
Wellington Rooms

Industry Outlook Dinner

7:00pm – 10:00pm
Derwent Room

Wednesday

Plenary-Keynote Session

8:30am – 10:00am
Auditorium

Morning Break

10:00am – 10:30am
Boardwalk Gallery and
Wellington Rooms

Technical Sessions

10:30am – 12:30pm
Auditorium and
Tasman Rooms

Lunch

12:30pm – 1:30pm
Boardwalk Gallery and
Wellington Rooms

SEG Awards and Student Presentation Prizes

1:30pm – 2:30pm
Auditorium

Controversies Session

2:30pm – 3:30pm
Auditorium

Afternoon Break

3:30pm – 4:00pm
Boardwalk Gallery and
Wellington Rooms

Controversies Panel

4:00pm – 5:00pm
Auditorium

Closing Remarks

5:00pm – 5:15pm
Auditorium

All sessions and social events are held at the Wrest Point Conference Centre,
with the exception of the Monday evening reception at the Museum of Old and New Art (MONA)

Welcome Down Under!

Welcome to the SEG-CODES 2015 Conference in Hobart, Tasmania!

The conference, *World-Class Ore Deposits: Discovery to Recovery*, is jointly hosted by the Society of Economic Geologists and the ARC Centre of Excellence in Ore Deposits (CODES) at the University of Tasmania, Australia. The theme encompasses exploration/discovery and geosciences, with geometallurgy, for a range of deposit types and major mines/districts.

The technical program of outstanding speakers and poster presenters focuses on areas of research in economic geology that can lead to the important practical issues of improved exploration concepts, discovery, mine geology, and recovery (geometallurgy).

We have included a new style of keynote presentation, with talks on the discovery, geology, and geometallurgy of four styles of world-class mineral deposits. The technical talks will be supplemented by related poster sessions. There is an impressive range of short courses and field trips that will visit major mining districts in Australia, New Zealand, and Indonesia.

Student participation is a key element of the meeting, with a pre-conference student mentoring forum and significant student involvement in the technical program. A big thank you to the Conference sponsors who have generously contributed during difficult times for the mineral industry. Their generosity directly funds student participation and programs.

On behalf of the Organizing Committee, we welcome you to SEG 2015 and to this unique part of the world. We trust you will enjoy the conference and the best Tasmania and Australia have to offer — geology, mineral deposits, food, wine, beaches, and wilderness!

J. Bruce Gemmell, *Chairman,*
SEG 2015 Organizing Committee

Brian G. Hoal, *Executive Director,*
Society of Economic Geologists

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23	Posters
55–56	Exhibitors/floor plan
Back flap	Thank you, Sponsors
Inside Back cover	Conference Centre floor plan

Conference Information*

Organizing Committee Members

- Conference Chairman: Bruce Gemmill, CODES, University of Tasmania
- Brian Hoal, Executive Director, Society of Economic Geologists
- Technical Sessions: Noel White, Consultant
- Posters/Students: Patrick Sack, Yukon Geological Survey
- Workshops/Short Courses: Zhaoshan Chang, James Cook University
- Field Trips: Garry Davidson, CODES, University of Tasmania
- Sponsorship/Marketing: Dan Wood, Consultant
- Exhibits/Administration: Carol van 't Veld, Conference Design Pty Ltd.
- Secretary/Students: Christine Horrigan, Society of Economic Geologists

SEG Contact Information

Society of Economic Geologists
7811 Shaffer Parkway, Littleton, CO 80127, USA
Tel. 1.720.981.7882
E-mail: seg@segweb.org
Website: www.segweb.org

Conference Manager/Exhibits/Registration

Carol van 't Veld
Conference Design Pty Ltd.
Carol@conferencedesign.com.au
Tel. +61 3 6231 2999

Wrest Point Conference Centre will provide Internet Service at no cost.

*For registration, exhibit, and speaker ready room hours, as well as an overview of schedules, please see the inside front cover of this program. An Exhibit Booth floor plan is located inside the back cover. All events, except where noted, will be held at the Centre.

SEG Awardees

Please join us for the SEG Awards Ceremony on Wednesday, September 30, 2015, 1:30 to 2:30 p.m. in the Auditorium, Wrest Point Conference Centre

SEG R.A.F. Penrose Gold Medal for 2014

JAMES M. FRANKLIN
Franklin Geosciences Ltd, Canada

SEG Silver Medal for 2014

STUART F. SIMMONS
Hot Solutions Ltd, New Zealand and Energy and Geoscience Institute, University of Utah, USA

SEG Ralph W. Marsden Award for 2014

MARK D. HANNINGTON
University of Ottawa, Canada

SEG Waldemar Lindgren Award for 2014

SIMON M. JOWITT
Monash University, Australia

Brian J. Skinner Award for 2014

CORNEL E. J. DE RONDE
GNS Science, New Zealand

SEG Distinguished Lecturer for 2015

SARAH-JANE BARNES
Université du Québec à Chicoutimi, Canada

SEG International Exchange Lecturer for 2015

ANDREAS AUDÉTAT
Bayerisches Geoinstitut, Germany

SEG Thayer Lindsley Visiting Lecturer for 2015

KAREN D. KELLEY
U.S. Geological Survey, USA

SEG Regional Vice President Lecturer for 2015

ROY MCG. MILLER
Consulting Geologist, Namibia

Pre-Conference Program

Sunday, September 27, 2015

Student Mentoring Forum, Presidential Address, and SEG Silver Medal Award Presentation

2:30 pm – 5:00 pm
Auditorium, Wrest Point Conference Centre

Student Mentoring Forum

Hosted by  **bhpbilliton**

Presidential Address: François Robert,
Importance of the Geology Part of Economic Geology
Silver Medal Presentation

Forum Panel

Kathy J. Ehrig, Principal Geometallurgist, BHP Billiton
Vanessa Guthrie, CEO, Toro Energy Ltd.
T. Campbell (Cam) McCuaig, Centre for Exploration Targeting, University of Western Australia
James Johnson, Deputy CEO and Chief of Energy Division, Geoscience Australia
James Macdonald, Director at C2Skye Management Ltd.
Andrew Davies, Chief Geoscientist, Teck Resources Limited

Welcome Reception

5:00 pm – 7:00 pm
Boardwalk Gallery and Wellington Rooms
Poster Viewing — Exhibition Foyer

Pre-Conference Field Trips: Dates as Noted

**VHMS and Granite-Related
Ore Deposits of Western Tasmania** **September 22–27**
Field Trip Leaders: Andrew McNeill,
Bruce Gemmell, and Ralph Bottrill

**Deposits of the Gold-Rich
Ordovician Alkalic Porphyry and
Epithermal Province, Macquarie Arc,
New South Wales** **September 23–25**
Field Trip Leaders: Anthony Harris and Nathan Fox

Pre-Conference Short Courses

Uranium Geology 8:00 am **September 26–27**
Presenters: David Thomas (organizer), Gerard Zaluski,
Penny Large, Tom Kotzer, and Andrew Fitzpatrick
Wrest Point, Derwent Room 1

Ore Deposits, Atmosphere 8:30 am September 26–27
**Oxygenation and Evolution of Life;
How They are Related. New Genetic
and Exploration Insights**
Presenters: Ross Large (organizer), Kurt Konhauser,
Peter McGoldrick, John Long, Valeriy Maslennikov,
James Farquhar, and Tim Lyons
UTAS—CODES Conference Room, Geology Building

Understanding Alteration – 8:00 am September 26–27
Use in Exploration & Development
Presenters: John Thompson and Anne Thompson (course
leaders), Bruce Gemmell, Andrew Davies, and Jim Lang
UTAS—Room 211, Geology Building

Skarn Deposits 8:30 am **September 27**
Presenters: Zhaoshan Chang (organizer)
and Larry Meinert
Wrest Point, Derwent Room 2

Technical Program

Talks for which the presenting author is a student can be identified by an asterisk (*) after the title. Names of invited speakers are highlighted.

Day 1: Monday, September 28, 2015

Auditorium

Welcome and Introduction 8:15 am
J. Bruce Gemmell, Conference Chairman
CODES, University of Tasmania

Plenary-Keynote Session

Chair: J. Bruce Gemmell, CODES

What industry wants from research 8:30 am
Paul Agnew, Rio Tinto

What research can deliver for industry 9:00 am
Murray W. Hitzman, Colorado School of Mines

Exploration—the role of innovation 9:30 am
John F.H. Thompson, Cornell University;
PetraScience Consultants

BREAK 10:00 AM

Trifecta Talks on Discovery, Exploration, and Geometallurgy

Chair: Noel White, Consultant

Olympic Dam Fe Oxide Cu-U-Au-Ag Deposit: 10:30 am
Discovery to Recovery (BHP Billiton)
Kathy Ehrig, Vadim S. Kamenetsky, Maya Kamenetsky,
Nigel J. Cook, Cristiana L. Ciobanu, and Douglas Haynes

Red Dog: From Discovery to Recovery 11:30 am
Above the Arctic Circle (Teck)
Andrew Davies, Nick Hayward, and Anelda van Staden

LUNCH 12:30 PM
(Boardwalk Gallery and Wellington Rooms)

Four (4) Concurrent Technical Sessions*(Auditorium and Tasman Rooms)***Session 01: Ores in subduction-related arcs:
New examples; relations and controls (Aud)****Chair: David Cooke**, CODES, University of Tasmania**Overview of the tectonic setting and geology of porphyry copper-gold deposits along the eastern Sunda Magmatic Arc, Indonesia** 1:30 pm
Adi Maryono**Dynamics of fluid pathways and fluid flow in intrusion-related hydrothermal systems: Insights from ore deposits, seismicity, and numerical modeling** 1:50 pm
Stephen Cox, A. Flatten, and D. Beck**Stretched to the limit: An extensional detachment setting for the Gosowong epithermal goldfield, Halmahera, Indonesia** 2:10 pm
David Selley, N. Jansen, D. Silitonga, A. Bambang, D. Wardiman, N. Fitzpatrick, and A. Harris**Hydrothermal transport of Ag, Au, Cu, Te, and other metals in high-temperature geothermal systems, North Island, New Zealand: Implications for genesis and exploration of epithermal deposits** 2:30 pm
Stuart Simmons, K. Brown, and B. Tutolo**Session 02: SGA Session on exploration under cover (Tas A)****Chair: Roger Skirrow**, Geoscience Australia**Complex mineral systems and scale reduction in mineral exploration under cover: Can prospecting drilling bridge the critical gap between camp and deposit scale?** 1:30 pm
David Giles, R. Hillis, A. Fabris, S. van der Wielen, J. Cleverley, and S. Halley**Crustal architecture and under cover exploration: The Granites-Tanami orogen example*** 1:50 pm
David Stevenson, L. Iaccheri, L. Bagas, C. McCuaig, and A. Aitken**Using 3D computational modeling to represent deep structures and facilitate ore prediction: An example from Tongling orefield, China** 2:10 pm
Liangming Liu, Wei Cao, and Jianqing Wang**Discovery to evaluation in a mature brownfields terrane: A case history of exploration in the Northparkes District, NSW, Australia** 2:30 pm
Jonathon Hoye and J. Wellard**Session 03: Geometallurgy through the mining chain (Tas B)****Chair: Julie Hunt**, University of Liege, Belgium**Embracing step-changes in geoscientific inputs for effective implementation of geometallurgy** 1:30 pm
Stephen Coward and H. Pass**Geometallurgy at Tropicana: Mine to mill implementation** 1:50 pm
Peter Ketelaar, B. Catto, M. Carey, and D. Lawie**Application of GeoMet to iron ore mine geology and planning at BHP Billiton Iron Ore** 2:10 pm
Bryan Wright, A. Rigby, T. Sua, M. Flanagan, and B. Van Dijken**Using geochemistry to inform geometallurgy at the Productora Cu-Au-Mo deposit, Chile*** 2:30 pm
Angela Escolme, R. Berry, J. Hunt, and W. Potma**Session 04: Mining geology (Tas C)****Chair: Margaretha Scott**, Sustainable Minerals Institute, University of Queensland-St. Lucia**The impact of collaborative research to the mining value chain** 1:30 pm
Colin Moorhead and A. Harris**Applications of UAVs in mining geology and mineral exploration*** 1:50 pm
Stefan A. Vollgger, S. Micklethwaite, and A. Cruden**Exploring for ore** 2:10 pm
Dan Wood**Value creation as a guide for advanced exploration at Conchi porphyry copper deposit, Chile: A case study and methodology for integration of technical and economic variables** 2:30 pm
Aquilés Gonzalez, R. Aguirre, and F. Bernal**DISCUSSION/QUESTIONS 2:50 PM****BREAK 3:00 PM**

Four (4) Concurrent Technical Sessions
(Auditorium and Tasman Rooms)

Session 05: Ores in subduction-related arcs:
New examples; relations and controls (*Aud*)

Chair: David Cooke, CODES, University of Tasmania

Hydrothermal alteration of carbonaceous mudstones hosting the Eskay Creek Au deposit, British Columbia* 3:30 pm

Tom Meuzelaar and T. Monecke

Trace elements in pyrite in the Lepanto high sulfidation epithermal deposit, Philippines, and genetic implications 3:50 pm

Zhaoshan Chang, J. Hedenquist, N. White, D. Cooke, and L. Burley

Hypogene and exotic copper mineralization at the Mercedario porphyry copper deposit, Central Andes, Argentina 4:10 pm

Alan Wilson

Session 06: SGA Session on exploration under cover (*Tas A*)

Chair: Roger Skirrow, Geoscience Australia

Multiscale detection of buried mineralization through transported cover 3:30 pm

Robert Hough and R. Anand

Lithospheric electrical resistivity heterogeneity: A vector to mineralization 3:50 pm

Graham Heinson, P. Soeffky, and S. Thiel

Ongoing discovery in the gold deposits at Dead Bullock Soak, Tanami Orogen, Northern Territory: The emergence of a world-class gold camp 4:10 pm

Matthew Baggott, S. Schmeider, J. Pendergast, C. Robinson, and P. Sivwright

Session 7: Geometallurgy through the mining chain (*Tas B*)

Chair: Julie Hunt, University of Liege, Belgium

Establishing the geometallurgical flow sheet for industrial mineral operations 3:30 pm

Aleksandra Lang, S. Løve Ellefmo, and K. Aasly

The geometallurgy of arsenic in copper ores: An analysis of ore supply vs. smelter treatment capacity and implications for exploration models and deposit valuations 3:50 pm

Alan Riles

Using assay data to map mineralogy and alteration to help develop a predictive geometallurgical model for the Taca Taca Cu-Mo-Au porphyry deposit, Argentina 4:10 pm

Gisela Cobeñas and S. Halley

Session 8: IOCG and magnetite-apatite deposits: Similarities, differences, controls and genesis (*Tas C*)

Chair: Garry Davidson, CODES, University of Tasmania

A process-based explanation for IOCG diversity 3:30 pm

Nicholas Oliver

Shallow to deep crustal controls on localization of Mesoproterozoic iron oxide copper-gold-rare earth element deposits in southeast Missouri (USA): Evidence from gravity and magnetic data 3:50 pm

Anne McCafferty and J. Phillips

Fe-Cu mineralization in the Paleozoic Aqishan-Yamansu belt, Eastern Tianshan, China: Comparison to the Mesozoic Central Andean IOCG mineralization and Chilean iron belt 4:10 pm

Huayong Chen, J. Han, and X. Xiong

RECEPTION 4:30–6:30 PM
(Exhibits and Posters)

EVENING AT MONA 6:30–10:00 PM
(Museum of Old and New Art)

Day 2: Tuesday, September 29, 2015

Auditorium

Plenary-Keynote Session**Chair: Zhaoshan Chang**, James Cook University**The emergence and continuing evolution of 8:30 am
geometallurgy: What every economic geologist
should know about improving project value**

Steve Walters, CRC ORE

**Developments in seafloor mineralization of 9:00 am
intraoceanic arcs**

Cornel E.J. de Ronde, GNS Science

**High-resolution VNIR-SWIR core logging: 9:30 am
A revolutionary new tool for exploration,
mining, and research**Anthony C. Harris, Ronell Carey, John R. Holliday, and
Fraser MacCorquodale, Newcrest Mining Ltd.**BREAK 10:00 AM****Trifecta Talks on Discovery, Exploration,
and Geometallurgy****Chair: Dan Wood**, Consultant**Pebble Porphyry Deposit 10:30 am
(Northern Dynasty Minerals)**

- **Discovery of the Pebble porphyry Cu-Au-Mo deposit,
southwest Alaska: History and exploration methods**
Mark Rebagliati and James R. Lang

- **Geology of the Pebble porphyry Cu-Au-Mo deposit,
southwest Alaska**

Brian A. McNulty, James R. Lang, Melissa J. Gregory,
Cassady L. Harraden, Nansen H. Olson, and
Mark Rebagliati

- **Delineation of geometallurgical domains in the
Pebble porphyry Cu-Au-Mo deposit, Alaska**

Cassady L. Harraden and Melissa J. Gregory

The Giant Ladolam Gold Deposit (Newcrest) 11:30 am

- **Unlocking the giant Ladolam gold deposit:
Discovery through to recovery**

Nicholas Fitzpatrick and Anthony C. Harris

- **Unlocking the giant Ladolam gold deposit:
New insights into its geology**

William J. Clark, Fiona Karaut, Nicholas Fitzpatrick,
Paul Napier, and Anthony C. Harris

- **Unlocking the giant Ladolam gold deposit: New
insights into its pyrites**

Karyn Gardner, Kathryn Stewart, Sasha Stepanov,
and Anthony C. Harris**LUNCH 12:30 PM**

(Boardwalk Gallery and Wellington Rooms)

Four (4) Concurrent Technical Sessions

(Auditorium and Tasman Rooms)

**Session 09: Ores in sedimentary environments:
New examples; sources, transport, deposition
and hydrology (Tas A)****Chair: Ross Large**, CODES, University of Tasmania

**Are there Carlin-type gold deposits in China? 1:30 pm
Similarities and differences between deposits
of Guizhou, China, and Nevada, USA**

Jean Cline, Z. Xie, and Y. Xia

**The Luxi gold belt of southwest China's 1:50 pm
Yunnan Province: A true analogue for "Carlin"
(Nevada) style gold mineralization?**

Lee Barker

**Still stuck in the mud: Reevaluation of 2:10 pm
stratiform gold in the Upper Popovich
Formation, Northern Carlin Trend, Nevada**

Robert Scott, P. Emsbo, and K. Goemann

**Fingerprinting mineralization in the North 2:30 pm
Australia Craton during the amalgamation and
breakup of the Nuna/Columbia Supercontinent**

Alexis Lambeck, D. Huston, G. Gibson, and K. Barovich

Session 10: Mining geology (Tas C)**Chair: Margaretha Scott**, Sustainable Minerals Institute,
University of Queensland

**Deformation and stratigraphic architecture 1:30 pm
of the Golden Grove volcanogenic massive
sulfide deposits, Western Australia**

Anthony Morey, S. Gawlinski, S. Neal, J. Vearncombe,
M. Van Heerden, L. Williams, and T. King

Mount Isa Mines: Exploration from a mining perspective 1:50 pm
Daniel Taylor

Challenges of accurately characterizing the ore and host rocks of deep mineral discoveries 2:10 pm

Anthony Webster and T. Murphy

Engineering geology applied to rock mechanics and planning process during cave mining at the El Teniente mine 2:30 pm

Andres Brzovic, P. Schachter, J. Seguel, A. Alvarez, and K. Baraona

Session 11: Post-collisional ores: New examples; characteristics, relationships and genesis (*Tas B*)

Chair: Anthony Harris, Newcrest Mining Ltd.

Origin of postcollisional porphyry Cu-Mo deposits in the Eastern Gangdese belt, Southern Tibet 1:30 pm
Rui Wang, J. Richards, Z. Hou, and Z. Yang

High magmatic water content disproves genesis of post-collisional copper ore-forming high Sr/Y magmas by dehydration melting of lower crust 1:50 pm
Yongjun Lu, R. Loucks, M. Fiorentini, Z. Yang, and Z. Hou

High-precision Re-Os molybdenite ages for porphyry- and skarn-style Cu-Au mineralization at Ok Tedi, Papua New Guinea 2:10 pm

Peter Pollard, R. Smillie, H. Stein, and D. Hastings

Tourmaline mineral chemistry as a tool to discriminate mineralized from barren Sn granites, western Tasmania, Australia* 2:30 pm

Wei Hong, D. Cooke, L. Zhang, N. Fox, and J. Thompson

Session 12: Magmatic deposits: New examples; characteristics and mechanisms (*Aud*)

Chair: Stephen Barnes, CSIRO Earth Science & Resource Eng.

Sulfur transfer into mafic magma from sediment—reaction of sedimentary sulfides with and into mafic magmas 1:30 pm

Sarah-Jane Barnes and N. Samalens

Crustal-scale magma flow networks and magmatic ore deposits: Predicting needles in haystacks 1:50 pm

Alexander Cruden, S. Barnes, B. Saumur, and J. van Otterloo

Concentrating sulfide melts in active magma pathways using chaotic mixing 2:10 pm

Jess Robertson, S. Barnes, and G. Metcalfe

Physical controls of nucleation, growth, and migration of vapor bubbles in partially molten cumulates 2:30 pm

James Mungall

DISCUSSION/QUESTIONS 2:50 PM

BREAK 3:00 PM

Four (4) Concurrent Technical Sessions

(Auditorium and Tasman Rooms)

Session 13: Ores in sedimentary environments: New examples; sources, transport, deposition and hydrology (*Tas A*)

Chair: Ross Large, CODES, University of Tasmania

The trace element content of sedimentary pyrite in the Neoarchean, an example from the mineralized St Ives Au district and the unmineralized Bee Gorge Member: Implications for future gold exploration 3:30 pm

Daniel Gregory, R. Large, J. Steadman, S. Wu, L. Danyushevsky, S. Bull, P. Holden, and T. Ireland

Chemistry of pyrite from the Selwyn basin area, Yukon: From established SEDEX zinc district to emerging sediment-hosted gold district 3:50 pm
Patrick Sack, R. Large, M. Nordling, E. Loumejeva, and L. Danyushevsky

A new genetic model for mineralization in the Irish Zn-Pb Orefield 4:10 pm

Jamie Wilkinson and M. Hitzman

Session 14: IOCG and magnetite-apatite deposits: Similarities, differences, controls and genesis (*Tas C*)

Chair: Garry Davidson, CODES, University of Tasmania

The magmatic-hydrothermal evolution of the El Laco recent iron oxide deposit 3:30 pm

Fernando Tornos, F. Velasco, and J. Hanchar

End-Permian mineralized phreatomagmatic pipes of the Tunguska Basin: Volcanogenic IOCG deposits linked with the Siberian Traps Large Igneous Province

Alexander Polozov, H. Svensen, S. Planke, and D. Jerram

The evolution and potential sources of mineralizing fluids of the E1 Group of IOCG deposits, Cloncurry District, Northwest Queensland, Australia: Implications from fluid inclusion and SHRIMP S isotope analyses*

George Case, Z. Chang, J. Huizenga, R. Lilly, and T. Blenkinsop

Session 15: Post-collisional ores: New examples; characteristics, relationships and genesis (*Tas B*)

Chair: Anthony Harris, Newcrest Mining Ltd.

Propylitic alteration and metal mobility in porphyry systems: A case study of the Northparkes porphyry Cu-Au deposits, NSW, Australia*

Adam Pacey, J. Wilkinson, and D. Cooke

High-K to shoshonitic magmatism across the northern Archean Kéména Man margin (Guinea): Implications for the late Eburnean orogenic gold mineralization

Aurélien Eglinger, N. Thébaud, J. Davis, J. Miller, A. Zeh, C. McCuaig, and E. Belousova

Nanoparticles are the key to forming giant gold deposits

Mark Pearce, M. Gazley, L. Fisher, M. Saunders, R. Hough, and C. Kong

Session 16: Magmatic deposits: New examples; characteristics and mechanisms (*Aud*)

Chair: Stephen Barnes, CSIRO Earth Science & Resource Eng.

The Vologochan deposit as a new important Cu-Ni-PGE source in the Noril'sk district, Russia: Geological structure, mineralogy, and geochemistry

Nadezhda Krivolutskaya, A. Sobolev, K. Malitch, S. Sluzhenikin, D. Kuzmin, I. Badanina, and N. Svirskaya

A quantitative analysis of the Ni-Cu-PGE-bearing Parkin and Trill Offset Dikes, Sudbury Impact Structure, Canada*

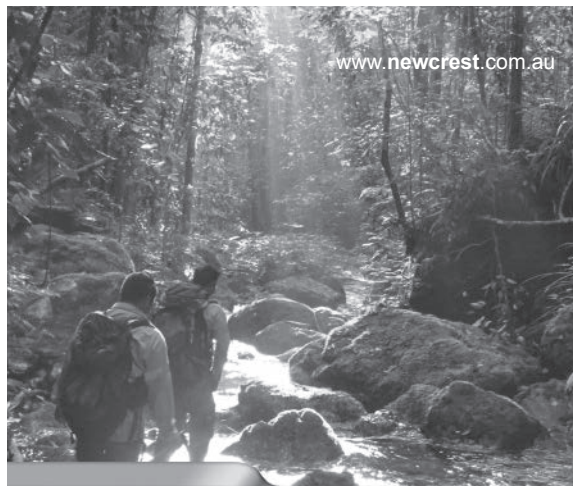
Adam Coulter, G. Osinski, M. Bertelli, A. McDonald, J. Bailey, A. Penték, and D. Smith

Spinel formation during thermomechanical erosion of footwall basalt beneath a sulfide melt pool at the komatiite-hosted Ni-Cu(-PGE) Moran deposit, Kambalda, Western Australia

Sebastian Staude, M. LeVaillant, and S. Barnes

RECEPTION 4:30–6:30 PM
(Exhibits and Posters)

INDUSTRY OUTLOOK DINNER 7:00–10:00 PM
(Derwent Room)



Newcrest is the largest gold producer listed on the Australian Stock Exchange and one of the world's largest gold mining companies. Newcrest owns and operates a portfolio of predominantly low cost, long life mines and a pipeline of brownfield and greenfield exploration projects predominantly in the Asia Pacific region.

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*Day 3: Wednesday, September 30, 2015***Plenary-Keynote Session**

Alan Wilson, Antofagasta PLC

New insight into the links between major porphyry copper, IOCG, and magnetite-apatite deposits from the Gällivare area, northern Sweden

David Drejning-Carroll, Tobias Bauer, Peter Karlsson, David Collier, Roger Nordin, Murray Hitzman, and Rodney Allen

Trace element contents of magmatic sulfide and oxide minerals—how can we use this information in ore deposits studies?

Sarah-Jane Barnes (SEG 2015 Distinguished Lecturer), Université du Québec à Chicoutimi

Mineral sector value and risk in 4D: Discovery to dismantling

Allan Trench and John P. Sykes (SGA Lecture)

BREAK 10:00 AM**Four (4) Concurrent Technical Sessions***(Auditorium and Tasman Rooms)***Session 17: Magmatic deposits: New examples; characteristics and mechanisms (Aud)****Chair: Stephen Barnes**, CSIRO Earth Science & Resource Eng.**Sulfur and metal fertilization of the lower continental crust** 10:30 am

Marco Fiorentini, M. Locmelis, J. Adam, T. Rushmer, F. Zaccarini, G. Garuti, Z. Vukmanovic, S. Caruso, M. Moroni, S. Barnes, S. Reddy, and B. Godel

Evidence for fluid- and gas-driven magmatic Ni-Fe-Cu-PGE-rich sulfide ore deposition 10:50 am**associated with mantle metasomatism in the Valmaggia ultramafic pipe, Ivrea-Verbano, Italy**
Marilena Moroni, M. Fiorentini, S. Caruso, M. Frezzotti, and G. Sessa**A new type of PGE-rich sulfide mineralization in the lower troctolites from the Yoko-Dovyren layered intrusion (Southern Siberia, Russia)** 11:10 am

Leonid Danyushevsky, A. Ariskin, G. Nikolaev, E. Kislov, S. Gilbert, K. Goemann, D. Hutchinson, and A. Malyshev

Effects of serpentinization on dunite-hosted disseminated Ni sulfide ore, Agnew-Wiluna belt, Western Australia 11:30 am

Martin Gole

The Avebury nickel deposit, Tasmania, Australia: Further insights into the genesis of a significant unconventional nickel sulfide deposit 11:50 am

Reid Keays and B. Mackay-Scollay

Petrogenesis of the ferrogabbroic intrusions and associated Fe-Ti-V mineralization within the McFaulds Greenstone Belt, Superior Province, Ontario, Canada 12:10 pm

Peter Hollings, B. Kuzmich, and M. Houlié

Session 18: IOCG and magnetite-apatite deposits: Similarities, differences, controls and genesis (Tas C)**Chair: Garry Davidson**, CODES, University of Tasmania**Insights into zonation within the Olympic Dam Cu-U-Au-Ag deposit from trace element signatures of sulfide minerals** 10:30 am

Nigel Cook, C. Ciobanu, and K. Ehrig

The potential of iron oxide U-Pb geochronology—examples from the Olympic Dam IOCG deposit, South Australia 10:50 am

Cristiana Ciobanu, N. Cook, K. Ehrig, B. Wade, and V. Kamenetsky

The supergiant Olympic Dam Cu-U-Au-Ag ore deposit: Toward a new genetic model 11:10 am

Vadim Kamenetsky, K. Ehrig, R. Maas, S. Meffre, M. Kamenetsky, J. McPhie, O. Apukhtina, Q. Huang, J. Thompson, C. Ciobanu, and N. Cook

Volcanosedimentary and chronostratigraphic architecture of the host rock succession at Prominent Hill, South Australia 11:30 am

Stuart Bull, S. Meffre, M. Allen, H. Freeman, M. Tomkinson, and P. Williams

Mineralization and paragenesis of the South Vulcan IOCG prospect, South Australia 11:50 am

Gregory Clarke, G. Davidson, S. Bull, R. Smith, and M. Croaker

The Cairn Hill magnetite-sulfide deposit, Mount Woods Inlier, South Australia: Ore genesis and spatial-temporal relationships with iron oxide copper-gold systems in the Gawler Craton 12:10 pm
Jesse Clark, N. Cook, A. Reid, A. Fabris, C. Ciobanu, and P. Hill

Session 19: Ores in sedimentary environments: New examples; sources, transport, deposition and hydrology (*Tas A*)

Chair: Ross Large, CODES, University of Tasmania

Ore controls in the White Mountain breccia-hosted gold deposit, Jilin Province, Northeastern China* 10:30 am
Halley Keevil, T. Monecke, R. Goldfarb, G. Collins, T. Feng, and T. Baker

Hot and acidic—the geochemistry of vent fluids from shale-hosted massive sulfide deposits at Macmillan Pass, Selwyn Basin* 10:50 am
Joseph Magnall, S. Gleeson, and S. Paradis

Sediment-hosted Cu in Zambia: Mineralization controlled by ductile deformation, basin architecture, or both? 11:10 am
Clemens Augenstein, D. Wood, M. Hitzman, J. Beeson, and D. Jack

Implications of Paleozoic flora and fauna in the northern Katanga Basin for sedimentation and mineralization in the Central African Copperbelt 11:30 am
Tim Ireland, I. Stefanov, W. Zukowski, and T. Jelezarsky

Primary metal enrichment at the black shale-hosted Talvivaara Ni-Zn-Cu-Co-U deposit, Finland: Links to Paleoproterozoic seawater?* 11:50 am
Sean Johnson, R. Large, P. McGoldrick, A. Boyce, S. Meffre, and A. Kontinen

Rethinking models for Phanerozoic orogenic gold deposits 12:10 pm
James Mortensen, D. Craw, D. MacKenzie, M. Allan, and R. Chapman

Session 20: Iron ore (*Tas B*)

Chair: Vicky Hough, BHP Billiton

An oxygen and carbon isotope study of fluid flow in the high-grade iron ore deposits (>63 wt % Fe) of the southern Hamersley Province 10:30 am
Warren Thorne and S. Hagemann

The structural evolution and hypogene origin of the Nyidinghu Iron Ore Deposit, Hamersley Province 10:50 pm
Doug Kepert, C. Quinn, and C. Fowers

The Fortescue Group basalts: The source of Australia's iron ore? 11:10 am
Alistair White, R. Smith, M. leGras, and P. Nadoll

Hypogene alteration as a precursor to supergene enrichment—a new style of iron ore mineralization in the Pilbara, Western Australia 11:30 am
Matthew Crowe, L. Bargiev, and D. Tuck

Inversion of the Ashburton Basin margin and structurally controlled hypogene iron ore deposits of the Hamersley Basin 11:50 am
Cam Quinn and D. Kepert

A metallogenic study of high-grade iron ores on North Baffin Island in the “Granulite Facies” domain south of the Central Borden fault zone* 12:10 am
Jonathan Hey, N. Duke, D. Moser, and T. Iannelli

LUNCH 12:30 PM

(Boardwalk Gallery and Wellington Rooms)

SEG Awards Ceremony and

Student Presentation Prizes (Auditorium) 1:30 pm

Controversies Session (Auditorium)

Chair: Judith Kinnaird, University of Witwatersrand

- **A neptunist's view in a world of magmatists** 2:30 pm
Ross R. Large
- **Gold and plutonism** 2:50 pm
Vic Wall
- **Geologic research, science, and the publication process** 3:10 pm
Larry Meinert

BREAK 3:30 PM

Controversies — Panel 4:00 pm
Mark Hannington, Moderator

Panelists: Murray Hitzman, Ross Large, Larry Meinert, James Mungall, Nick Oliver, Vic Wall

CLOSING REMARKS 5:00 PM

Post-Conference Field Trips

**Introduction to the Olympic Dam
Supergiant Iron Oxide Copper Gold
Deposit, South Australia** **October 1–3**
Field Trip Leader: Kathy Ehrig

**Porphyry and Epithermal Systems
of the Sunda Banda Arc, Indonesia** **October 1–8**
Field Trip Leaders: David Cooke, Adi Maryono,
and Iryanto Rompo

**Active and Extinct Epithermal
Environments of the North Island,
New Zealand** **October 2–7**
Field Trip Leaders: Stuart F. Simmons and Tony Christie

Post-Conference Short Courses

**Drill Core Measurements and
Domaining for Geometallurgy** 9:00 am **October 1**
Presenters: Julie Hunt (organizer), Ron Berry, and
Michael Roach
Wrest Point, Derwent Room 1

**Faults, Fractures, Fluid Flow and
Mineralizing Scenarios –
Active and Ancient** 9:00 am **October 1–2**
Presenter: Rick Sibson
Wrest Point, Derwent Room 2

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the world's third largest
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Posters

Posters will be on display during regular conference hours
in the **Exhibition Foyer** in two sessions: Sunday-Monday
and Tuesday-Wednesday. In addition, dedicated exhibits
and poster sessions will be chaired by Patrick Sack on
Monday and Tuesday, September 28 and 29, at 4:30 pm.

Titles and authors of posters are listed below, grouped by
theme. Posters for which the senior author is a student
can be identified by an asterisk (*) that follows the poster
number.

Poster Schedule

Group 1 (posters 001–147): Sunday-Monday
(set-up, 12:00 pm – 5:00 pm Sunday;
take-down, 6:30 pm Monday)

Group 2 (posters 148–262): Tuesday-Wednesday
(set-up, 8:00 am – 10:00 am Tuesday;
take-down, 5:30 pm Wednesday)



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Ores in Subduction-Related Arcs

- P 001 **Geological Structure Mapping of the Central Gold Belt, Peninsular Malaysia Using PALSAR Satellite Remote Sensing Data**
Amin Beiranvand Pour and Mazlan Hashim
- P 002* **Tumpangpitu Porphyry-High Sulfidation Epithermal Deposit, Tujuh Bukit Project, Indonesia—Geology, Alteration, and Mineralization**
Rachel Harrison and Adi Maryono
- P 003 **Ni-Cu-(PGE) Mineralization in a Continental Back-Arc Setting: The Riwaka Complex, New Zealand**
Rose Turnbull, Anthony Christie, William Size, and Andy Tulloch
- P 004* **Revised Zircon and Sphene Ages from the Central Wasatch, Utah Intrusive Complex: Refining the Magmatic-Hydrothermal History of the Region**
Jennifer Thompson, Michael Baker, David R. Cooke, Pete Hollings, Jay Thompson, Lejun Zhang, and Emily Smyk
- P 005 **The Cerro Quema High-Sulfidation Au-Cu Deposit (Azuero Peninsula, Panama): Geologic Model and Implications for Exploration**
Isaac Corral, Mercè Corbella, Albert Griera, David Gómez-Gras, Àngels Canals, and Esteve Cardellach
- P 006 **Setting and Age of Gold and Copper Deposits in La Zanja Volcanic Field, Northern Peru**
Billy Beas, Jocelyn McPhie, and J. Bruce Gemmell
- P 007 **La Colosa Au-Porphyry Deposit, Colombia: New Insights on the Structural Control and Ore-Forming Processes in the Northern Andes**
Andres Naranjo, Johannes Horner, Adriana Castro, Aura Uribe, and Michael Nugus
- P 008 **Chlorite Trace Element Chemistry as an Exploration Tool: A Case Study from the Collahuasi Mining District, Northern Chile**
Michael J. Baker, Jamie J. Wilkinson, Clara Wilkinson, David R. Cooke, and Shawn Inglis
- P 009 **Characteristics of Sediment-Hosted Epithermal Deposits**
David Royle
- P 010 **Evolving Subduction-Related Basins Control the Formation of VMS Deposits in the Iberian Pyrite Belt**
Fernando Tornos, Carmen Conde, Massimo Chiaradia, and Francisco Velasco
- P 011 **Mineral Diversity in Epithermal Au-Ag Deposits of the Hauraki Goldfield, New Zealand**
Anthony Christie
- P 012 **Mineralization and Alteration of the Ulaan Khud Porphyry: A Possible Extension to the Giant Oyo Tolgoi Cu-Au Deposits**
Baigalmaa Lkhagvasuren Melrose
- P 013 **The Acidity of Hydrothermal Solutions on the Ocean Floor**
Chris Ballhaus, Fabian Gäb, and Dieter Garbe-Schönberg
- P 014* **Tertiary Stratigraphy, Alteration Zones, and Precious Metal Deposits in the Patterson Mining District, Sweetwater Mountains, and Comparison to the Bodie Hills, California**
Carli Balogh and Peter Vikre
- P 015 **Some Thoughts on PGEs Enrichment in Porphyry-Skarn Copper Deposits in the Late Mesozoic Middle-Lower Yangtze River Metallogenic Belt (YRMB), Eastern China**
Minfang Wang, Jens Gutzmer, Kun Liu, and Wei Wang
- P 016* **Infrared Imaging of Geothermal Activity Within the Lienetz Open-Pit, Lihir Au Mine, PNG; Influence of Faults and Porphyry- and Epithermal-Style Breccias on Modern-Day High-Temperature Fluid Flow**
Stephanie Sykora, David R. Cooke, David Selley, Chris Allickson, Fiona Karaut, Paul Napier, Bridgette Henderson, and Anthony C. Harris
- P 017* **Geology, Alteration, and Mineralization of Bayugo Porphyry Copper-Gold Deposit Surigao del Norte, Mindanao, Philippines**
Maria Lourdes M. Faustino, David R. Cooke, Nitzie Anne T. dela Cruz, Jamie Ara O. Aviso, Redempta P. Baluda, Noel C. Oliveros, and Claro Jose C. Manipon

- P 018* **Controls on Mineralization at the FAT (Felsic Ash Tuff) Deposit, Courageous Lake Greenstone Belt, NWT, Canada: Epithermal Gold in Archean Rocks**
Marcus Adam, Robert Linnen, William E. Threlkeld, James Freeman
- P 019* **Sulfur Anomalies and Porphyry Copper Deposits in Their Early Stage of Formation**
Vladimir Matjuschkin, Jon Blundy, Richard Brooker, and Brian Tattitch
- P 020 **Probing Metal Transport in Ore-forming Fluids Using Molecular Simulations**
Yuan Mei, Weihua Liu, David M Sherman, and Joël Brugger
- P 021* **Fingerprinting Gold Mineralization in the Timmins Gold Camp: Synchrotron Trace Element Analysis of Gold and Pyrites from the Dome Mine Ankerite Veins**
Jessica M. Stromberg, Erik Barr, Lisa L. VanLoon, Dirk Schumann, and Neil R. Banerjee
- P 022* **Transition Between Advanced Argillic and Porphyry-Style Alteration at the Far Southeast Porphyry Deposit, Mankayan District, Philippines**
M.F. Calder, Z. Chang, A. Gaibor, G.Tiu, C.J. Pastoral, J.W.Hedenquist, and A. Arribas
- P 023* **Porphyry and Epithermal Mineralization in the Zijinshan Orefield, Fujian, SE China**
Josh Phillips, Jose Piquer, Jing Chen, Lejun Zhang, and David Cooke
- P 024* **Geology of the Mt Carlton High-Sulfidation (Au-Ag) Epithermal Deposit, NE Queensland, Australia**
Fredrik Sahlström, Zhaoshan Chang, Paul Dirks, Isaac Corral, and Mark Stokes
- P 025 **Setting and Style of VHMS Mineralization in the Eastern Goldfields Superterrane, Western Australia: Insights from the Ag-Zn-(Au) Nimbus Deposit**
Steven P. Hollis, Paul Gillespie, David Mole, Andrew Pumphrey, Stephen J. Barnes, Alicia Verbeeten, Christopher J. Yeats, Svetlana Tesselina, and Steven Wyche
- P 026 **Geology, Alteration, and Mineralization of the Sagay Porphyry Copper Deposit, Negros, Philippines: A New Discovery**
Marie April Djohanne A. Celiz, Romuel R. Landero, Rovi Ann A. Velasquez, Stella Dwayne F. Polino, and Ryota Yoshikawa
- P 027* **The ~6 Moz Au Archean Rainy River Deposit, Superior Province, Canada: Sub-Sea-floor Synvolcanic Au Mineralization**
Mireille Pelletier, Patrick Mercier-Langevin, Vicki McNicoll, Justin Tolman, Dean Crick, Marc Richer-Laflièche, Simon Jackson, and Benoît Dubé
- P 028 **Exhumation and Duration of the Pulang Porphyry Cu-Au Deposit, SW China: Constraints from U/Pb, ⁴⁰Ar/³⁹Ar, and (U-Th)/He Dating**
Cheng-Biao Leng, David R. Cooke, Xing-Chun Zhang, Shou-Xu Wang, and Noreen Evans
- P 029* **Supergene Enrichment Processes in Porphyry Systems: The Case of the Boobyjan Porphyry Copper(-Gold) Deposit, Southeast Queensland**
Jose A. Veracruz, Paul Ashley, Nancy Vickery, and Josh Leigh
- P 030* **Spectrum of Volcanogenic Massive Sulfide Deposits in the Penokean Volcanic Belt, Great Lakes Region, USA**
Patrick Quigley and Thomas Monecke
- P 031 **The High Sulfidation Epithermal Copper Deposits at Monywa, Central West Myanmar**
Yi Sun, Jing Chen, Xiaokang Li, and Win Myint
- P 032* **Linking Pulsed Porphyry Cu-Mo Formation to Distinct Magmatic Episodes During 30 m.y. of Pluton Emplacement in Southern Armenia, Lesser Caucasus**
H. Rezeau, R. Moritz, J-F. Wotzlaw, R. Tayan, S. Hovakimyan, and D. Selby
- P 033* **Scheelite Vein Mineralization at the Watershed Tungsten Deposit, Northeast Queensland, Australia**
Jaime Poblete, Zhaoshan Chang, Yanbo Cheng, Martin Griessmann, Jamie Williamson, and Isaac Corral

- P 034 **Geology and Mineralization of the Mt Carbine Deposit, Northern QLD, Australia**
Yanbo Cheng, Zhaoshan Chang, and Jaime Poblete
- P 035* **Hydrothermal Alteration, Mineralization and Breccias at the Zijinshan High Sulfidation Cu-Au Deposit, Fujian Province, China**
Jing Chen, David R. Cooke, Lejun Zhang, and Jinping Qi
- P 036* **Evidence For Pre- to Syn-Timiskaming Hydrothermal Activity, Abitibi Greenstone Belt, Canada**
Gregory Hufford and Thomas Monecke
- P 037* **Statistical Data Analysis of the Guadalupe and Don Ese Ag-Au Epithermal Vein Systems to Understand the Geochemical Processes Involved in Orebody Formation**
Arturo Ramirez and Philip Goodell
- P 038* **Setting of Volcanogenic Massive Sulfides Deposits in the Paleoproterozoic Penokean Volcanic Belt, Lake Superior Region, USA**
Ashley Quigley, Thomas Monecke, Patrick Quigley, and Eric Anderson
- P 039 **Timing of Ore Mineralization at the Golpu and Nambonga North Porphyry Copper-Gold Deposits, Papua New Guinea: Insights from Re-Os Ages**
Maira Lunge Bawasu and Joseph O. Espi
- P 040 **The Karangahake Epithermal Au-Ag Deposit Hauraki Goldfield, New Zealand: A Telescoped Vein System?**
Mark P. Simpson and Anthony B. Christie
- P 041* **Structural Geology and Timing of Deformation at the Gibraltar Cu-Mo Porphyry Deposit: Controls on Mineralization, Cariboo Region, British Columbia**
Nader Mostaghimi, Lori Kennedy, and Janet Gabites
- P 042* **Magmatic-Hydrothermal Origin of the Labuzaika Gold Deposit, Western Qinling Orogen, China**
Ji-xiang Sui, Jian-Wei Li, and Jia Chang
- P 043 **Copper Isotope Systematics of Chalcopyrites in Ancient and Modern Seafloor Hydrothermal Deposits, Measured by a Femtosecond LA-MC-ICP-MS**
Kei Ikehata, Junichiro Ishibashi, and Takafumi Hirata
- P 044* **The Relationship Between Volcanic-Hydrothermal Breccias and Gold Mineralization at the Lihir Alkalic Gold Deposit, Papua New Guinea**
Erin Lawlis, David R. Cooke, and Anthony C. Harris
- P 045* **The Geochemical and Geochronological Framework of the Monywa High Sulfidation Cu and Low Sulfidation Au-Epithermal Deposits, Myanmar**
Joseph Knight and Khin Zaw
- P 046* **Late-Stage Cu and Ag Replacement at the Greens Creek Massive Sulfide Deposit, Alexander Terrane, Southeast Alaska**
Nathan J. Steeves, J. Bruce Gemmill, Ross R. Large, Mark D. Hannington, and Robert Callaghan
- P 047* **Platinum Group Elements Geochemistry Used to Distinguish Ore-Bearing from Barren Magmatic Systems at the Northparkes Porphyry Cu-Au Deposit, New South Wales**
Hongda Hao, Ian H. Campbell, Jung-Woo Park, and David R. Cooke
- P 048 **Platinum Group Element Geochemistry in Granitoids as a Fertility Indicator for Gold and Copper Mineralization**
Ian Campbell, Jung-Woo Park, Helen Cocker, Jessica Lowczak, Nicole Eriks, and Hongda Hao
- P 049 **Spatial Distribution Patterns in Lead Isotopes from the Lachlan and Delamerian Orogens: Implications for Tectonics, Metallogensis, and Mineral Exploration in Southeast Australia**
David L. Huston, David C Champion, J. Bruce Gemmill, Peter M. Downes, Graham Carr, David Forster, and Andrew McNeill
- P 050 **Plate Tectonic and Stress-Field Modeling of the North Arm of Sulawesi (Naos), Indonesia, to Better Understand Distribution of Mineral Deposit Styles**
Krisztián Szentpéteri, Gáspár Albert, and Zsuzsanna Ungvári

- P 051* **MT Traversing the Delamerian and Lachlan Orogens of Victoria to Illuminate Geological Structures, Fossil Fluid Pathways, and Serpentinization**
Kate Robertson, David Taylor, Graham Heinson, Michael Stepan, Stephan Thiel, and Phillip Skladzien
- P 052 **Whole-Rock and Ordered White Micas Major and Trace Element Chemistry: Implications for Volcanic-Hosted Geothermal and Epithermal Deposit Exploration**
Isabelle Chambefort and John Dilles
- P 053 **The Carbonate Base Metal Association of Precious Metal Deposits**
Vic Wall and Mauricio Castaneda
- P 054 **From Magma to Mudpool: Linking Arc Volatiles and Active Geothermal Systems with Implications for Gold Exploration**
Isabelle Chambefort, Markus Wälle, Chris Heinrich, and John Dilles
- P 055 **Geophysical Characteristics of the Gosowong Goldfield, Indonesia**
Michael Dunne and Michael Roach
- P 056 **An Immature Back-Arc Setting for the Teutonic Bore Volcanic Complex Stratigraphy, Host to the Neoproterozoic Jaguar VHMS Deposit**
Susan M. Belford, Garry J. Davidson, Jocelyn McPhie, and Ross R. Large
- P 057 **Contrasting Porphyry-Skarn Copper, and Granite-Related W-Sn Deposits in South China: Spatial-Temporal Distribution and Geodynamic Settings**
Jingwen Mao, Guiqing Xie, Shunda Yuan, Shenghua Wu, and Min Liu
- P 058 **The Lost Samples of the Golden Mile: New Data Sheds Light on the Depth and Temperature of Emplacement of this Giant Gold Deposit**
Kirsten U. Rempel and Phillip M. Stothard
- P 059* **Understanding Cu-Au Metallogeny at Convergent Margins: Oxidation of the Sub-Arc Mantle and Genesis of Arc-Related Ore Deposits**
Andrea Rielli and Andrew G. Tomkins

- P 060 **Multi-element Geochemistry and Hydrothermal Alteration at the Pajingo Low Sulfidation Epithermal Gold Deposit**
Ned Howard, Scott Halley, Jenny Pinder, Chris Chambers and Roric Smith
- P 061 **Geochemistry and Hydrothermal Alteration at the Mt Carlton High Sulfidation Epithermal Gold-Silver Deposit**
Ned Howard, Tyron Edgar, Gregg Morrison, Scott Halley, David Hewitt and Roric Smith
- P 062 **Experimental Constraints on Hypogene Alteration: Acidic Gases and Magmatic Brines**
Brian Tattitch and Jon Blundy
- P 063 **Characteristics and Age Spatial Distribution of Gold Deposits in Western Java and Their Exploration Implications**
Mega F. Rosana, Euis T. Yuningsih, K.Yonezu, A.Kuroda, S.Ikeda, H.Matsueda, and K.Watanabe
- P 064 **Mineralization Styles and Metallogenic Epochs of Sumatra**
Mega F. Rosana, Khin Zaw, Abhisit Salam, and Andri Subandrio

Ores in Sedimentary Environments

- P 065 **Economic Geology of “Black Shale” Hosted Vanadium Mineralization in Xiushui County Jiangxi Province, Southeastern China**
A. Lee Barker
- P 066 **Diverse Origins of 14 Hyperenriched Black Shales in the Mississippi Valley, U.S.A.**
Raymond M. Coveney, Jr.
- P 067 **Petrology and Geochemistry of Banded Iron Formation(BIF) of Kuluketage Block, NW China: Implications for the Metallogenic Mechanism of ~1.95 Ga BIFs**
Xiangdong Wang, Xinbiao Lv, and Xiaofeng Cao
- P 068* **Source of Water, Salt, Volatiles, and Metal in Carlin-like Deposits of the Golden Triangle, Southwest China: Implications for Genetic Models**
Xiao-ye Jin, Jian-wei Li, and Albert Hofstra

- P 069* **Spatial and Temporal Relationships Between Structures, Magmatism, and Carlin-Type Gold Deposits in the Pequop Mountains, Northeast Nevada**
Ajeet K. Milliard, Michael W. Ressel, and Christopher D. Henry
- P 070* **Pyrite Chemostratigraphy in the McArthur Basin: A New Exploration Tool for Stratiform Zn-Pb Deposits**
Indrani Mukherjee and Ross R. Large
- P 071 **Cryptic Sediment-Hosted Critical Metal Mineralization from SW China: A Likely Hidden Giant Resource**
Lixin Zhao, Ian Graham, Shifeng Dai, Colin Ward, and David French
- P 072 **Overview on the Paleo-Environment and Geochemistry of the Supergene Manganese Deposit in the General Nikel Manganese Mine in the North West Province, South Africa**
Kakaba Madi, Olwetu Kutta, Tembelani Lingani, and Makubalo Sisanda
- P 073 **New Insights from an Emerging Australian Proterozoic Polymetallic Province: Sediment-Hosted, Volcanic-Associated Cu-Ag-Pb-Zn-Au Massive Sulfide and Metasomatic Cu ± W ± Mo Mineralization in the Eastern Arunta Region, Northern Territory**
Matt McGloin, Anett Weisheit, Barry Reno, Eloise Beyer, Roland Maas, Jay Thompson, and Sebastien Meffre
- P 074 **Sediment-Hosted Gold-Quartz Deposits Verkhoyansk-Kolyma Fold Region**
Valery Fridovsky
- P 075* **Time-Space Relationships Between Sediment-Hosted Gold Mineralization and Intrusion-Related Polymetallic Mineralization at Kinsley Mountain, Nevada**
Tyler J. Hill, John L. Muntean, Robert A. Creaser, and Moira T. Smith
- P 076* **Noble Gases Isotopic Compositions and Their Genesis: Implications for the Polymetallic Crusts and Nodules from the South China Sea**
Yao Guan, Xiaodong Jiang, and Xiaoming Sun
- P 077* **Fe Isotope Constraints on the Genesis of the Zhaxikang Pb-Zn-Ag-Sb Deposit in Southern Tibet**
Wang Da, ZhengYouye, SunXiang, and HeYongsheng
- P 078 **Mineral and Chemical Indicators of Vent Fauna Abundance in Modern and Ancient Black Smoker Ecosystems**
Valeriy Maslennikov, Ross Large, Svetlana Maslennikova, Leonid Danyushevsky, and Gennadiy Tretyakov
- P 079* **Gold-rich Weathering Rinds Around Pyrite and Arsenopyrite from the Buckingham Mo-Cu Porphyry Deposit, Nevada; Evidence for Supergene Elemental Enrichment**
Emily S. J. Smyk, Peter Hollings, David R. Cooke, Robert N. Lee, and Jefferson N. Lulu
- P 080* **Mineralogy and Geochemistry of the Temagami Algoma-type BIF: Metal Sources and Transport Pathways**
David Diekrup, Stephen Ginley, and Mark Hannington
- P 081 **3-D Architecture of the Jervois Cu-Pb-Zn Deposit, Northern Territory, Australia**
Peter Schaub and Susanne Schmid
- P 082 **The Jervois Cu-Pb-Zn Deposit—A Hybrid SEDEX-VMS Mineralizing System, Northern Territory, Australia**
Susanne Schmid and Peter Schaub
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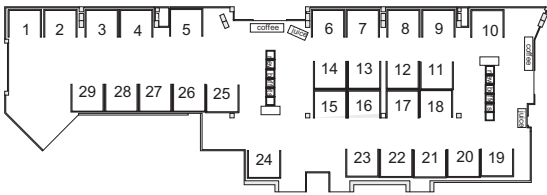
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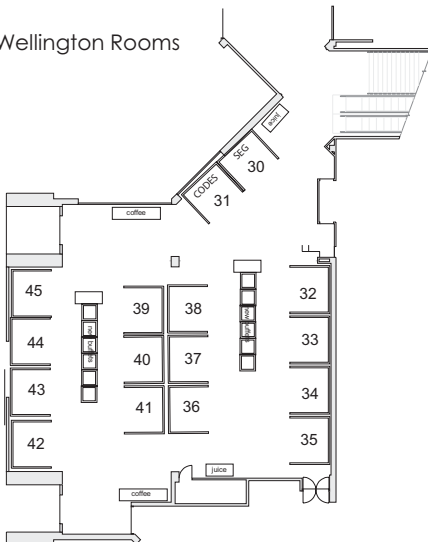
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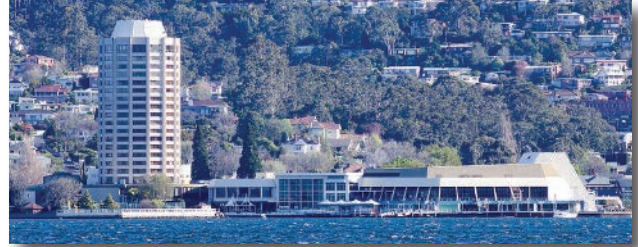
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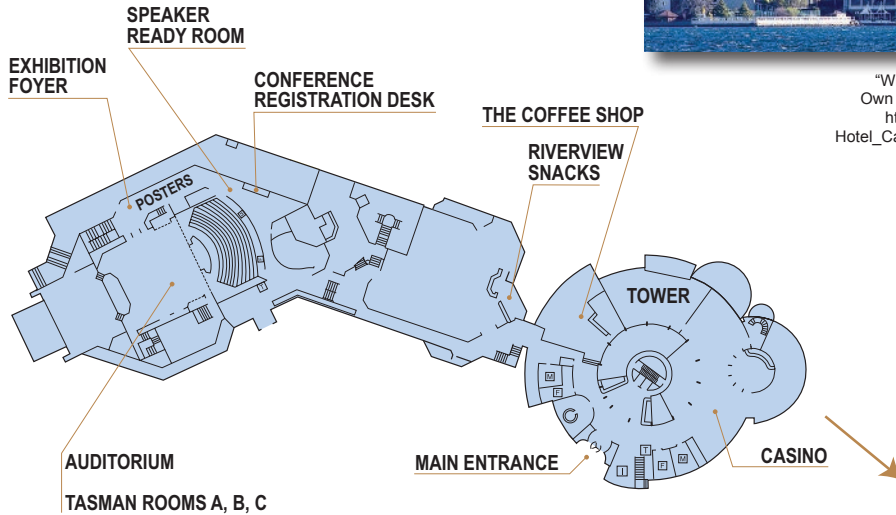
Wellington Rooms



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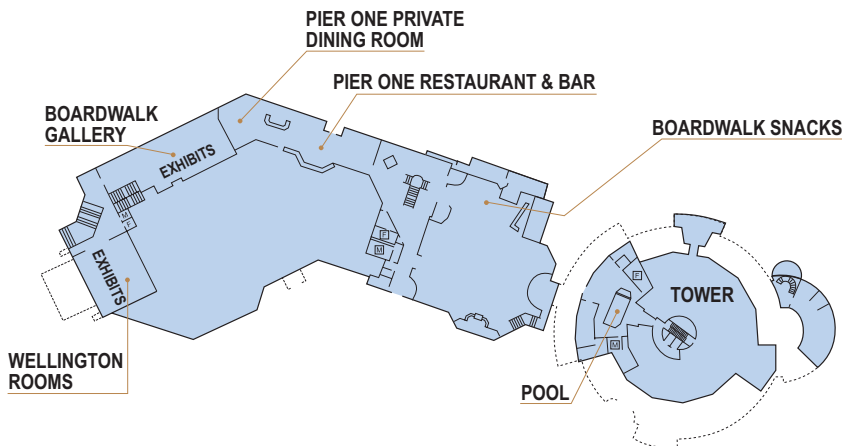
Riverview level (1st floor)



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Derwent Rooms

Boardwalk level (ground floor)



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- Epithermal deposits
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- Borate deposits of western Turkey
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- Tour of western Turkey with a mix of porphyry-epithermal deposits
- Central Anatolian magmatism and Au deposits
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- Eastern Turkey: Mix of porphyry-epithermal and skarn deposits
- Balkans I: Tour of Greece and Bulgaria with a mix of porphyry-epithermal deposits and recent discoveries
- Balkans II: Tour of Bor Complex

