

# GOLDSCHMIDT 2010

Mon

## Oral and Poster Presentations

Monday June 14<sup>th</sup> 2010

### Summary & Highlights

08:15	<b>Welcome Addresses</b> <i>Ballroom EFG</i> Sam Mukasa President of the Geochemical Society Senator Lamar Alexander	
08:45	<b>Plenary</b> Eric Oelkers EAG President <i>'How Can Geochemistry Save the World?'</i>	
09:15		
09:30	<b>Oral Sessions</b>	
12:30	<b>Lunch</b> (from 11:30) <i>Exhibit Hall A</i>	
13:30	<b>Oral Sessions</b>	
16:30	<b>Poster Session</b> <i>Exhibit Hall A</i>	<b>Awards</b> <i>Lecture Hall</i> <b>Urey Medal:</b> Charles Langmuir <i>Lecture: 'Planetary Evolution'</i> <b>Houtermans Medal:</b> Karim Benzerara <b>Stumm Medal:</b> William H. Casey <b>Geochemical Fellows</b> <i>Full details page xix</i>
17:30		
18:00		

	200-A	200-B	200-C	200-D	200-E	300-A/B	300-C/D
	19c / 19e	17a	16i / 16a	15b	22d	02f / 20b	07e
09:30	Klotz	Masion	Joye	Fendorf	Altay	Takai	Heinrich
09:45		Hochella			Bayhan	Yamamoto	Schneider
10:00	Wilding	Waychunas	Bowles	Huang	Çelik Karakaya	Sim	Peytcheva
10:15	Guthrie	Penn	Burdige	Muehe	Fahey	Glaser	Dunkley
10:30	Wang	Banfield	Pancost	Taillefert	Farooqi	Wing	Samson
10:45			Ogrinc	Masue -Slowey	Honda		Aleinikoff
11:00	Ohtani	Baalousha	Sivan	Ying	Kayama	Halevy	Ciftci
11:15	Murakami	Tuoriniemi	Heller	Roden	Lala	Zahnle	Badanina
11:30	Hammel	Kalmykov	Hoppert	Luan	Rama Mohan	Planavsky	Foster
11:45		van Riemsdijk	Wehrli	Yesavage	Sapsford	Renne	Sreejith
12:00	Artsimovitch	von der Heyden	Zhu	Fulda	Singh	Rotenberg	Sarkar
12:15	Kerisit	Chen	Li	Fischer	Temel	Davis	Gao

	301-A	301-B	301-C	301-D/E	Ballroom A	Ballroom B	Ballroom C	Lecture
	05b / 05c	11a / 11b	12b	09c / 09e	03d	04b	03h / 01h	20n
09:30	Teagle	Moore	Bingen	Scheerhorn	Cooper	Duval	Young	Norman
09:45	Vils	Johansen	Algeo	French	Jacob	Jolsterå	Roskosz	Guillong
10:00	Dziony	Higashi	Quan	Welton	Brey	Sanders	Savage	Savard
10:15	Grimes	Milne	Cruse	Thomas	Ionov	Machesky	Liu	Pagé
10:30	Yamaoka	Paytan	Herrmann	Keith	Kerrich	Sofo	Rustad	Koenig
10:45	Reynolds	Kieber		Liu	Liu	Vayssieres	Williams	Lu
11:00	Klein	Lewis	Morford	Hannah	Maier		Burnett	Pettke
11:15	Schwarzenbach	McClain	Georgiev	Gao	Melesse	Chatman		Piña
11:30	Beard	Volkamer	Li	Wang	Crocker	Lvov	Davis	Barnes
11:45	Wilcock	Marandino	Severmann	Zhu	Pandey	Wesolowski	Chen	Thomas
12:00	Schardt	Woodhouse	Gilhooly	Bernard	Carlson	Hofmann	Lauretta	McNeill
12:15	McCaig	Müller	Mitchell	Bourdet		Ridley	Jolliff	

## 01h: Frontiers in Analytical Cosmochemistry

Session chaired by Dante Lauretta, Brad Jolliff &amp; Andy Davis

11:00 **Keynote:** Analytical Cosmochemistry 1965-2010A129 Burnett D

11:30 Making CHILI: A Progress Report

A212 Davis A, Stephan T, Pellin M, Veryovkin I & Savina M

11:45 Laser Post-Ionization Secondary Neutral TOF-MS for Isotopic Analysis of Pre-Solar Grains

A166 Chen C-Y, Calaway W, Lee T, Pellin M, Shen J-S, Thonnard N & Veryovkin I

12:00 Carbonaceous Asteroid Sample Return

A566 Lauretta D

12:15 Analysis of Samples from Regolith in the Moon's South Pole-Aitken Basin

A476 Jolliff B, Shearer C & Papanastassiou D

(Session 01h continues on Monday 14th Posters on page 47)

## 02f: The Evolutionary History of Sulfur Metabolisms: Innovation, Ecology, and their Role in Earth's Evolving Geochemistry

Session chaired by James Farquhar, Dirk de Beer, David T Johnston & Samantha (Mandy) B Joye

- 09:30 Novel Sulfur Disproportionation of a Deep-Sea Vent Thermophile  
A386 *Hasegawa H, Yamamoto M, Nunoura T, Kawagucci S, Ueno Y & Takai K*
- 
- 09:45 Evolution of Energy Metabolism Using Sulfur Compounds as Electron Carriers  
A1168 *Yamamoto M, Hasegawa H & Takai K*
- 
- 10:00 Effect of the Energy Status on Multiple-S Isotope Fractionation during the Microbial Sulfate Reduction  
A963 *Sim MS, Ono S & Bosak T*
- 
- 10:15 Trace Elements in Sulfides from Precambrian Stromatolites and Banded Iron-Formations  
A337 *Glaser S, Swanner E & Mojzsis S*
- 
- 10:30 **Keynote:** Is a Biotic Sulfur Cycle Isotopically Necessary Prior to ~2.45 Ga?  
A1137 *Wing B*
- 
- 11:00 **Invited:** Explaining the Structure of the Archean Mass-Independent Sulfur Isotope Record  
A371 *Halevy I, Johnston D & Schrag D*
- 
- 11:15 Biogenic Sulfur Gases, MIF-S, and the Rise of Free Oxygen  
A1195 *Zahnle K, Claire M & Wing B*
- 
- 11:30 **Invited:** Enhanced Primary Productivity in the Aftermath of the Rise of Atmospheric Oxygen  
A819 *Planavsky N, Bekker A, Hofmann A & Lyons T*
- 

Session 20b follows this session in this room.  
For details see page 23.

## 03d: New and Old Paradigms on the Origin and Evolution of Continental Lithosphere

Session chaired by **Sonja Aulbach, Veronique Le Roux, Nina Simon & Cin-Ty Lee**

- 09:30 **Invited:** What are Cratons Made of?  
A189 *Cooper C*
- 
- 09:45 **Invited:** Arc Peridotite, Eclogite and Tonalite: A Trio of Ingredients for Craton Assembly  
A452 *Jacob D, Prelevic D, Rehfeldt T, Buhre S & Foley S*
- 
- 10:00 Final Depletion of the Kaapvaal Cratonic Root: Lu-Hf Versus Re-Os Dating of Garnet Peridotites from the Finsch Mine (South Africa)  
A122 *Brey GP, Becker H, Lazarov M & Shu Q*
- 
- 10:15 **Invited:** Can Cratonic Mantle be Formed in Subduction-Related Settings?  
A445 *Ionov D, Doucet L, Golovin A & Ashchepkov I*
- 
- 10:30 **Invited:** Archean Lithospheric Mantle: Plume-Arc Interaction  
A508 *Kerrick R, Wyman D & Polat A*
- 
- 10:45 Os Isotope Evidence for Diachronous Formation of Lithospheric Mantle beneath the Trans-North China Orogen, North China Craton  
A613 *Liu J, Rudnick R, Walker R, Gao S, Wu F, Xu W & Xu Y*
- 
- 11:00 PGE in the Jormua Ophiolite, Finland: Implications for the PGE Budget of the Sub-Continental Lithospheric Mantle  
A658 *Maier W, Peltonen P, Kontinen A & Barnes S-J*
- 
- 11:15 Sr-Nd-Hf-Pb Isotopic Characteristics of North-Western and Southern Ethiopian Lithospheric Mantle  
A697 *Melesse A, Kunihiro T, Ota T, Tanaka R, Moriguti T & Nakamura E*
- 
- 11:30 Mantle-Crust Interactions and Implications for the Lithosphere of the Southern Rio Grande Rift (New Mexico) from Pb Isotope Data  
A195 *Crocker L & Konter J*
- 
- 11:45 Mantle Metasomatism in the Basement of the Deccan Trap: Stable Carbon and Oxygen Isotope Compositions of Carbonates from the Killari Borehole, Maharashtra, India  
A788 *Pandey OP, Parthasarathy G, Ahmad SM & Tripathi P*
- 
- 12:00 **Keynote:** The Formation and Evolution of Continental Lithospheric Mantle  
A142 *Carlson R & Pearson DG*
- 

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## 03h: Analytical, Experimental and Theoretical Aspects of Stable Isotope Fractionation at High P and T: Implications for Planetary Evolution

Session chaired by Helen M Williams & Anat Shahar

- 09:30 Keynote:** Stable Isotopes as Tracers of Planetary Differentiation  
 A1190 *Young E, Schauble E, Shahar A, Ziegler K, Manning C & Lazar C*
- 
- 09:45 Invited:** Redox-Dependent, Diffusion-Driven Fractionation of Fe Isotopes in Silicate Melts and its Structural Controls  
 A882 *Roskosz M, Alexander C, Sio K, Wang J, Watson H, Dauphas N & Mysen B*
- 
- 10:00** Silicon Isotopes and Magmatic Evolution  
 A914 *Savage P, Georg B, Williams H, Burton K & Halliday A*
- 
- 10:15** The Investigation of Magnesium Isotope Fractionation during Granite Differentiation  
 A618 *Liu S-A, Teng F-Z, Li S-G, He Y-S & Ke S*
- 
- 10:30 Invited:** Iron Isotope Fractionation in the Lower Mantle  
 A894 *Rustad J & Yin Q-Z*
- 
- 10:45** Copper Stable Isotopes as Tracers of Metal-Sulphide Segregation and Impact Melting Processes on Iron Meteorite Parent Bodies  
 A1133 *Williams H & Archer C*
- 

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Session 01h follows this session in this room.  
 For details see page 4.

## 04b: Protolytic Equilibria and Kinetics at Interfaces Probed on Different Scales

Session chaired by David J. Wesolowski, William H. Casey & Johannes Lützenkirchen

09:30 **Invited:** Metal Speciation Dynamics in Dispersions of Soft Colloidal Ligand Particles Under Steady-State Laminar Flow Condition

A254 *Duval JFL*

09:45 Surface Characterisation and Modelling of Olivine at Alkaline Conditions

A477 *Iolsterå R, Gunneriusson L & Forsling W*

10:00 Reactive Surface Area Measurements Using a Solid-State NMR Probe Molecule

A906 *Sanders R & Mueller K*

10:15 Towards an Accurate Prediction of Surface Protonation Equilibria: Quantifying Interfacial Structure via the Bond Valence-MUSIC Model Framework

A652 *Machesky M, Predota M, Vlcek L, Rosenqvist J, Skelton A, Cummings P, Ridley M, Kubicki J, Sofo J, Kumar N, Bandura A & Wesolowski D*

10:30 **Invited:** Dynamics of Water Dissociation on Oxides Surfaces: Comparison between Rutile and Cassiterite

A975 *Sofo J, Kumar N, Kent P, Bandura A & Kubicki J*

10:45 **Keynote:** Water-Oxide Interfacial Thermodynamics, Aqueous Growth Control and Confinement Effects of Nanostructured Metal Oxides and Oxyhydroxides

A1077 *Vayssieres L*

11:15 Electrostatic Potentials and Charge Distributions at Structurally Defined Hematite/Electrolyte Interfaces

A163 *Chatman S, Zarzycki P, Preočanin T & Rosso K*

11:30 Protonation Enthalpy of Magnetite from High Temperature Electrophoresis

A647 *Lvov S, Fedkin M, Rodriguez-Santiago V, Vidojkovic S & Wesolowski D*

11:45 On the Temperature Dependence of Mineral Surface Protonation and Ion Adsorption Reactions

A1127 *Wesolowski DJ, Machesky ML, Lvov SN, Predota M, Ridley MK & Cummings PT*

12:00 Primary Charge of Ferrihydrite Nanoparticles: Experiment and Theory

A409 *Hofmann A, Hiemstra T & Van Riemsdijk W*

12:15 Adsorption of Strontium at Nano- and Micro-Crystalline Titanium-Dioxide Interfaces: Interpreting Surface Speciation Using Charge Distribution and the MUSIC Model

A870 *Ridley MK, Machesky ML & Wesolowski DJ*

## 05b: Hydrothermal Alteration of Oceanic Crust at Slow Versus Fast Spreading Ridges

Session chaired by Jeffrey Alt & Damon Teagle

- 09:30 Rapid Uptake of Calcium Carbonate during Ridge Flank Hydrothermal Circulation Reflects Past Oceanic Conditions  
A1033 *Teagle D, Coggon R, Palike H, Alt J & Smith-Duque C*
- 
- 09:45 Effects of Seawater Alteration on the  $^{234}\text{U}/^{238}\text{U}$ -Ratios of Mid-Ocean Ridge Basalts  
A1082 *Vils E, Elliott T, Avanzinelli R, Smith-Duque CE, Alt JC & Teagle D*
- 
- 10:00  $\delta^{56}\text{Fe}$  Variations in Fe-Ti Oxides of IODP Hole 1256D (East Pacific Rise)  
A256 *Dziony W, Horn I, Koepke J & Holtz F*
- 
- 10:15 Low  $\delta^{18}\text{O}(\text{Zrc})$  in Plagiogranites at Oman: Evidence for Remelting  
A355 *Grimes CB, Ushikubo T & Valley JW*
- 
- 10:30 Boron Isotope Geochemistry of the Hydrothermally Altered Oceanic Crust in the Oman Ophiolite  
A1169 *Yamaoka K, Ishikawa T, Nagaishi K & Kawahata H*
- 
- 10:45 Lithium and Oxygen Isotopes and Oxidation State of Lower Oceanic Crust: Atlantis Massif, 30°N  
A865 *Reynolds V, Crapster-Pregont E, Dyar D, Jawin E, McDonough W, Qiu L, Rumble D & Tucker J*
- 
- 11:00 **Keynote:** Intrinsic Silica Metasomatism during Serpentinization  
A522 *Klein F, Bach W, Jöns N, McCollom T & Frost BR*
- 
- 11:15 Present-Day Serpentinization and Microbial Activity in Peridotites Hosting High-Ph Spring Waters, Gruppo di Voltri (Italy)  
A928 *Schwarzenbach E, Früh-Green G, Bernasconi S, Méhay S & Lilley M*
- 
- 11:30 Transitory Brucite and the Chemistry and Mineralogy of Serpentinite  
A64 *Beard J, Frost R & Bach W*
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(Session 05b continues on Monday 14th Posters on page 52)

Session 05c follows this session in this room.

For details see page 10.

## 05c: Dynamics and Energetics of Seafloor Hydrothermal Systems

Session chaired by Andrew McCaig, Mathilde Cannat & Fabrice Fontaine

11:45 **Keynote:** Geophysical Constraints on Heat Transfer to Mid-Ocean Ridge Hydrothermal Systems

A1131 Wilcock W

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12:00 The Making of a Brine Pool – An Integrated Modeling Approach

A919 Schardt C

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12:15 Do Hydrothermal Systems Control Detachment Fault Development?

A684 McCaig AM & Castelain T

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(Session 05c continues on Monday 14th PM on page 52)

## 07e: Accessory Phase Elemental and Isotopic Geochemistry: Micro-Analytical Tools and Petrologic Applications

Session chaired by Rita Economos, John Ayers & John Dilles

- 09:30 Zircon Crystallization and the Life-Times of Magmatic-Hydrothermal Ore Systems  
A395 *Heinrich C, Martinek K, Erni M, von Quadt A & Peytcheva I*
- 
- 09:45 Using Zircon to Decode the Timing & Source of Au Mineralization  
A925 *Schneider DA & Bachtel J*
- 
- 10:00 Zircon and Titanite Geochemical and Age Constraints on Ore-Related Magmas  
A814 *Peytcheva I, von Quadt A & Tacheva E*
- 
- 10:15 Effects of Magma Hybridization and Late-Magmatic Fluids on Zircon in a Variscan Post-Collisional Pluton  
A550 *Kusiak MA, Dunkley DJ & Slaby E*
- 
- 10:30 Insights into Ancient Magma Chamber Evolution Based on Sr and Nd Isotopic Composition of Apatite  
A904 *Samson S & Dasgupta T*
- 
- 10:45 U-Pb and Trace Elements in Xenotime from Sediment-Hosted Co-Cu-Au and Cu-Ag Deposits, ID-MT  
A11 *Aleinikoff J, Slack J, Hayes T, Fanning M, Mazdab F & Wooden J*
- 
- 11:00 Cathodoluminescence Characteristics of Various Sphalerite Ores from Turkey  
A180 *Ciftci E*
- 
- 11:15 Quartz-Vein Wolframite Ore and Granitoid Magmatism: Spatial and Genetic Connection  
A39 *Badanina E, Abushkevich V & Syritso L*
- 
- 11:30 Plutonic Imaging of Two Proterozoic Underplating Events in the NW Wyoming Province from Hf-Isotopes of Zircon from Cretaceous Batholiths  
A300 *Foster D, Mueller P, Heatherington A, Kamenov G & Gifford J*
- 
- 11:45 Origin of Granitoids of the Kerala Khondalite Belt, Southern India: Biotite as Potential Tectonomagmatic Indicator  
A985 *Sreejith C, Ravindra Kumar G & Babu E*
- 
- 12:00 Fingerprinting of Kimberlite Sources by Isotope Studies of Accessory Minerals: A Mantle Tracer  
A910 *Sarkar C, Storey C, Hawkesworth C, Sparks S & Field M*
- 
- 12:15 Microgeochemistry of Rutile and Zircon in Eclogites from the CCSD Main Hole: Implications for the Fluid Activity and Thermo-History of the UHP Metamorphism  
A316 *Gao C, Liu Y & Zong K*
-

## 09c: Geochemistry, Mineralogy and Sandstone Diagenesis: From Syn-Depositional Environments Through to Deep Burial

Session chaired by Andy Thomas, Joann Welton & Per Aagaard

09:30 **Keynote:** A Continental-Scale Groundwater Flow

A920 *Scheerhorn R & Banner J*

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09:45 **Invited:** Low Temperature Porosity Preserving Microquartz from Upper Cretaceous Sandstones of the Subhercynian Basin (Germany)

A305 *French M, Worden R, Mariani E, Horn W, Kliewer C, Lamberti W, Mueller R & Fischer C*

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10:00 **Invited:** New Insights into the Development of Early Clay Grain Coats

A1125 *Welton J & Yip G*

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10:15 **Invited:** Reservoir Quality of GOM Louisiana Miocene Shelf Sandstones: Clay Coatings are the Key

A1040 *Thomas A, McCarty D, Sakharov B, Dunn T & Kacewicz M*

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(Session 09c continues on Monday 14th Posters on page 55)

Session 09e follows this session in this room.

For details see page 13.

## 09e: Petroleum Source Rocks: Geochemistry, Deposition and Distribution

Session chaired by Andy Fleet

- 10:30 On the Origin of Kerogen  
A503 *Keith S & Swan M*
- 
- 10:45 Tectonic Controlled Oil Generation of Source Rock and Exploration in West Margin of Ordos Basin, China  
A621 *Liu X, Li R & Liu J*
- 
- 11:00 Birth of a Giant Paleoproterozoic Oil Field: Re-Os Ages for Source Rocks and Maturation  
A379 *Hannah J, Yang G, Stein H & Zimmerman A*
- 
- 11:15 Influence of Water on D/H Ratios of N-Alkanes from Hydrous Pyrolysis of Source Rocks with Kerogen Types I, II, IIS and III  
A318 *Gao L, Schimmelmann A, Sessions A, Wang Y & Mastalerz M*
- 
- 11:30 Geochemical Characterization of the Heterogeneous Source Rocks in Petroleum System Modeling  
A1101 *Wang F, Chen J, Wang B, Tao J, Zhen H & Wang X*
- 
- 11:45 Geochemistry of the Early Tertiary Salt Lake in the Dongying Depression, Bohai Bay Basin of Eastern China  
A1232 *Zhu G & Zhang S*
- 
- 12:00 Multiscale Study of Gas Shale Properties and Thermal Evolution  
A82 *Bernard S, Horsfield B, Schulz H-M & Wirth R*
- 
- 12:15 Gas Deasphalting Process at the Fluid Inclusion Scale  
A109 *Bourdet J, Eadington P, Kempton R, Mills D & Liu K*
- 

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## 11a: Impacts of Atmospheric Deposition on Ocean Chemistry and Biology

Session chaired by Adina Paytan, Natalie Mahowald,  
Dale W Griffin & William Landing

- 09:30 **Keynote:** Impacts of Atmospheric Deposition on Iron Distributions and Biogeochemistry in the North Atlantic  
A723 *Moore K*
- 
- 09:45 Aerosol Iron Chemical Processing by Marine Biologically Derived Carboxylic Acids; Results from Field Observations over the Equatorial Pacific Ocean  
A470 *Johansen A, Shank L & Zhang Z*
- 
- 10:00 Change of Fe Species and Increase of its Solubility during Long-Range Transport of Asian Dust  
A1022 *Takahashi Y & Higashi M*
- 
- 10:15 Comparative Estimates of the Flux of Bioactive Trace Elements to the Upper Water Column in the Pacific Ocean  
A712 *Milne A, Buck C, Measures C & Landing W*
- 
- 10:30 Aerosol Impacts on Marine Phytoplankton  
A799 *Paytan A, Mackey K, Reistetter E & Buck C*
- 

(Session 11a continues on Monday 14th Posters on page 58)

Session 11b follows this session in this room.

For details see page 15.

## 11b: Connecting Oceanic Emissions, Aerosols, and Maritime Clouds: What do We Know and Where Will We go?

Session chaired by Maria Cristina Facchini & Nicholas Meskhidze

- 10:45 **Keynote:** Oceanic Production of Organic-Enriched Marine Aerosols: Uncertainties and Impacts  
A513 *Kieber D & Keene W*
- 
- 11:00 **Invited:** Production of Primary Particles at the Sea Surface that can Function as Cloud Condensation Nuclei  
A586 *Lewis E*
- 
- 11:15 **Keynote:** The NASA Decadal Survey Aerosol, Cloud, Ecosystems Mission  
A685 *McClain C, Bontempi P & Maring H*
- 
- 11:30 **Invited:** Sources of Reactive Halogen Species and Oxygenated VOC over Biologically Active Upwelling Regions of the Tropical Pacific Ocean  
A1085 *Volkamer R, Coburn S, Dix B & Sinreich R*
- 
- 11:45 Concurrent DMS and Isoprene Surface Seawater Variability in the Eastern Atlantic Ocean  
A667 *Marandino C, Zindler C, Bange H, Saltzman E & Wallace D*
- 
- 12:00 Response of Marine Aerosol to Changes in Phytoplankton Induced by Perturbations to Aeolian Iron Input  
A1141 *Woodhouse M, Buitenhuis E, Mann G, Carslaw K & Boucher O*
- 
- 12:15 Detection of Aliphatic Amines in the Marine Environment  
A735 *Müller C, Inuma Y, Müller K & Herrmann H*
- 

(Session 11b continues on Monday 14th Posters on page 59)

## 12b: New Applications of Trace Metals in Siliciclastic Sediments as Proxies for Marine Paleoenvironments

Session chaired by **Thomas Algeo & Anna Cruse**

09:30 Sample Digestion Methods for Trace Element Measurement: Paleoredox Proxies Under Scrutiny

A92 *Bingen B, Xu G, Hannah JL, Stein HJ & Georgiev S*

09:45 Use of Sedimentary Trace-Metal Concentration Data to Constrain Hydrographic Conditions in Ancient Marine Systems

A12 *Algeo T & Lyons T*

10:00 Nitrogen Isotope Profile from the Cambrian SPICE Event: Comparison with Mo and Other Redox Proxies

A840 *Quan TM, Gill BC & Lyons TW*

10:15 Constraints on Sedimentation Rates from Uranium Diffusion

A197 *Cruse AM, Paxton ST & Auffer M*

10:30 **Keynote:** Using Uranium Isotopes to Understand Ancient Marine Systems: Advances and Challenges

A403 *Herrmann A*

11:00 Rhenium Geochemical Cycling: Insights from Continental Margins

A725 *Morford J, Martin W & Carney C*

11:15 Precise Re-Os Age with Exceptionally High  $^{187}\text{Re}/^{188}\text{Os}$  for Black Shales Heralds Permo-Triassic Extinction, Norwegian Shelf and East Greenland

A324 *Georgiev S, Stein H, Hannah J, Bingen B, Xu G & Piasecki S*

11:30 Hydrothermal Contributions to Oceanic Anoxic Event 2? – Evidence from Trace Metals

A597 *Li X, Severmann S, Owens J & Sageman B*

11:45 Of Modern Lakes and Ancient Oceans: Trace Metals and their Isotopes in an Anoxic African Rift Lake

A936 *Severmann S, McManus J, Poulson-Brucker R, Owen J, Lyons T, Anbar A & Gordon G*

12:00 From Sea to Lake, the Geochemical History of Lake Champlain, North America

A332 *Gilhooly W, Robinson A, Lyons T, Manley P, Cronin T, Manley T & Kelley C*

12:15 Selenium Isotope Fractionation during Oceanic Anoxic Events

A714 *Mitchell K, Mason P, Johnson T, Lyons T & Van Cappellen P*

(Session 12b continues on Monday 14th Posters on page 61)

## 15b: Microbial Transformation of Minerals and Humic Substances – Impact on the Fate of Pollutants, Trace Metals and Nutrients

Session chaired by **Andreas Kappler & Thomas Borch**

- 09:30 **Keynote:** Biogeochemically Induced Mineral Transformations Controlling the Fate of Arsenic  
A285 *Fendorf S, Masue-Slowey Y, Kocar B & Ying S*
- 
- 10:00 Microbial As(V) and Fe(III) Reduction: Mobilization or Sequestration of As?  
A428 *Huang J-H, Lazzaro A, Voegelin A, Zeyer J & Kretzschmar R*
- 
- 10:15 Mobilization of Sorbed and Co-precipitated Arsenic from Biogenic Fe(III) (Hydr)oxides by the Fe(III)-reducer *Shewanella oneidensis* MR-1  
A732 *Muehe EM, Kappler A, Posth N & Hohmann C*
- 
- 10:30 **Invited:** Effect of Arsenic on Microbial Iron Reduction and Arsenic Speciation in an Iron-Rich Freshwater Sediment  
A1020 *Taillefert M, Chow SS & Beckler JS*
- 
- 10:45 Fate and Transport of Arsenic from Constructed Soil Aggregates  
A677 *Masue-Slowey Y, Kocar B, Jofré SAB, Mayer K, Pallud C & Fendorf S*
- 
- 11:00 Role of Dissimilatory Metal-Reducing Bacteria in Arsenic Transport within Manganese and Iron Oxide Containing Aggregates  
A1187 *Ying S, Griffis S, Masue-Slowey Y & Fendorf S*
- 
- 11:15 **Invited:** Microbial Reduction of Solid-Phase Humic Substances and Electron Shuttling to Fe(III) Oxide  
A875 *Roden E, Kappler A, Bauer I, Jiang J, Paul A, Stoesser R, Konishi H & Xu H*
- 
- 11:30 Bioreduction of Nitrobenzene, Natural Organic Matter and Hematite by *Shewanella putrefaciens* CN32  
A638 *Luan F & Burgos B*
- 
- 11:45 Iron Cycling in the Shale Hills Watershed of Central Pennsylvania: Possible Links between Microbiology and Iron Chemistry  
A1184 *Yesavage T, Liermann L, Jin L, Mathur R & Brantley S*
- 
- 12:00 Interaction of Cu and Cd with Organic Matter and Biogenic Sulfide in Periodically Flooded Soils  
A310 *Fulda B, Voegelin A & Kretzschmar R*
- 
- 12:15 Time-Resolved XRD of the Siderophore-Promoted Dissolution of Birnessite  
A295 *Fischer T, Heaney P, Brantley S, Post J & Tien M*

(Session 15b continues on Tuesday 15th Posters on page 140)

## 16a: Applications of Novel Isotope Tracing Techniques to Biogeochemical Cycles

Session chaired by Nathaniel Ostrom & Stephen Macko

12:00 Copper Isotope Fractionation by Higher Plants

A1234 *Zhu X-K, Li S-Z, Luo Y-M & Wu L-H*

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12:15 Mg Isotope Exchange Rate and Fractionation Factor between Epsomite and Aqueous Solution Constrained by Three Isotope Method

A594 *Li W, Beard B & Johnson C*

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(Session 16a continues on Monday 14th PM on page 62)

## 16i: Methane Fluxes and Turnover in the Marine and Terrestrial Environments

Session chaired by Alina Stadnitskaia & Helge Niemann

- 09:30 **Keynote:** Regulation of Methane Turnover and Fluxes in Marine and Terrestrial Environments  
A483 *Joye S*
- 
- 10:00 Pressure Regulation of Microbial Methane Cycling in Deep-Sea Sediments  
A114 *Bowles M, Samarkin V & Joye S*
- 
- 10:15 A Modeling Study of Organic Matter Remineralization in Deeply-Buried Marine Sediments  
A127 *Burdige D*
- 
- 10:30 Biomarkers for Methane Cycling: From Marine to Terrestrial Settings  
A787 *Pancost R, Aquilina A, Talbot H, Lim K, Evershed R, Gill F, Weijers J, Collinson M & Taylor K*
- 
- 10:45 Lipid Biomarkers in Methanogenic Sediments of the Alpine Lake Bled (SW Slovenia)  
A773 *Ogrinc N, Petrisic M, Mandic-Mulec I, Gorenc K & Faganeli J*
- 
- 11:00 Quantifying Rates of Methanogenesis and Methanotrophy in Lake Kinneret (Israel) Using Porewater Profiles  
A968 *Sivan O, Adler M & Eckert W*
- 
- 11:15 Microbial Ecology of Terrestrial Methane-Emitting Mud Volcanoes in Italy  
A395 *Heller C, Blumenberg M, Reimer A, Wrede C, Hoppert M, Taviani M & Reitner J*
- 
- 11:30 Microbial Activity in Terrestrial Mud Volcanoes from the Northern Apennines  
A416 *Hoppert M, Dreier A, Heller C, Kokoschka S, Krukenberg V, Reitner J, Taviani M & Wrede C*
- 
- 11:45 Quantifying Temperature-Dependent Methane Ebullition from Reservoirs via Systems Analysis  
A222 *DelSontro T, McGinnis D, Sobek S, Ostrovsky I & Wehrli B*

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Session 16a follows this session in this room.

For details see page 18.

## 17a: Nanoparticles Important to the Environment: Structure, Reactivity, Analysis

Session chaired by Frank von der Kammer,  
Ruben Kretzschmar & Andreas Voegelin

- 09:30 **Invited:** Mobility of Natural and Engineered Nanoparticles in Aquatic Media  
A674 *Masion A, Levard C, Solovitch N, Diot M-A, Auffan M, Botta C, Labille J, Rose J, Chaurand P, Borschneck D, Doelsch E, Ziarelli F, Thill A & Bottero J-Y*
- 
- 09:45 The Role Nanoparticulate Oxides as Transporters of Toxic Trace Metals in Riverbed Sediment  
A820 *Plathe K, von der Kammer F, Hassellöv M, Moore J, Murayama M, Hofmann T & Hochella M*
- 
- 10:00 **Invited:** Nanoparticle Surface Properties Deduced from Single Crystal Mineral/Water Interface Studies  
A1118 *Waychunas G, Sung J & Shen YR*
- 
- 10:15 **Invited:** Iron Oxide Nanocrystal Growth and Aggregation  
A131 *Burrows ND, Yuwono VM & Penn RL*
- 
- 10:30 **Medal:** A Perspective on Nanominerals and their Roles in Microbial Ecosystems  
A48 *Banfield J, Zhang H, Gilbert B, Williams K, Singer S & Waychunas G*
- 
- 11:00 Characterization of Nanoparticle, Size, Shape, Morphology, Oxidation State and Crystallinity: A Multi-Method Approach  
A37 *Baalousha M, Ju-Nam Y, Cole P & Lead JR*
- 
- 11:15 Detection of Nanoparticles in the Environment Using Field Flow Fractionation Coupled to Single Particle ICP-MS  
A1060 *Tuoriniemi J & Hassellöv M*
- 
- 11:30 Plutonium Speciation and Formation of Nanoparticles with Natural Organic Matter in Contaminated Environment  
A490 *Kalmykov S, Batuk O, Denecke M, Bouby M, Novikov A, Perminova I & Shcherbina N*
- 
- 11:45 **Invited:** Nanoparticles in Natural Systems: Oxides and Organic Matter Interaction  
A404 *Hiemstra T & van Riemsdijk W*
- 
- 12:00 Chemistry and Mineralogy of Fe-Rich Marine Nanoparticles, West Coast of South Africa  
A1087 *von der Heyden B, Myneni S & Roychoudhury A*
- 
- 12:15 The Fate of Elements Through the Transformation from Schwertmannite to Goethite: An Example from the Chinkuashih Acid Mine Drainage Area, Northern Taiwan  
A166 *Chen C-J & Jiang W-T*

(Session 17a continues on Monday 14th PM on page 63)

## 19c: New Applications of High-Pressure in situ X-Ray and Neutron Techniques

Session chaired by Isabelle Daniel, Motohiko Murakami,  
Carmen Sanchez Valle & Wim van Westrenen

- 09:30 **Keynote:** Advances in High Pressure Neutron Scattering  
A523 Klotz S
- 
- 10:00 **Invited:** Neutron Diffraction Studies of Amorphous  
Materials Under Pressure  
A1132 Wilding M, Guthrie M, Bull C & Tucker M
- 
- 10:15 Neutron Diffraction Studies of Liquids at High Pressure  
A368 Guthrie M, Tucker M, Tulk C, dos Santos A & Molaison J
- 
- 10:30 **Keynote:** New Applications of *in situ* Synchrotron X-Ray  
Techniques for Studies of Earth and Planetary Materials at  
High Pressure and Temperature  
A1110 Wang Y
- 
- 11:00 **Invited:** Application of *in situ* X-Ray Observations to  
Melting and Melt Properties at High Pressure  
A775 Ohtani E
- 
- 11:15 Sound Velocities of Earth's Deep Materials  
A739 Murakami M
- 

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Session 19e follows this session in this room.  
For details see page 22.

## 19e: Molecular Structure and Dynamics in Biogeochemistry

Session chaired by Alexander Johs, Liyuan Liang, John Ankner & Jeremy Smith

11:30 **Keynote:** Solution Scattering Combined with Crystallography and Computation: Defining Dynamic Macromolecular Structures

A375 Hammel M

---

12:00 **Invited:** Molecular Mechanism of Antitermination

A937 Sevostyanova A & Artsimovitch I

---

12:15 **Invited:** Dynamics of Interfacial Electron Transfer: Implications for Biogeochemical Reactions

A507 Kerisit S & Rosso K

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(Session 19e continues on Monday 14th Posters on page 64)

## 20b: Sharpening the Tools of Isotope Geochemistry: A Session in Honor of Ken Ludwig

**Session chaired by Paul Renne, John Aleinikoff,  
Mark Fanning, Warren Sharp & Roland Mundil**

11:45 Unleashing the Full Potential of the  $^{40}\text{Ar}/^{39}\text{Ar}$   
Geochronometer

A862 Renne P, Mundil R, Balco G, Min K & Ludwig K

---

12:00 A  $^{87}\text{Rb}$  Decay Constant Accumulation Experiment

A885 Rotenberg E, Davis D & Amelin Y

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12:15 A Bayesian Approach to Averaging and Error Estimation:  
Application to  $^{87}\text{Rb}$  Decay Constant Measurements

A212 Davis D

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(Session 20b continues on Monday 14th PM on page 45)

## 20n: Laser Ablation ICP-MS in Ore Deposits Studies

Session chaired by Sarah-Jane Barnes,  
Alan Koenig & Marcel Guillong

- 09:30 **Keynote:** Application of LA-ICPMS to Ore Deposit Research  
A765 *Norman M, Blevin P & Hough R*
- 
- 09:45 Pushing Laser Ablation ICP-MS to the Limit: Speed, Reproducibility and Sensitivity  
A362 *Guillong M & Danyushevsky L*
- 
- 10:00 Accurate LA-ICP-MS Calibration for Magnetite Analysis Using Multiple Reference Materials  
A914 *Savard D, Barnes S-J & Perumala Venkata SR*
- 
- 10:15 Trace Elements in Chromite by LA-ICP-MS to Constrain the Origin of Podiform Chromitites in the Thetford Mines Ophiolite  
A785 *Pagé P & Barnes S-J*
- 
- 10:30 A Summary of LA-ICP-MS for Mineral Deposit Research at the US Geological Survey  
A526 *Koenig A*
- 
- 10:45 LA-ICPMS Zircon *in situ* Analysis of Magmatism and Mineralization in the Jinchang Gold Ore-Field, Heilongjiang Province, China  
A637 *Lu Y, Zhang Y & Lai Y*
- 
- 11:00 **Keynote:** LA-(MC-)ICP-MS Element and Isotope Ratio Analysis of Fluid Inclusions in Minerals  
A812 *Pettke T, Oberli F & Hanley J*
- 
- 11:15 PGE Distribution in the Aguablanca Ni-Cu Sulfide Deposit, Spain: Evidence from LA-ICP-MS  
A817 *Piña R, Barnes S-J, Gervilla F, Ortega L & Lunar R*
- 
- 11:30 Pd Diffusion into Pentlandite Evidence from Laser Ablation  
A54 *Barnes S-J & Dare S*
- 
- 11:45 Pyrite is the Key: Insights into Ore Forming Processes at Bendigo, Australia Using LA-ICPMS Trace Element and Isotope Methods  
A1041 *Thomas H, Large R & Bull S*
- 
- 12:00 Thallium Halos in the Rosebery VHMS District; Improving Vectoring to Mineralisation  
A692 *McNeill A*
- 

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## 22d: Other Geochemistry

- 09:30 Mineralogy and Geochemistry of the Neogene Lacustrine Sediments of Bor-Ulukisla Basin (Nigde, Turkey)  
A16 *Altay T, Çelik Karakaya M & Murat A*
- 
- 09:45 Clay Mineralogy and Geochemical Characterisation of the Lutetian Aged Sedimentary Formation in Kastamonu Region (N Turkey): Determining the Origin and Province  
A62 *Bayhan E, Tokol A & Tunoğlu C*
- 
- 10:00 Mineralogical and Geochemical Characteristics and Genesis of the Sepiolite Deposits at Polatlı Basin (Ankara, Turkey)  
A153 *Çelik Karakaya M, Karakaya N & Temel A*
- 
- 10:15 The Microstructure of Trinitite, the Glassed Sand from the First Nuclear Explosion  
A277 *Fahey A & Newbury D*
- 
- 10:30 Groundwater Quality Analysis in the Vicinity of Brick Kilns along the Highway Road of Rawalpindi and Islamabad  
A280 *Farooqi A & Ramzan M*
- 
- 10:45 Distinct Neon Isotope Compositions found in Polycrystalline Diamonds and Framesites from the Jwaneng Kimberlite Pipe, Botswana  
A414 *Honda M, Phillips D, Harris J & Matsumoto T*
- 
- 11:00 Quantitative Evaluation of Shock Pressure by Cathodoluminescence Analysis of Alkali Feldspar  
A500 *Kayama M, Nishido H, Sekine T, Nakazato T & Ninagawa K*
- 
- 11:15 Geochemistry, Sr-Nd Isotope Abundances and Magnetic Studies in Some Deccan Basalts and their Bearing on Mixing Processes  
A556 *Lala T, Patil SK, Paul DK & Chaudhary AK*
- 
- 11:30 Assessment of Heavy Metal Pollution in Sediments of Kazipalli Watershed, Northwest of Hyderabad (India) by Wavelength Dispersive X-Ray Fluorescence Spectrometry  
A846 *Rama Mohan K, Keshav Krishna A, Murthy NN, Venkateswara Rao P, Santosh Kumar A, Sriharsha P & Yashoda S*
- 
- 11:45 The Analysis of Evaporites from the Area Around Boulby, North Yorkshire  
A909 *Sapsford M, Petley D, Barlow J, Lim M, Norman E & Rosser N*
- 
- 12:00 Geochemical Assessment of Groundwater Quality Integrating Multivariate Statistical Analysis with GIS in Shiwaliks of Punjab, India  
A967 *Singh CK, Shashtri S & Mukherjee S*
- 
- 12:15 Origin of the Neof ormation Minerals in the Polatlı Volcano-Sedimentary Lacustrine Basin, Central Anatolia, Turkey  
A1035 *Temel A, Akdag N & Varol E*
-

	200-A	200-B	200-C	200-D	200-E	300-A/B	300-C/D
	19a	17a	16a / 16f	15d / 15c	21b	01c	07c / 07d
13:30	Leftwich	Waite	Singer	Kenney	Mogk	Neal	Botcharnikov
13:45	Kramer	Vikesland	Saad	Harrold	Henry		Nie
14:00	Ghose	Liu	Ostrom	Navarrete	Carmichael	Isaacson	Large
14:15	Zhang	Stumpf	Ma	Spadini	Carrigan	Taylor	
14:30	Nagy	Majzlan	Novak	Warren	Farthing	Greenwood	Sharman
14:45		Morin	Bowles		Ryan	McCubbin	Webber
15:00	Lee		Morris	Blackmore		Liu	Wang
15:15	Bowers		Hardison	French		Zeigler	Mikulski
15:30	Mamontov		Goni	Marshall		Fitoussi	Hough
15:45	Rother			Kent		Sedaghatpour	Weldt
16:00	Jin		Shiller	Moon		Hui	Mayanovic
16:15	Anovitz			Iskrenova-Tchoukova		van Westrenen	Deditius

	301-A	301-B	301-C	301-D/E	Ballroom A	Ballroom B	Ballroom C	Lecture
	05a	11c	12a	09n / 09o	03b	04c	04o	20b
13:30	Arnórsson	Rowe	Lu	Veil	van Keken	Clark	Breeding	Zimmerman
13:45		Dahl	Neubert	Guerra		Al	Le	Mertz -Kraus
14:00	James	Tuite	Yu	Sullivan	Long	Bea	Peretti	Sharp
14:15	Ding	Middelburg	Klochko	Rowan	Nielsen	Neuzil	Weiss	Neymark
14:30	Pester		Rollion-Bard	Katta	Arevalo Jr.	Hendry	Gaillou	Thompson
14:45	Charlou	Kondo	Wagner	Sharma	Mukhopadhyay		Galoisy	Fanning
15:00	Zhang	Moffett	Jaisi	Bern	Weis		Hu	Davis
15:15	Suzuki	Helz	Eiler	Mailloux	Ireland		Fritsch	Amelin
15:30	Grove	Yakushev		Finkelman	de Leeuw		Rondeau	Denyszyn
15:45	Seewald		Kim	Ruhl	Bennett			Mundil
16:00	Shanks		Tripati	Graney	Trønnes			Mattinson
16:15			Price	Orem	Niu			

## 01c: The Moon 40 Years after Apollo: Origin, Evolution and Volatiles

Session chaired by Tomas Magna, Lawrence A Taylor & Yang Liu

13:30 **Keynote:** The Moon 40 Years after Apollo: Why We Need to go Back

A751 *Neal C*

14:00 **Invited:** New Lunar Discoveries from the Moon Mineralogy Mapper on Chandrayaan-1

A446 *Isaacson P, Pieters C & Taylor L*

14:15 Origin of OH/Water on and in the Moon

A1031 *Taylor L*

14:30 D/H of Lunar Water: Implications for the Origin of the Earth's Water

A354 *Greenwood J, Itoh S, Sakamoto N, Warren P, Taylor L & Yurimoto H*

14:45 Quantitative SIMS Analysis of OH in Lunar Apatite: Implications for Water in the Lunar Interior

A687 *McCubbin F, Steele A, Hauri E & Nekvasil H*

15:00 Effects of Water in Lunar Basalts

A624 *Liu Y & Taylor L*

15:15 **Invited:** The Role of South Pole-Aitken Basin in Understanding Impact History and the Origin of the Lunar Crust

A1198 *Zeigler R, Jolliff B & Korotev R*

15:30 Silicon Isotope Constraints on the Formation of the Moon

A296 *Fitoussi C, Bourdon B, Pahlevan K & Wieler R*

15:45 Magnesium Isotopic Composition of the Moon

A929 *Sedaghatpour F & Teng F-Z*

16:00 Lunar Spherule Age Distributions: Gardening or Young Spike?

A437 *Hui S, Norman M & Jourdan F*

16:15 Discrepancy between Geochemical and Dynamical Models of Moon Formation in a Giant Impact

A1074 *van Westrenen W & de Meijer R*

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## 03b: Mantle Reservoirs and their Creation

Session chaired by Matthew G Jackson,  
Rajdeep Dasgupta & James Day

- 13:30 **Keynote:** Generation of Mantle Heterogeneity by Ocean Crust Recycling: Geophysical and Geochemical Constraints  
A1072 *van Keken P, Hauri E, Brandenburg J & Ballentine C*
- 
- 14:00 **Invited:** Mantle Flow in Subduction Zones and Implications for Material Transport and Mixing in the Mantle  
A630 *Long M*
- 
- 14:15 Potassium and Uranium in the Upper Mantle Controlled by Archean Oceanic Crust Recycling  
A760 *Nielsen S*
- 
- 14:30 Gallium and Germanium Abundances in MORB and OIB: Evidence for Pyroxenitic Source Components?  
A32 *Arevalo Jr. R & McDonough WF*
- 
- 14:45 Solar Like Neon in Icelandic Basalt  
A735 *Mukhopadhyay S*
- 
- 15:00 Hawaiian Plume Source: Isotopic Constraints from Mauna Loa  
A1122 *Weis D, Rhodes JM, Garcia MO & Norman M*
- 
- 15:15 186-Os Systematics of Hawaiian Picrites  
A446 *Ireland T, Walker R & Brandon A*
- 
- 15:30 Baffin Island Picrites Contain Normal Terrestrial  $^{142}\text{Nd}/^{144}\text{Nd}$ : Implications for the Source of High  $^3\text{He}/^4\text{He}$  in Deep Earth  
A219 *de Leeuw GAM, Carlson RW, Ellam RM & Stuart FM*
- 
- 15:45 Hadean Isotopic Signatures in Mesoarchean Pillow Basalts, Southern West Greenland  
A79 *Bennett V, Brandon A, Jenner F & Nutman A*
- 
- 16:00 Fertile Components of the NE Atlantic Mantle – Minor Elements and O-Isotopes in Olivine Phenocrysts  
A1058 *Trønnes RG, Erambert M, Eiler JM & Debaille V*
- 
- 16:15 On the Origin of OIB: Processes, Sources and Mantle Convection  
A763 *Niu Y, Wilson M, Humphreys E & O'Hara M*
- 

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## 04c: Solute Transport in Low Permeability Rocks: Hydrogeochemical and Mineralogical Studies

Session chaired by Tom Al, Richard Jackson & Ian Clark

- 13:30 Geochemical and Isotope Tracers in Pore Waters from Low Permeability Paleozoic Strata of the Michigan Basin of Southwest Ontario  
A182 *Clark I, Liu I, Mohammadzadeh H, Mohapatra R, Jackson R, Heagle D & Raven K*
- 
- 13:45 Measurement of Cation Exchange Capacity in Shale Using Radiographic Detection of Cesium  
A151 *Cave L, Bea S, Al T & Mayer KU*
- 
- 14:00 Hydromechanical and Geochemical Coupling within an Intercratonic Sedimentary Basin Affected by Glaciation/ Deglaciation Events  
A63 *Bea SA, Mayer KU & MacQuarrie KTB*
- 
- 14:15 **Invited:** Semipermeability and Solute Transport in Groundwater  
A754 *Neuzil C & Person M*
- 
- 14:30 **Keynote:** Solute Transport in a Thick, Two-Layered Aquitard System  
A399 *Hendry MJ, Barbour SL & Wassenaar LI*
- 

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## 04o: Geochemistry and Trace Elements in gem Materials

Session chaired by Emmanuel Fritsch & Benjamin Rondeau

- 13:30 Separation of Natural and Synthetic Gemstones Using LA-ICP-MS: Amethyst, Citrine, and Malachite  
A120 *Breeding C & Shen A*
- 
- 13:45 Discrimination of Emerald Origins By Chemical Components  
A571 *Le TTH, Nguyen TC, Hofmeister W & Häger T*
- 
- 14:00 Chemical Variations in Multicoloured "Paraíba"-Type Tourmalines from Brazil and Mozambique: Implications for Authentication and Provenance Determination  
A806 *Peretti A, Bieri W, Reusser E, Fontaine G, Hametner K & Günther D*
- 
- 14:15 Looking for the Keys Under the Lamppost: Trace Elements in Fibrous Diamonds  
A1123 *Weiss Y, Navon O & Griffin WL*
- 
- 14:30 Quantifying Boron in Natural Type IIb Blue Diamonds  
A313 *Gaillou E, Rost D, Post J & Butler J*
- 
- 14:45 The Origin of Coloration in Garnets: An Optical Spectroscopic Study  
A314 *Galoisy L, Feneyrol J, Juhin A, Kiratisin A, Giuliani G & Calas G*
- 
- 15:00 A Microstructural Study of Pietersite Gemstones from Namibia and China  
A423 *Hu K & Heaney P*
- 
- 15:15 Luminescence of Opals: A Witness to their Geochemistry  
A307 *Fritsch E, Gaillou E, Massuyeau F & Rondeau B*
- 
- 15:30 New Opals from Wollo, Ethiopia: Geochemical Characterization  
A880 *Rondeau B, Fritsch E, Cenki-Tok B & Mazzero F*

(Session 04o continues on Monday 14th Posters on page 51)

## 05a: Ridge-Crest Hydrothermal Systems: New Insights from Field, Laboratory, and Theoretical Studies

Session chaired by Jeffery Seewald & Jun-Ichiro Ishibashi

- 13:30 **Keynote:** Volcanic and Tectonic Geothermal Systems in Iceland  
A33 Arnórsson S
- 
- 14:00 Chemistry of Newly-Discovered Hydrothermal Vents in the East Scotia Sea  
A456 James R, Connelly D, Green D, Alker B, Hawkes J & German C
- 
- 14:15 A New Approach for Deducing *in situ* pH Value of Hydrothermal Fluid in the Reaction Zone at Mid-Ocean Ridges  
A234 Ding K, Seyfried W, Pester N & Seyfried E
- 
- 14:30 Phase Equilibria Controls on Mass Transfer Reactions in the Rainbow Hydrothermal System  
A809 Pester N, Rough M, Ding K & Seyfried W
- 
- 14:45 High Production of H<sub>2</sub> and CH<sub>4</sub> and Abiotic Hydrocarbons in Ultramafic-Hosted Hydrothermal Systems on the Mid-Atlantic Ridge (MAR)  
A163 Charlou JL, Donval JP, Konn C, Ondreas H, Fouquet Y, Jean-Baptiste P & Fourre E
- 
- 15:00 Experiments of Olivine Reacted with Aqueous Solutions at High Temperatures and its Implication for MOR Hydrothermal Reactions  
A1216 Zhang X, Zhang R & Hu S
- 
- 15:15 H<sub>2</sub> Generation during Simulated Earthquake Faulting: Its Implication for Subsurface Microbial Evolution  
A1010 Suzuki K & Hirose T
- 
- 15:30 Ar Diffusion in Basaltic Glass and Implications for Thermochronology in Oceanic Ridge Settings  
A663 Manganelli S & Grove M
- 
- 15:45 Fluid-Mineral Equilibria in Subseafloor Reaction Zones beneath Eastern Manus Basin Vent Fields  
A930 Seewald J, Bach W & Reeves E
- 
- 16:00 Stable Isotope Studies of Manus Basin Hydrothermal Vent Fluids and Deposits  
A940 Shanks WCP, Ono S, Seewald J, Reeves E, Tivey M & Craddock P
- 

(Session 05a continues on Monday 14th Posters on page 51)

## 07c: Processes at the Source – Nano to Tectonic Scale Forces Driving Ore Formation

Session chaired by Iain Pitcairn & Holly Stein

- 13:30 Gold Fertility of Sulfur-Bearing Magmas  
A108 *Botcharnikov R, Linnen R, Wilke M, Holtz F, Jugo P & Berndt J*
- 
- 13:45 Geological Features and Origin of the Wulandele Molybdenum Deposit Occurring in Sonid Zuo Qi, Inner Mongolia  
A758 *Nie F-J, Niejiang S-H & Liu Y-F*
- 
- 14:00 **Keynote:** Source Rocks for Sediment-Hosted Orogenic Gold Deposits  
A562 *Large R & Danyushevsky L*
- 
- 14:30 Tracing Varied Fluid Sources between VMS Deposits by Multiple Sulfur Isotope and Trace Element Analysis  
A942 *Sharman E, Wing B, Minarik W, Taylor B & Dubé B*
- 
- 14:45 Enrichment of Gold in Oceanic Crust by the Iceland Mantle Plume: Constraints from the Reykjanes Ridge  
A1120 *Webber A, Roberts S, Taylor R & Pitcairn I*
- 
- 15:00 Iron Isotope Fractionation during Fluid Exsolution and Evolution  
A1112 *Wang Y & Zhu XK*
- 
- 15:15 Re-Os Age of a Chalcopyrite Sample from the Lubin Cu-Ag Mine, Kupferschiefer, SW Poland  
A708 *Mikulski SZ & Stein HJ*

(Session 07c continues on Monday 14th Posters on page 53)

Session 07d follows this session in this room.

For details see page 34.

## 07d: Mineral Nanoparticles and Nanominerals in Ore Systems and their Environmental Geochemistry

Session chaired by **Martin Reich, Satoshi Utsunomiya & Robert Hough**

15:30 **Keynote:** Colloidal Gold Nanoparticles in Ore Systems

A420 *Hough R & Noble R*

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15:45 "Invisible" Ag and Au in Supergene Cu-Sulfides: EMPA, SIMS and TEM Constraints

A1124 *Weldt M, Reich M, Chryssoulis S, Deditius A, Palacios C, Zuniga A & Alvear M*

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16:00 *In situ* XAS Study of Zn<sup>2+</sup> and Ni<sup>2+</sup> Adsorption on Fe<sub>3</sub>O<sub>4</sub> Nanoparticles in Supercritical Aqueous Fluids

A681 *Mayanovic R, Anderson A, Meredith P & Bassett W*

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16:15 Trace-Metal Nanoparticles in Pyrite

A216 *Deditius A, Utsunomiya S, Reich M, Kesler S, Ewing R, Hough R & Walshe J*

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(Session 07d continues on Monday 14th Posters on page 54)

## 09n: Produced Waters from Development and Generation of Energy: Characterization, Treatment, and Beneficial Use

Session chaired by Mark Engle & James Castle

- 13:30 **Keynote:** Options for Management of Produced Water  
A1078 *Veil J*
- 
- 13:45 **Keynote:** Produced Water Quality: Implications for Treatment and Beneficial Use  
A361 *Guerra K & Dahm K*
- 
- 14:00 Produced Water Chemistry, Treatment Models, and Use in Algal Biofuel Production and Carbon Capture and Sequestration; and, How Produced Water is Like Champagne  
A1005 *Sullivan E, Pawar R & Stauffer P*
- 
- 14:15 Inorganic Geochemical Composition of Appalachian Basin Formation Waters – Preliminary Examination  
A888 *Rowan E & Engle M*
- 
- 14:30 Coalbed Natural Gas (CBNG) Produced Water: Geochemistry and Water Quality  
A498 *Katta J*
- 
- 14:45 Role of Stable Isotopes in Management of Coalbed Natural Gas Co-produced Water  
A941 *Sharma S & Baggett J*
- 
- 15:00 Computer Simulation of Subsurface Drip Irrigation Using Coalbed Methane Produced Waters  
A82 *Bern C, Engle M, Healy R, Breit G & Zupancic J*
- 
- 15:15 Using a Bayesian Statistical Model to Determine the Amount of Coalbed Natural Gas Co-produced Water in the Powder River, WY and MT  
A659 *Mailloux J, Ogle K & Frost C*
- 

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Session 09o follows this session in this room.  
For details see page 36.

## 09o: Impact of Energy Use on Human Health and the Environment

Session chaired by **Allan Kolker, William Orem & Liliana Lefticariu**

- 15:30 **Keynote:** The Impacts of Coal on Human Health  
A294 *Finkelman R*
- 
- 15:45 Isotopic and Geochemical Tracers for Evaluating the Environmental Impact of the Tennessee Valley Authority Coal Ash Spill in Kingston, TN  
A889 *Ruhl L, Vengosh A & Dwyer G*
- 
- 16:00 Size and Element Specific Solubility of Aerosols from NE U.S. Sources  
A352 *Graney J & Landis M*
- 
- 16:15 Coal and Human Health  
A778 *Orem W, Tatu C, Pavlovic N, Kolker A, Engle M, Bunnell J, Lerch H & Corum M*
- 

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## 11c: Biogeochemical Cycling in Low Oxygen Marine Environments of the Past and Present

Session chaired by Tom Jilbert, Peter Kraal,  
Daniel Reed & Caroline Slomp

- 13:30 Deoxygenation of Permo-Triassic Oceans: The Role of Elevated Continental Weathering Fluxes  
A12 *Algeo T & Rowe H*
- 
- 13:45 Ocean Oxygenation after the Rise of Animals  
A202 *Dahl TW, Hammarlund E, Knoll AH, Anbar AD & Canfield DE*
- 
- 14:00 Biogeochemistry of N and P in a Dysoxic/Euxinic Late Devonian Epeiric Basin  
A1059 *Tuite M & Macko S*
- 
- 14:15 **Keynote:** Sediment Biogeochemistry in Low-Oxygen Settings  
A707 *Middelburg JJ & Moodley L*
- 
- 14:45 Fe(II) Distribution in the Arabian Sea Oxygen Minimum Zone and Western Tropical Indian Ocean from GEOTRACES KH-09-5  
A528 *Kondo Y, Moffett J, Obata H & Nishioka J*
- 
- 15:00 Climate-Driven Changes in the Arabian Sea OMZ Influenced by Iron  
A716 *Moffett J & Naqvi W*
- 
- 15:15 Chalcophile Elements as Potential Recorders of Anoxia in Estuarine Sediments  
A397 *Helz G, Dolor M & McDonough W*
- 
- 15:30 On the Comparison of Redox-Interfaces Structure in Black Sea, Baltic Sea and Oslo Fjord  
A1167 *Yakushev E, Skei J & Pakhomova S*
- 

(Session 11c continues on Monday 14th Posters on page 59)

## 12a: New Developments in Geochemical Paleoceanographic Proxies

Session chaired by Tom Marchitto & Ros Rickaby

- 13:30 I/Ca Ratios in Marine Carbonate as a Palaeo-Redox Proxy during Oceanic Anoxic Events  
A638 *Lu Z, Jenkyns H & Rickaby R*
- 
- 13:45 Rhenium Isotope Variations in Modern Environments  
A754 *Neubert N, Miller C, Peucker-Ehrenbrink B & Schubert M*
- 
- 14:00 Emerging Global Deep Ocean Carbonate Ion Concentrations Since the Last Glacial Age  
A1191 *Yu J, Broecker W & Elderfield H*
- 
- 14:15 Boron Speciation and Isotope Systematics in Seawater, Biological and Inorganic Carbonates  
A523 *Klochko K, Kim S-T, Foster GL, Cody G, Tossell JA, Farquhar J & Kaufman AJ*
- 
- 14:30 *In situ* Boron Isotopic Measurements in Cultured Foraminifera: Implications for  $\delta^{11}\text{B}$  Vital Effects  
A879 *Rollion-Bard C & Erez J*
- 
- 14:45 Quantifying Ag Uptake and Storage in Marine Diatoms  
A1091 *Wagner M & Hendy I*
- 
- 15:00 Tracing Sources and Cycling of Phosphorus in Peru Margin Sediments Using Oxygen Isotopes in Phosphates  
A455 *Jaisi D & Blake R*
- 
- 15:15 **Keynote:** Carbonate Clumped Isotope Thermometry as a Tool for Paleoceanography  
A261 *Eiler J, Bergmann K, Bonifaci M, Eagle R, Finnegan S, Fischer W, Passey B, Stolper D & Tripati A*
- 
- 15:45 Temperature Dependence of  $^{13}\text{C}$ - $^{18}\text{O}$  Clumping in Synthetic Aragonite: Laboratory Calibration  
A517 *Kim S-T, Guo W, Coplen TB, Farquhar J & Eiler JM*
- 
- 16:00 Glacial Ocean Temperatures from 'Clumped Isotope' Thermometry in Foraminifera and Coccoliths  
A1057 *Tripati A, Eagle R, Eiler J & Beaufort L*
- 
- 16:15 Carbonate Clumped-Isotope Paleothermometry of Sub-Arctic Early Cretaceous Fossils  
A832 *Price G & Passey B*
- 

(Session 12a continues on Monday 14th Posters on page 60)

## 15c: Non-Traditional Applications of Surface Complexation Modeling of Geologic Systems

Session chaired by Carla Koretsky, Jeremy Fein & Daniel Alessi

15:45 **Keynote:** Defining and Calibrating Surface Complexation Models for Predictive Simulations of Reactive Transport in Field Applications

A507 Kent D

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16:00 Modelling Trace-Metal Sorption to Bacteriogenic Iron Oxides: Cu(II) and Bacteriogenic Ferrihydrite

A723 Moon E & Peacock C

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16:15 Molecular Dynamics Simulations of Metal Complexation with Natural Organic Matter and Other Aqueous Anions: Atomistic Basis for Surface Complexation Modeling

A447 Iskrenova-Tchoukova E, Kalinichev A & Kirkpatrick RJ

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(Session 15c continues on Tuesday 15th Posters on page 141)

## 15d: Microbe – Metal Interactions from the Molecular to Macroscopic Scale

Session chaired by Drew Gorman-Lewis & Bryne Ngwenya

- 13:30 Gold Adsorption and Reduction by Non-Metabolizing Bacterial Cells  
A506 *Kennedy J, Song Z, Bunker B & Fein J*
- 
- 13:45 Thermodynamic Characterization of *Bacillus subtilis* Spore-Proton Adsorption  
A384 *Harrold Z & Gorman-Lewis D*
- 
- 14:00 Fractionation of Cu Isotopes during Adsorption and Metabolic Uptake by Bacteria  
A749 *Navarrete JU & Borrok DM*
- 
- 14:15 Combined Titration, EXAFS and Molecular Dynamics Modeling Study of Cu(II) Ions Sorbed on the Model Biopolymer Xanthane  
A980 *Spadini L, Causse B, Mazeau K, Sarret G, Gury J, Martins J, Heyraud A, Geremia R & Delolme C*
- 
- 14:30 **Keynote:** Microbial Metal Interactions – Thinking Beyond the Surface  
A1115 *Warren L, Norlund K & Hitchcock A*
- 
- 15:00 Acidophiles in Neutral Drainage and their Impact to Chemistry and Flow  
A95 *Blackmore S, Power I, Southam G, Mayer KU, Beckie R & Smith L*
- 
- 15:15 Biochemistry of Metal Interactions with *Shewanella putrefaciens* Cytoplasmic Membranes  
A306 *French S & Glasauer SR*
- 
- 15:30 Visualization of Hydrated Bacterial Structures by Complementary Electron Microscopy Technique  
A671 *Marshall MJ, Dohnalkova AC, Arey BW, Williams KH & Fredrickson JK*
- 

(Session 15d continues on Tuesday 15th Posters on page 141)

Session 15c follows this session in this room.

For details see page 39.

## 16a: Applications of Novel Isotope Tracing Techniques to Biogeochemical Cycles

Session chaired by Nathaniel Ostrom & Stephen Macko

- 13:30 NanoSIP: Combining Stable Isotope Probing and High Resolution Secondary Ion Mass Spectrometry to Identify Diazotrophs in Stratified Marine Microbial Communities  
A966 *Singer S, Woebken D, Burow L, Prufert-Bebout L, Bebout B, Hoehler T, Pett-Ridge J, Spormann A & Weber P*
- 
- 13:45 Novel Continuous Flow-Cavity RingDown Spectroscopy Systems For High-Precision Bulk and Compound-Specific  $^{13}\text{C}/^{12}\text{C}$  Measurements  
A896 *Saad N*
- 
- 14:00 Isotopologue Data Reveal Denitrification as the Primary Source of Nitrous Oxide at Nitrogen Fertilization Gradient in a Temperate Agricultural Field  
A780 *Ostrom N, Ostrom P, Gandhi H, Millar N & Robertson GP*
- 
- 14:15 Mercury and Its Isotope Composition in Lichens and Sediments from Particular Pollution Source  
A649 *Ma J, Hintelmann H, Kirk J & Muir D*
- 
- 14:30  $\delta^{13}\text{C}$  Signatures of Carbon Pools and Fluxes in a Holocene *Sphagnum* Peat Bog (Czech Republic)  
A766 *Novak M, Veselovsky F, Jackova I, Prechova E, Buzek F, Zemanova L & Hruska J*
- 
- 14:45 The Effects of Early Diagenesis on the Composition and  $\delta^{13}\text{C}$  Signal of Lignin from Two Marsh Plants  
A113 *Bowles K, Meile C, Culp R & Sun M-Y*
- 
- 15:00 Assessing Sea Ice Algal Productivity in the Western Arctic: A Combined Biomarker and GCIRMS Approach  
A727 *Morris D, Macko S, Belicka L & Harvey R*
- 
- 15:15 Benthic Microalgae and Bacteria Facilitate Carbon and Nitrogen Retention in Shallow Photoc Sediments  
A382 *Hardison AK, Canuel EA, Anderson IC, Tobias C & Veuger B*

(Session 16a continues on Monday 14th Posters on page 62)

Session 16f follows this session in this room.

For details see page 42.

## 16f: Dynamics of Colloidal and Particulate Materials in Rivers and River-Dominated Estuaries

Session chaired by Yoko Furukawa & Laodong Guo

15:30 **Keynote:** Hydroclimatic and Geomorphic Controls on Particulate Organic Matter in Small Mountainous Rivers

A346 *Goni M, Hatten J, Wheatcroft R, Borgeld J, Pasternack G, Gray A & Watson E*

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16:00 **Keynote:** Colloidal Iron in Rivers and Estuaries

A952 *Shiller A*

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(Session 16f continues on Tuesday 15th Posters on page 149)

## 17a: Nanoparticles Important to the Environment: Structure, Reactivity, Analysis

Session chaired by Frank von der Kammer,  
Ruben Kretzschmar & Andreas Voegelin

- 13:30 **Invited:** Reactive Oxygen Species Generation by Elemental Iron and Silver Nanoparticulates  
A1091 *Waite TD, Jones A & Garg S*
- 
- 13:45 **Invited:** Effects of Oxidation on Nanomagnetite Magnetization, Aggregation, and Sedimentation  
A1081 *Vikesland P & Rebodos R*
- 
- 14:00 Reduction of Contaminant Tc(VII) by Magnetite ( $\text{Fe}_3\text{O}_4$ ) and Titanomagnetite ( $\text{Fe}_{3-x}\text{Ti}_x\text{O}_4$ ) Nanoparticles  
A615 *Liu J, Pearce C, Qafoku O, Rosso K, Peretyazhko T, Arenholz E & Heald S*
- 
- 14:15 Spent Nuclear Fuel Corrosion – The Influence of Pd  $\epsilon$ -Particles on Dissolution Processes  
A1000 *Stumpf S, Seibert A, Gouder T & Denecke M*
- 
- 14:30 **Invited:** The Contrasting Behavior of As and Sb in the Mining Waste Near Pezinok, Slovakia  
A659 *Majzlan J, Lalinska B, Chovan M, Göttlicher J, Steininger R, Hug K, Ziegler S & Gescher J*
- 
- 14:45 **Invited:** Arsenic Sequestration and Oxidation at the Surface of Fe(II)-containing Iron (Hydr)oxide Nanoparticles  
A726 *Morin G, Ona-Nguema G, Wang Y, Juillot F, Menguy N, Calas G & Brown Jr. GE*
- 

(Session 17a continues on Monday 14th Posters on page 63)

## 19a: In situ Observations of Fluid-Mineral Interfacial Structure, Dynamics and Reactivity

Session chaired by Paul Fenter & Gernot Rother

- 13:30 Cesium Sequestration into a Microporous Gallosilicate Framework  
A577 *Leftwich K & Celestian A*
- 
- 13:45 The Mechanisms of Sr Ion Exchange into Partially Niobium Substituted Sitenakite  
A538 *Kramer S & Celestian A*
- 
- 14:00 **Invited:** Structure and Reactivity of Hydrated Goethite (100) Interface and Arsenic Sorption: CTR and RAXR Study  
A328 *Ghose S, Waychunas G, Eng P & Trainor T*
- 
- 14:15 Atomic Structure at the Quartz (101) – Water Interface by X-Ray Scattering Method  
A1218 *Zhang Z, Fenter P & Wesolowski D*
- 
- 14:30 **Keynote:** Extrapolating Investigations of Ion and Molecular Adsorption at the Muscovite (001)-Water Interface to Systems in Earth, Environmental, and Materials Science  
A745 *Nagy K, Lee SS, Park C, Schlegel M, Cheng L, Sturchio N & Fenter P*
- 
- 15:00 *In situ* Observations of Competitive Adsorption of Monovalent Ions at the Muscovite (001)-Water Interface  
A575 *Lee SS, Park C, Sturchio N, Nagy K & Fenter P*
- 
- 15:15 Dynamics and Structure of Interlayer H<sub>2</sub>O in K-Saturated Hectorite Probed by <sup>2</sup>H and <sup>39</sup>K NMR and Neutron Spin-Echo (NSE) Spectroscopy  
A113 *Bowers G, Kalinichev A, Faraone A, Bish D & Kirkpatrick RJ*
- 
- 15:30 **Invited:** Pico- to Nano-Second Dynamics of Water on Mineral Surfaces  
A662 *Mamontov E, Vlcek L, Wesolowski D, Cole D, Anovitz L, Wang W & Cummings P*
- 
- 15:45 Sorption and Wetting Properties of Pore Fluids Probed by Neutron Scattering Techniques  
A886 *Rother G, Horita J, Cole D & Littrell K*
- 
- 16:00 **Invited:** How Pores Grow in Shale during Rock-Water Interaction: A SANS/USANS Study  
A469 *Jin L, Rother G, Cole D & Brantley S*
- 
- 16:15 Analysis of Nano-Porosity in the St. Peter Sandstone Using (Ultra) Small Angle Neutron Scattering  
A26 *Anovitz L, Cole D, Rother G, Valley J & Jackson A*
- 

(Session 19a continues on Monday 14th Posters on page 63)

## 20b: Sharpening the Tools of Isotope Geochemistry: A Session in Honor of Ken Ludwig

Session chaired by Paul Renne, John Aleinikoff,  
Mark Fanning, Warren Sharp & Roland Mundil

- 13:30 Common Os in Molybdenite: How Negligible is Negligible?  
A1237 *Zimmerman A & Stein H*
- 
- 13:45 Combined Th-U Isotope and Multi-Element Analyses by  
LA-ICP-MS  
A701 *Mertz-Kraus R, Jochum KP, Sharp WD, Stoll B, Weis U  
& Andreae MO*
- 
- 14:00 <sup>230</sup>Th/U Dating of Pedogenic Carbonate by Laser Ablation  
ICP-MS  
A396 *Hellstrom J, Sharp W, Ludwig K, Hergt J, Woodhead J,  
Amundson R & Chadwick O*
- 
- 14:15 SIMS U-Pb Dating of Alluvial Deposits Using Authigenic  
and Detrital Opal  
A755 *Neymark L, Paces J & Wooden J*
- 
- 14:30 Strategies for the Treatment of Coral Age Data in the  
Reconstruction of Sea-Level Change  
A1044 *Thompson WG*
- 
- 14:45 Zircon Oxygen and Hf Isotopic Constraints on 150 M.y. of  
Subduction Magmatism, South Patagonian Batholith, South  
America  
A279 *Fanning M, Hervé F, Pankhurst R, Calderón M, Yaxley G  
& Holden P*
- 
- 15:00 Alpha Recoil Loss from Baddeleyite Evaluated by Depth  
Profiling and Numerical Modelling: Implications for U-Pb  
Ages  
A213 *Davis W & Davis D*
- 
- 15:15 "Chemical Abrasion" U-Pb Analysis of Chondrules  
A16 *Amelin Y & Iizuka T*
- 
- 15:30 U-Pb (CA-TIMS) Zircon Geochronology of the Late Permian  
of Australia: Constraining the Time Scale between Two  
Major Extinctions  
A223 *Denyszyn S, Mundil R & Metcalfe I*
- 
- 15:45 Calibration of the Late Triassic Time Scale: U-Pb Zircon  
Ages from the Chinle Formation  
A738 *Mundil R, Irmis RB, Olsen PE & Kent DV*
- 
- 16:00 **Keynote:** Advances in Zircon U-Pb Geochronology: The  
Ludwig Factor  
A680 *Mattinson J*
-

## 21b: Teaching Mineralogy, Petrology and Geochemistry

Session chaired by David W Mogk & Darrell J Henry

13:30 Teaching Mineralogy, Petrology and Geochemistry: New Instructional Resources from the on the Cutting Edge Program

A717 Mogk D

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13:45 Course-Embedded Projects in Undergraduate Geoscience Education: Research Experience, Communication Skills and Programmatic Assessment

A401 Henry D & Dutrow B

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14:00 "What Good are Your Results if you Can't Explain Them Clearly?" Teaching Petrology as a Writing-Intensive Course

A143 Carmichael S

---

14:15 Teaching Mineralogy in the Context of the Rock Cycle

A146 Carrigan C

---

14:30 Going Beyond the Mystery Mineral: Extending the Use of Powder X-Ray Diffraction in an Introductory Mineralogy Course

A280 Farthing D

---

14:45 Integrating Microbeam Research Instrumentation into the Classroom to Teach Mineralogy and Petrology: Outcomes

A896 Ryan J

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(Session 21b continues on Thursday 17th Posters on page 260)

### 01c: The Moon 40 Years after Apollo: Origin, Evolution and Volatiles

- 1 Understanding Lunar Granulites Through a Terrestrial Analogue Study  
A205 *Dammeier R, Moser D & Osinski G*
- 
- 2 Apollo 16 Impact Melt vs Basalt: Textural and Chemical Analyses  
A276 *Fagan A & Neal C*
- 
- 3 Dispersed Fe/Mn Ratios of Lunar Rocks: ALHA81005's View from the Farside  
A356 *Gross J & Treiman AH*
- 
- 4 Olivine/Liquid Partitioning, Heats of Fusion, and the Illusion of Linearity  
A480 *Jones JH*
- 
- 5 Lunar Space Weathering via Exposure to Ultraviolet Radiation  
A543 *Kuhlman K, Garrison D, Hiroi T & Pieters C*
- 
- 6 The Next Generation of Petrologic Study of Lunar Compositions: Exploring the Effects of Water, Cl, F, S and the Fluid Exsolution Processes that Have Affected their Distribution  
A753 *Nekvasil H, McCubbin F & Ustunisik G*
- 
- 7 Investigating the Petrogenesis of Apollo 12 Pigeonite Suite Basalts  
A781 *O'Sullivan K & Neal C*
- 
- 8 Northwest Africa 3163: A Window into the Deep Lunar Crust?  
A939 *Shafer J, Hall C, Lapen T & Brandon A*
- 
- 9 Small Volcano Swarms on the Moon: Common Volcanic Edifices on Terrestrial Planets  
A1153 *Xiao L, Huang J, He Q & He X*
- 

### 01h: Frontiers in Analytical Cosmochemistry

- 10 Preservation of Sharp Olivine Compositional Boundaries within Olivine-Phyric Shergottite LAR 06319  
A46 *Balta JB & McSween H*
- 
- 11 Stardust and CI-Chondrite Sulfides  
A81 *Berger E, Lauretta D, Zega T & Keller L*
- 
- 12 Micro-Raman Spectroscopic Study on Ararki (L5) Chondrite  
A797 *Parthasarathy G*
-

### 03b: Mantle Reservoirs and their Creation

- 13 <sup>186</sup>Os-<sup>187</sup>Os Systematics of EM and HIMU Flavours  
A213 *Day J, Jackson M & Walker R*
- 
- 14 Submarine Tholeiitic Volcanism (ca. 3.6 to 4.9 Ma) West of Ka'ena Ridge, Hawaiian Islands: Implications of Low Magma Productivity in the Evolution of the Hawaiian Plume  
A353 *Greene A, Weis D, Garcia M, Kuga M, Ito G & Robinson J*
- 
- 15 The Geochemical Similarities between Double Volcanic Trends at Hawaii and Samoa  
A431 *Huang S & Jackson M*
- 
- 16 Re-Os Reveals Ancient Mantle Components in Xenoliths from the Cook-Austral and Samoan Hotspots  
A451 *Jackson M, Hauri E & Shirey S*
- 
- 17 Anomalously Low <sup>3</sup>He/<sup>4</sup>He Ratios in Lavas from the Great Dodo Plain on the Central Indian Ridge Axis  
A679 *Matsumoto T, Orihashi Y, Miyakawa C & Tamaki K*
- 
- 18 Heavy Noble Gases from the Southwest Indian Ridge: Insights into Upper Mantle Heterogeneity  
A791 *Parai R, Mukhopadhyay S & Standish J*
- 
- 19 U-Pb Dating of Zircon, Rb-Sr and Sm-Nd Isotopic Analysis of Layered Intrusion Kivakka (N. Karelia)  
A864 *Revyako N, Anosova M, Kostitsyn Y & Bychkova Y*
- 
- 20 New Approach for the Determination of a Mantle End-Member Controlling N-Morb-Like Component in Oceanic Basalts and in Intraplate Dupale-Type Basalts: A Metallogenic Implication  
A874 *Rochd K, Ennih N, Jouhari A, Mouttaqi A & Nasloubi M*
- 
- 21 Hf Isotope Signature of Mt. Etna Magmas (Sicily, Southern Italy)  
A1081 *Viccaro M, Millar IL, Nicotra E & Cristofolini R*
- 
- 22 Isotope Systematics of Ocean Island Basalts in the Central Group Islands of the Azores Archipelago  
A1191 *Yu H & Widom E*
- 

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### 03d: New and Old Paradigms on the Origin and Evolution of Continental Lithosphere

- 23 Metasomatism in Peridotites beneath the Daldyn-Alakite Region Yakutia  
A35 *Ashchepkov I, Travin A, Ntaflos T, Logviniva A, Vladykin N & Palesky S*
-

- 24 Variability of Nd and Sr Isotopes in Alkaline Rocks of the Polar Siberia: A Consequence of Plume-Lithosphere Matter Mixing  
A325 *Gertner I, Vrublevskii V, Sazonov A, Krasnova T & Zvyagina E*
- 
- 25 Variation and Complexity of the Late Permian Emeishan Basalts: Reappraisal of Plume-Lithosphere Interaction Processes  
A391 *He Q, Xiao L, Chen J & Gao R*
- 
- 26 Pb Isotopic Evidence of a Cognate Origin for Cr-Poor Megacrysts in Southern African Kimberlites  
A458 *Janney P & Bell D*
- 
- 27 Anorogenic Magmatism, Mantle Plume and the Assembly of Late Proterozoic Malani Supercontinent  
A525 *Kochhar N*
- 
- 28 Insights on the Evolution of the Lithospheric Mantle Underneath the Gibeon Kimberlite Field, Namibia  
A639 *Luchs T, Brey G & Gerdes A*
- 
- 29 Thickness of Diamond-Bearing Metasomatic Aureoles in the Cratonic SCLM  
A661 *Malkovets V, Griffin W, Pokhilenko N, O'Reilly S & Mishenin S*
- 
- 30 Evolution of Composition of the Siberian Craton Lithosphere Roots: Evidences from the Udachnaya Xenoliths  
A822 *Pokhilenko N, Agashev A & Pokhilenko L*
- 
- 31 History of Lithospheric Mantle beneath Western Kaapvaal Craton: Signatures from Subcalcic Garnets  
A957 *Shu Q, Brey G & Aulbach S*
- 
- 32 The Karakoç Magmatic Association (Central Anatolia, Turkey): Intrusive Products of H<sub>2</sub>O and CO<sub>2</sub> Rich Alkaline Melt  
A1047 *Toksoy-Köksal F & Göncüoğlu MC*
- 
- 33 The Siberian Traps: What's New?  
A1053 *Travin A, Ryabov V & Ponomarchuk V*
- 
- 34 A Riebeckite Alkaline Granite Related to Subduction Setting in Chinese Altay Mountain  
A1222 *Zhao Z, Wang Q, Bao Z, Luo Y & Tang G*
- 

### 03h: Analytical, Experimental and Theoretical Aspects of Stable Isotope Fractionation at High P and T: Implications for Planetary Evolution

- 35 Theoretical Investigation of Iron Isotope Fractionation between Pyrite, Hematite and Siderite  
A96 *Blanchard M, Poitrasson F, Méheut M, Lazzeri M, Mauri F & Balan E*
-

- 36 Hybrid Einstein-Debye Model to Calculate Isotope Fractionation at High Temperature and Pressure  
 A139 *Cao X & Liu Y*
- 
- 37 A Fundamental Approach to Isotopic Fractionations Induced By Thermal Gradients in Melts  
 A239 *Dominguez G, Wilkins G & Thiemens M*
- 
- 38 Experimental Fractionation of Ni Stable Isotopes between Metal and Silicates at 500-950°C and 10 Kbar  
 A569 *Lazar C, Young E & Manning C*
- 

### 04b: Protolytic Equilibria and Kinetics at Interfaces Probed on Different Scales

- 39 Surface Speciation of Sulfate at a Mineral-Water Interface  
 A27 *Aoyama K & Fukushi K*
- 
- 40 An Experimental Investigation of Olivine-Fluid Interaction as a Function of pH and Surface Area  
 A214 *DeAngelis M, Labotka T, Finkelstein D & Cole D*
- 
- 41 Protolytic Equilibria at “Inert” – Electrolyte Interfaces  
 A646 *Lützenkirchen J, Kallay N, Preočanin T & Selmani A*
- 
- 42 Ion Association in Aqueous  $MgSO_4$  and  $NiSO_4$  from 25 to 275°C at 19 MPa by AC Conductance and Raman Spectroscopy  
 A654 *Madekufamba M & Tremaine P*
- 
- 43 Effect of B/Al Ratio on the Dissolution of Nepheline Glass,  $Na_3(Al, B)_{1-4}Si_4O_{16}$   
 A816 *Pierce E*
- 
- 44 Revisit Calcite Dissolution Kinetics: Roles of  $\Delta G$ ,  $pCO_2$ , and Dislocation  
 A1037 *Teng H & Fan C*
- 

### 04c: Solute Transport in Low Permeability Rocks: Hydrogeochemical and Mineralogical Studies

- 45 The Discovery and Geological Significance of Boiling Hydrocarbon Inclusion of Yanchang Formation in Southeastern Ordos Basin  
 A309 *Fu G, Zhang T & Sun L*
- 
- 46 Study of Hydrogeochemical Conditions of *in situ* Leach Uranium Mining in the Shihongtan Deposit  
 A316 *Gao B, Zeng H & Sun Z*
- 
- 47 Can Ti Phases Appearance on Foresudetic Monocline be Affected by  $CO_2$   
 A975 *Sokalska E & Aagaard P*
-

- 48 The Study of Quaternary Groundwater Recharge in Turpan Basin, NW-China  
A1230 *Zhou Y, Shen Z, Sun Z, Liu J & Shi W*
- 

### 04o: Geochemistry and Trace Elements in gem Materials

- 49 Chemical Composition of Apatite Inclusions in Corundum and Spinel Determined by LA-ICP-MS and its Potential for Authentication and Provenance Determinations  
A89 *Bieri W, Grobóty B, Peretti A, Hametner K & Günther D*
- 
- 50 Silicon in Sapphires – Its Role and Detectability by LA-ICP-QMS  
A945 *Shen A*
- 
- 51 Provenance of Gem Corundum: A Global LIBS Study  
A1185 *Yetter K & McMillan N*
- 

### 04p: Mineral Magnetism: Providing New Insights into Geoscience Processes

- 52 The Paleomagnetism and Age of the Modipe Gabbro, South Africa  
A283 *Feinberg J, Denyszyn S, Renne P & Scott G*
- 
- 53 Mineralogy and Magnetic Fabric of Triassic Red Beds from the Conraria Formation, Central Portugal  
A344 *Gomes C, Dória A, Rocha A, Pereira L & Sant'Ovaia H*
- 
- 54 Mineralogy and Magnetic Parameters of Burning Coal Waste Piles Materials: A Preliminary Insight  
A867 *Ribeiro J, Sant'Ovaia H, Gomes C, Correa Ribeiro H, Li Z, Ward C & Flores D*
- 
- 55 Anisotropy of Magnetic Susceptibility Field-Dependence in Portuguese Granites and Gabbros  
A908 *Sant'Ovaia H & Gomes C*
- 
- 56 Early Geodynamo History Preserved in Single Silicate Crystals  
A1029 *Tarduno J*
- 

### 05a: Ridge-Crest Hydrothermal Systems: New Insights from Field, Laboratory, and Theoretical Studies

- 57 Advanced Argillic Alteration at the Desmos Caldera, Manus Basin  
A38 *Bach W, Niedermeier D, Schwander D & Seewald J*
-

- 58 A Comparative Study of Rare Earth Element Concentration in Copper-Sulfides from Different Hydrothermal Sites on the MAR  
A274 *Evrard C, Barrat J-A & Fouquet Y*
- 
- 59 Chalcophile Elements in Peridotites as a Proxy for Sulfide Mineralization during Serpentinization  
A334 *Gionfriddo C, Bizimis M, Sen I & Salters V*
- 
- 60 Helium and Carbon Geochemistry of Hydrothermal Fluids on the Southern East Pacific Rise at 11-32 °S  
A372 *Hamasaki H, Ishibashi J-I, Ueno Y, Lupton J & Ohmoto H*
- 
- 61 Modeling of Two-Phase Flow at the East Pacific Rise 9°50'N  
A376 *Han L, Lowell R & Lewis K*
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- 62 Silica Solubility and Transport in Saline, Immiscible Fluids: Application of the Si-Cl Geothermobarometer to Sub-Seafloor Hydrothermal Systems  
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- 205 Catalytic Mechanism of Hg-C Bond Cleavage by the Organomercurial Lyase MerB  
A795 *Parks J, Guo H, Momany C, Liang L, Miller S, Summers A & Smith J*
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## 20n: Laser Ablation ICP-MS in Ore Deposits Studies

- 206 LA ICP-MS U-Pb Dating for Zircon from Gold-Bearing Quartz Veins of Shihu Gold Deposit in North Taihang Orogenic Belt, North China Craton  
A140 *Cao Y & Li S*
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- 207 Dependence of the Level of Argide Interferences on Light PGEs during Laser Ablation of Sulphides on the Configuration of ICP-MS  
A208 *Danyushevsky L, Guillong M, Gilbert S, Waelle M & Raveggi M*
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- 208 The Development of a Nickel Sulphide Standard for the *in situ* Analysis of Platinum Group Elements and Gold by Laser Ablation ICP-MS  
A330 *Gilbert S, Danyushevsky L, Robinson P, Wohlgemuth-Ueberwasser C, Norman M, Hanley J & Pearson N*
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- 209 A LA-ICP-MS Chronological and Tectonic Environment Study of the Ore-Bearing Volcanics in Baiyin Orefield  
A595 *Li X*
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- 210 Multi-Element Laser Mapping of Geological Materials: Improving Data Collection, Image Production and Analysis Using Time Series and Innovative Inference Techniques  
A853 *Reading A, Danyushevsky L, Meffre S & Gilbert S*
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- 211 ICP-MS Data of the Southern Ikenky Mg-Rich Basalts (Siberian Platform)  
A949 *Shevko A & Gora M*
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- 212 Ten Micron Zircon Dating Using LA-Q-ICPMS  
A1193 *Yuan H-L, Chen K-Y, He G-F, Song J-Y & Gao S*
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- 213 LA-ICP-MS *in situ* Trace Elements Analysis of Apatite and Magnetite from Taocun Iron Deposit, Anhui Province, China  
A1209 *Zhang L, Zhou T, Fan Y, Yuan F, Ma L & Qian B*
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22a: General Low-Temperature Geochemistry

- 214 Geochemical Analyses as a Discriminating Tool for Paleoenvironmental Studies of Shallow-Marine Carbonate Rocks  
 A1 *Abbasi R & Adabi MH*
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- 215 Geochemistry and Tectonic Studies of Metavolcanics of Um Anab Area, North Eastern Desert, Egypt  
 A17 *Amin BM, Eltokhi M & Alaabed S*
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- 216 Carbon Isotope Record ( $\delta^{13}\text{C}_{\text{carbonate}}$ ) of the Middle to Late Jurassic (Calloviaian – Oxfordian) from the Algarve Basin, Portugal  
 A105 *Borges M, Fernandes P, Rodrigues B & Goodhue R*
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- 217 Arsenic Distribution in Laterites of the Balkan Peninsula and its Environmental Significance  
 A263 *Eliopoulos D, Economou-Eliopoulos M & Tsoupas G*
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- 218 Advanced Argillic Alteration in Tarom Zone, Central Alborz, Iran  
 A326 *Ghasemi A & Taghipour B*
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- 219 Powder Neutron Diffraction Studies of Ferrihydrite, a Nanocrystalline Material  
 A383 *Harrington R, Michel M, Parise J, Hausner D & Strongin D*
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- 220 Study on Qinglong Antimony Deposit, Guizhou Province, China: Buried History, Ore-Forming Temperature and Mineralizing Period  
 A426 *Hu Y, Wang J & Wang X*
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- 221 Helium Isotope in the Accreted Ice of Subglacial Lake Vostok (Antarctica)  
 A461 *Jean-Baptiste P, Fourré E, Petit J-R, Bulat S, Alekina I & Lipenkov V*
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- 222 Incorporation of Arsenate into Gypsum: Relevant to Hydrometallurgical Iron-Arsenic Coprecipitation Process  
 A464 *Jia Y, Zhang D & Demopoulos G*
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- 223 The Carlin Type Gold Deposits and its Geochemistry of Ore-Forming Fluid in Dian, Qian, Gui Provinces  
 A485 *Jun F & Han R*
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- 224 Silicic Acid Removal as Magnesium Silicate and Uptake of Boron from Synthetic Geothermal Water for the Effective Utilization of Geothermal Energy  
 A500 *Kawabata Y, Yonezu K, Imai A, Watanabe K & Yokoyama T*
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- 225 Identification of Natural Versus Anthropogenic Contributions to Groundwater Geochemistry Using an Integrated Hydrochemical, Statistical, and Mass Balance Modeling Approach  
 A516 *Kim K-H, Yun S-T, Mayer B, Kim H-M & Choi B-Y*

- 226 Hydrochemical and Isotopic Characteristics of Shallow Groundwater in Areas Affected by the Norovirus
- A574 *Lee J-H, Yun S-T, Kim S-O, Jeong YS, Mayer B, Kim K-H, Jheong W-H & Kim TS*
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- 227 The Study on the Equilibria of the System  $\text{NaVO}_3 - \text{NaH}_2\text{PO}_4 - (\text{NH}_2)_2\text{CO} - \text{H}_2\text{O}$  at 298 K
- A804 *Peng Y & Zeng Y*
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- 228 Micromorphology and Mineralogy of Interbasaltic Palaeosols at Giant's Causeway, Northern Ireland
- A815 *Phillips D, Smith B, Russell M & McAlister J*
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- 229 Sources and Sinks of Iodine in the Atacama Desert, Northern Chile: Insights from the Nitrate Ore Fields and Supergene Zones of Cu Deposits
- A858 *Reich M, Snyder G, Fehn U, Palacios C, Vargas G & Cameron E*
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- 230 REE Behaviour in Hydrothermal Altered Rocks from Karkas Mountains, North of Isfahan
- A1018 *Taghipour B & Mackizadeh MA*
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- 231 Trace Elements and Isotope Dating from Devonian-Carboniferous Boundary in China and its Pale Environment Significance
- A1112 *Wang Y-X, Wang Y-Y, Chen Y-J, Zhang M-Q & Li H-M*
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- 232 Study on Determination of Lead Isotopes Ratio in Oil Shale by Inductively Coupled Plasma Mass Spectrometry
- A1223 *Zheng PX & Zhou Y*

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- A188 *Conte E & Widom E*
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- 234 Magmatic Evolution of the Santa Barbara G Trachyte, Terceira, Azores
- A204 *Daly G, Widom E & Fanca Z*
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- 235 Bimodal Complexes of the Mongolian-Okhotsk Orogenic Belt (Western and Eastern Flanks)
- A225 *Derbeko I*
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- 236 Contrasting Sources of Magmatic Epidote-Bearing Monzodiorites and Tonalites, NE Brazil
- A289 *Ferreira V, Sial A, Pimentel M, Armstrong R, Spicuzza M, Guimarães I & Da Silva Filho A*

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- 237 Geochemical and Sr–Nd–Pb Isotopic Compositions of Late Mesozoic Dioritic Porphyries in the Zhonggu Iron Ore Field, Middle–Lower Yangtze River Belt, Eastern China: Petrogenesis and Tectonic Setting  
A419 *Hou T & Zhang Z*
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- 238 Upper Mantle and Metasomatic Processes on Eastern Moroccan Anti-Atlas  
A441 *Ibhi A, Nachit H, Ait Touchnt A, Abia EH & Vaccaro C*
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- 239 Diachronous and Progressive Deformation in Intracontinental Tectonic System: A Case Study from Mesozoic Thrusting in the Xuefengshan, China  
A469 *Jin C, Li S & Dai L*
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- 240 Ailaoshan Ophiolite Belt, Yunnan Province, Southwestern China: SSZ Type or MORs Type?  
A609 *Liu C, Deng J, Liu J, Su S, Chen Y & Kong W*
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- 241 Age, Geochemical Characteristics of SSZ-Type Ophiolite in the South Tianshan, China, and Subducting Direction of the Paleo-Southern Tianshan Ocean  
A650 *Ma Z*
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- 242 Tectonic Controls on the Timing and Chemistry of Palaeogene Flood Basalt Volcanism in NE Ireland  
A689 *McKenna C, Gamble J, Renne P, Fitton G, Ellam R & Lyle P*
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- 243 Os Isotope Systematics of Jorullo Lavas, Mexico: Petrogenetic Implications  
A850 *Rasoazanamparany C, Widom E, Siebe C, Guilbaud MN, Salinas S & Valdez G*
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- 244 Record of Oceanic Metamorphism by Spl in the Serpentinites from the Frido Unit Ophiolites (Southern Apennine- Italy)  
A907 *Sansone MTC, Prosser G, Rizzo G & Tartarotti P*
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- 245 Hf Isotope Constraints on the Petrogenesis of the Paleozoic Granites in Nalati, Northwestern China  
A1163 *Xu X*
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- 246 Geochemical Signature of Felsic Porphyries in the Western Tianshan Mountains, Xinjiang, NW China  
A1202 *Zhang D & Zhang Z*
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- 247 Geochemistry and Petrogenesis of Foliated (Garnet-Bearing) Granites in the Tongbai-Dabie Orogenic Belt  
A1209 *Zhang L, Zhong Z, Zhang H, Sun W, Xiang H & Fang J*
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- 248 Sm–Nd Dating of Whole Rock and Mineral Separates from Dangqiong Gabbro, Yarlung–Tsangpo Suture  
A1228 *Zhou S, Mo X, Qiu R, Zhao Z, Zhang S, Guo T & Qiu L*

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A210 Das S
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- 250 A Conceptual Model for Foraminiferal Proxy Incorporation Based on their Biomineralization Mechanism  
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- 251 Content of Gammacerane in the Paleogene Hetaoyuan Formation in Biyang Sag, East China  
A420 Hou Y, He S, Liu G & Li S
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- 252 Bacterial Diversity in Loess Deposits, Chinese Loess Plateau  
A430 Huang S, Chen Y, Pan X, Cui Y, Ji J & Chen J
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- 253 Biogeochemistry of Iron  
A534 Kovalevskii AL & Kovalevskaya OM
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- 254 The Interrelationships Among CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O of Soil Profile in Karst Areas, Southwest China  
A610 Liu F & Liu C
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- 255 The Formation of Shallow Biogas of Songliao Basin, China  
A643 Luo X, Zhang Y & Li J
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- 256 Geochemical Patterns of *Spartina maritima* from Portuguese Estuaries  
A725 Moreira S, Freitas MC, Munhá J, Tassinari C & Andrade C
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- 257 Geomorphic Controls on Nitrate Processing in a Freshwater Tidal Marsh Invaded by *Hydrilla* sp., Patuxent River, MD  
A931 Seldomridge E & Prestegard K
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- 258 Does Carbonic Anhydrase Affect the Fractionation of Stable Carbon Isotope  
A1148 Wu Y
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- 259 Distribution Characteristics of Heavy Metals in Soil of Uncontaminated Agricultural Products Base of Guangyuan City  
A1207 Zhang J & Xu W
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- 260 Catalytic Effect of the Combination of Catalysts on Bioremediation of Low-Grade Chalcocite Ore  
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## 22d: Other Geochemistry

- 261 Heavy Metal Pollution in Soils Around the Abandoned Mine Sites of Nuggihalli Schist Belt, Karnataka, India  
A30 Aradhi AKK, Kurakalva KRM & Nyasavajhula NM
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- 262 Geochemical Mass Balance of Major Chemical Constituents and Some Aspects of Trace Element Geochemistry in Groundwater of Patancheru Industrial Area, Andhra Pradesh, India  
A50 Banothu D, Satyanarayanan M, Keshav Krishna A & Sudharshan V

- 263 Regularities of Luminescence Variations of Substance of Different Geospheres of the Earth  
 A106 *Boroznovskaya N, Nedera T, Klimkin A, Klimkin V & Tihsin P*
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- 264 First Report of Oneillite from the Singhbhum Region, Purulia, West Bengal, India  
 A155 *Chakrabarty A & Sen AK*
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- 265 3D Numerical Modeling of Strain Field Around the Sumatra Influenced by the Coupling Effect along Subduction Zone  
 A203 *Dai L & Li S*
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- 266 Geochemistry and Geochronology of the Paleozoic Granitoids in the Eastern Central Tianshan Belt  
 A241 *Dong Y, Zhang G & Liu X*
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- 267 Geochemistry of Fly Ash-Brine Co-disposal Systems: Solubility Controls on Trace Elements  
 A281 *Fatoba OO, Petrik L, Gitari W & Iwuoha E*
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- 268 Developpment of a Fast Method of Mineralization for Routine Analysis of Matrix of the Agricultural Production  
 A402 *Heroult J, Parat C, Buissière S, Coriou C, Denaix L, Lespes G & Potin-Gautier M*
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- 269 Characterization of Polycyclic Aromatic Hydrocarbons (PAHs) in Aerosols Around Guiyang City, China  
 A423 *Hu J, Liu D, Zhang G & Zhang Y*
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- 270 Geochemistry Feature of F10 Fault and Ore Prospecting in Fengshan Copper Deposit, Yimen, Yunnan, China  
 A429 *Huang J, Han R & Wang L*
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- 271 Sequential Leaching Methods for Strontium Isotope Stratigraphy: Analysis of Marine Authigenic Carbonates and Phosphates  
 A587 *Li D, Shields G, Ling H-F & Thirlwall M*
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- 272 Geochemistry and Environmental Impact of Cadmium in Cadmium-Rich Pb-Zn Mine Wastes of Southwest China  
 A589 *Li H, Xiao TF, Li D, Zhu Z & Ning Z*
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- 273 Type Au(Cu) Ore Body Discovered First-Time in Tonglushan Deposit in Hubei Province  
 A649 *Ma G, Gong L, Hu S, He S & Gao E*
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- 274 Effect of Low Gravity on Water and Soil-Nutrient-Biomass Dynamics in a Martian Soil-Based Agricultural Plot  
 A656 *Maggi F & Pallud C*
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- 275 Heavy Metal Sediment Concentration Patterns within the Texas River System, USA and Hii River System, Japan  
 A678 *Matsumoto I, Hoffman D, McAlister J, Wolfe J & Ishiga H*

- 276 Traces of Melting in Mantle Spinel Peridotite Xenolith from Khorog Volcano (Northern Mongolia)  
A696 *Mekhonoshin A, Kolotitlina T & Pavlova L*
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- 277 Investigation of Heavy Metal Concentration in Soils and Factors Affecting Metal Uptake by Plants in the Vicinity of a Basaltic Terrain of Igatpuri, Nasik District, Maharashtra, India  
A740 *Murthy N, Keshav Krishna A & Rama Mohan K*
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- 278 Mineralogical and Trace Element Characteristics of Noble Gas Carrier Phases of Interplanetary Dust Particles and Impact Debris in a Central Pacific Sediment Core  
A825 *Poreda R & Darrah T*
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- 279 Geochemistry of the Pınarbaşı Granite (Gediz-Kutahya-Western Anatolia)  
A933 *Semiz B, Ozpinar Y & Helvaci C*
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- 280 Heavy Metal Contamination of Surface Water at Jajmau (Kanpur) and Unnao Industrial Areas of the Ganga Plain, Uttar Pradesh, India  
A986 *Srinivasa Gowd S & Ramakrishna Reddy M*
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- 281 Petrological Characteristics of Boninite, Chichijima Island, Japan – Vertical Petrological Diversity of Boninite Pillow Lava  
A1022 *Taku M & Matsumoto I*
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- 282 Uranium Minerals from the Picoto Uranium Mine Area, Central Portugal  
A1034 *Teixeira R, Antunes IM & Neiva A*
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- 283 Hyperspectral Mapping of Mineral Assemblages Using Spectral Unmixing  
A1126 *Wen X, Han R & Yang X*
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- 284 Trace Elements and REE Geochemistry of Liuju Sandstone-Type Copper Deposit, Yunnan, China  
A1146 *Wu P, Han R & Li J*
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- 285 Study on Ore-Forming Materials Source of Bauxite in Northern Guizhou Province, China  
A1152 *Xiang X, Han R, Jin Z & Wu G*
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- 286 Characteristics of Source Rocks and Hydrocarbon Generation in Yacheng Area of Western Qiongdongnan Basin, Northern South China Sea  
A1152 *Xiao J, Zhu CW & Liao JH*
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- 287 Petroleum Transformations in Reservoirs of Carboniferous Oils from the Tz4 Oilfield, Tarim Basin, NW China  
A1154 *Xiao Q & Sun Y*
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- 288 Huanglong Group Limestone Geochemical Constraints on the Formation of Bauxite in Xinmin, Northwest Guizhou Province, China  
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- 289 Organic Matter Removal Mechanism in Artificial Soil Rapid Infiltration System  
A1162 *Xu WL & Zhang JQ*
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- 290 Toxicity of Arsenic and Antifouling Biocides to the Marine Plankton, Copepod *Tigriopus japonicus*  
A1189 *Yoon C, Yoon H-O & Chung K-S*
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- 291 Effective Application of Analytical Techniques Such as ICP, ICP-MS, and XRF for the Measurement of Toxic Elements Discharge Toward Ocean from Li Recovery Pilot Plant  
A1189 *Yoon H, Yoon C, Ko T & Chung K-S*
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- 292 Petrogenesis of Indosinian Volcanic Rocks in Songpan-Garze Fold belt, Western China: New Evidence for Lithospheric Delamination  
A1206 *Zhang H & Cai H*
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- 293 Discussing the Metallogenic Conditions of Sandstone Uranium Ore at Pull-Apart Tectonic Setting  
A1229 *Zhou W, Wu R & Zhu M*
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