

## agenda

*Unless otherwise noted, all events are held in Petroleum Hall in Green Center on the campus of Colorado School of Mines.*

### Saturday • July 7

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8:00 17:00 Workshop on Rich Organic Rocks

### Sunday • July 8

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8:00 16:00 Field Trip to Organic Rich Rock Outcrops and Niobrara Quarry *(Leaves from and returns to Green Center)*

17:00 20:00 Icebreaker Reception and Registrant Check-in Green Center Lobby

### Monday • July 9

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7:30 8:00 Registrant Check-in

7:30 9:00 Poster Setup ***All posters must be in place no later than 9:00***

#### Plenary Session

8:00 8:10 Welcome Note

8:10 8:30 President's Speech

8:30 9:15 Jackson Award Dr. Jeffrey Post [Unraveling Manganese Oxides – Tales from the Dark Side of Mineralogy](#)

9:15 10:00 Bailey Award Dr. Akihiko Yamagishi [Stereochemistry and Molecular Recognition on a Clay Surface](#)

10:00 10:15 Break

#### Pore-systems *Chairs: Manika Prasad and Jim Krushin*

10:15 10:40 Oral James T. Krushin [An Inorganic Shale Compaction Model Derived from Water Vapor Desorption Isotherms](#)

10:40 11:05 Oral Utpalendu Kuila [Pore Structure in Artificially Compacted Clays and Naturally Compacted Clays](#)

11:05 11:10 Poster Michael Holmes [A Petrophysical Model to Define Clay Mineral Response of Porosity Logs](#)

11:10 11:35 Oral Katherine Mouzakis [Laboratory Investigation of the Impact Of CO<sub>2</sub> Injection on Pore Structure of Shale Caprocks](#)

11:35 12:00 Oral A. Decarreau/S. Petit [Morphometric evolution of a Series of synthesized nontronites studied by low-pressure argon adsorption: Implication on smectite crystal growth](#)

12:00 12:25 Oral W. F. Woodruff [Predictive Capabilities of Normalized Clay-Water Sorption Isotherms](#)

12:25 12:45 Poster Discussion

12:45 13:45 Lunch Break Past President's Luncheon – *by invitation only*  
Green Center – Friedhoff Hall

**Clays and Health** *Chair: Lynda Williams*

13:55 14:15 Oral Asma Sadia/ Youjun Deng [Aflatoxin Degradation on Smectite at Elevated Temperatures](#)

14:15 14:35 Oral Ana L. Barrientos Velázquez [Adsorption of Aflatoxin by Smectites in Simulated Gastric Fluid](#)

14:35 14:55 Oral David W Metge [Assessment of the Mineralogies of Antimicrobial Clay and Their Effects Upon Cellular Functions of Selected Bacteria](#)

14:55 15:15 Oral Peter Ryan [Arsenic in Tetrahedral and Octahedral Sites in Phyllosilicates](#)

15:15 15:35 Oral Abuh Momoh [Geochemical Appraisal of Major Oxides in Geophagic Clays from Vhembe District, South Africa](#)

15:35 15:55 Break

15:55 16:00 Poster Asma Sadia [Evaluation of Pakistan Bentonites for Aflatoxin Detoxification](#)

16:00 16:05 Poster Shadi Kianoosh [Bentonite Clay Effects as Animal Feed Additives on Meat Quality and Health](#)

16:05 16:25 Oral Sandra Londono [Physical and Chemical Characterization of Antibacterial Clay from the NW Amazon Basin: Implications for its Mode of Action](#)

16:25 16:45 Oral Keith Morrison [Interactions Between Antibacterial Clays and Bacteria: Determining the Reactivity and Geochemistry of Transition Metals](#)

16:45 17:05 Oral Joe B. Dixon [Calcium bentonite clay adsorption of aflatoxin in animal feeds](#)

17:05 17:25 Oral Giora Rytwo [The use of clay-polymer nanocomposites in wastewater pretreatment](#)

17:25 18:05 **Poster Discussions**

Poster Michael Holmes A Petrophysical Model to Define Clay Mineral Response of Porosity Logs

Poster Asma Sadia Evaluation of Pakistan Bentonites for Aflatoxin Detoxification

Poster Shadi Kianoosh Bentonite Clay Effects as Animal Feed Additives on Meat Quality And Health

18:05 19:00 Student Reception Green Center – Friedhoff Hall

## Tuesday • July 10

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7:00 8:00 Sustainer's Breakfast Green Center – Friedhoff Hall (*by invitation only*)

### General Session *Chairs: David Bish and Steve Guggenheim*

8:00	8:25	Oral	Mark D Raven	<a href="#">Outcomes of the 2012 Reynolds Cup Quantitative Mineralogy Competition</a>
8:25	8:50	Oral	Jing Zhang	<a href="#">Microbial Reduction of Fe(III) in Smectite Minerals by Thermophilic Methanogen Methanothermobacter Thermautotrophicus</a>
8:50	9:15	Oral	Hongji Yuan	<a href="#">Improved Automated Fitting of X-Ray Diffraction Patterns from Interstratified Phyllosilicates</a>
9:15	9:40	Oral	David Bish	<a href="#">Remote X-Ray Diffraction Analysis of Clay Minerals on Mars</a>
9:40	9:45	Poster	Toshihiro Kogure	<a href="#">Atomic Structure and Origin of Corrensite-Chlorite Investigated by High-Resolution Transmission Electron Microscopy (Hrtem)</a>
9:45	9:50	Poster	Laura K. Zaunbrecher	<a href="#">The Natural Enrichment of Stable Cesium in Weathered Micaeous Materials at the Savannah River Site, SC, and its Implications for Cs-137 Sorption</a>
9:50	9:55	Poster	A. F. Koster van Groos/ S. Guggenheim	<a href="#">A High-Pressure Environmental Chamber for Clay Studies</a>
9:55	10:10	Break		

### Clay Diagenesis and Organic Maturity *Chairs: Doug McCarty and Saeed Zargari*

10:10	10:15	Poster	George Bellos	<a href="#">Sedimentology, Diagenesis and Paleontology Review of the Pliocene Rock Sequence in Lebanon: Applications to Clay Studies for Petroleum Geology and Archaeology</a>
10:15	10:20	Poster	Junfeng Ji	<a href="#">Clay Minerals from the Late Miocene-Pliocene Red Clay Formation on the Chinese Loess Plateau and Paleoclimate Implications</a>
10:20	10:25	Poster	W. Crawford Elliott	<a href="#">Diagenesis of a tight gas sand reservoir: Upper Cretaceous Mesaverde Group, Piceance Basin, Colorado</a>
10:25	10:30	Poster	TBD	
10:30	10:55	Oral	M. R. Stokes	<a href="#">Deformation Induced Dissolution-Precipitation Creep in the Ductile Lishan Fault Zone, Taiwan</a>
10:55	11:20	Oral	Rohit Pant	<a href="#">Elastic and Plastic Anisotropy of Muscovite Probed by Nanoindentation</a>
11:20	11:45	Oral	Saeed Zargari	<a href="#">Implications of organic maturity, hardness, and elastic modulus on mechanical properties in organic-rich rocks</a>
11:45	12:10	Oral	Lynda B. Williams	<a href="#">Organic maturity and hydrocarbon migration recorded by</a>

[nitrogen, boron and lithium trace elements and Isotopes in authigenic illite from the Baltic Basin](#)

12:10 13:10

Lunch Break

13:10 13:30

**Poster Discussions** - General and Clay Diagenesis

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|--------|---------------------------------------|--|
| Poster | Toshihiro Kogure                      | Atomic Structure and Origin of Corrensite-Chlorite Investigated by High-Resolution Transmission Electron Microscopy (Hrtem)                                    |
| Poster | Laura K. Zaunbrecher                  | The Natural Enrichment of Stable Cesium in Weathered Micaeous Materials at The Savannah River Site, SC, and its Implications for Cs-137 Sorption               |
| Poster | A. F. Koster van Groos/ S. Guggenheim | A High-Pressure Environmental Chamber for Clay Studies   |
| Poster | George Bellos                         | Sedimentology, Diagenesis and Paleontology Review of the Pliocene Rock Sequence in Lebanon: Applications to Clay Studies for Petroleum Geology and Archaeology |
| Poster | Junfeng Ji                            | Clay Minerals from the Late Miocene-Pliocene Red Clay Formation on the Chinese Loess Plateau and Paleoclimate Implications                                     |
| Poster | W. Crawford Elliott                   | Diagenesis of a tight gas sand reservoir: Upper Cretaceous Mesaverde Group, Piceance Basin, Colorado   |

**Multi-scale Modeling of Clays and Layered Minerals** *Chairs: Jeff Greathouse and Chris Greenwell*

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|-------|-------|------|---------------------------------------|---|
| 13:30 | 14:00 | Oral | Evgeniy M. Myshakin (Invited Lecture) | <a href="#">Study of Carbon Dioxide Intercalation in Hydrated Na-Montmorillonite by Ab Initio and Classical Molecular Dynamics Simulations</a>                  |
| 14:00 | 14:25 | Oral | Todd R. Zeitler                       | <a href="#">Force Field Development for Clay Mineral Edges</a>  |
| 14:25 | 14:50 | Oral | Craig M. Tenney                       | <a href="#">Molecular Simulation of Carbon Dioxide Nanodroplets on Clay in Deep Saline Aquifers</a>   |
| 14:50 | 15:15 | Oral | Quin R. S. Miller                     | <a href="#">In Situ Study of Montmorillonite Interactions with Variably Hydrated Supercritical CO<sub>2</sub></a>   |
| 15:15 | 15:40 | Oral | Clémentine Meiller                    | <a href="#">Smectite Molar Volume Calculation and Implication of Its Variations as a Function of Hydration on Overpressure Generation in Sedimentary Basins</a> |
| 15:40 | 16:05 | Oral | Robert A. Schoonheydt                 | <a href="#">Some Aspects of the Surface Chemistry of Smectites</a>  |
| 18:00 | 21:00 |      | Reception and Dinner                  | Green Center – Friedhoff Hall   |

**Wednesday • July 11**

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**Soil Clays and Environmental Science** *Chairs: Denny Eberl and Utpalendu Kuila*

8:00	8:25	Oral	Patrik Sellin	<a href="#">Bentonite interaction with low-pH cement: results of the Cyprus Natural Analogue Project (CNAP)</a>
8:25	8:50	Oral	Kai Su	<a href="#">Nitrate Reduction by Redox-modified, Polycation-smectite Composites</a>
8:50	9:15	Oral	Tae-hee Koo	<a href="#">Understanding the Illitization Step by Observing Structural and Chemical Changes in Bioreduced Nontronite in Various Redox Contions</a>
9:15	9:40	Oral	Peter J. Heaney	<a href="#">Layered Mn Oxides and Electron Transport in Soils</a>
9:40	9:45	Poster	Luke Morgan	<a href="#">Characterization of Arsenic-Bearing Minerals in Mine Tailings from Zimapan, Mexico</a>

9:45 10:10 Break and Poster Discussions

10:10	10:35	Oral	Daniel Svensson	<a href="#">Investigation of Iron-Bentonite Interaction in Two Large Scale Field Tests in the Nuclear Waste Disposal Context</a>
10:35	11:00	Oral	Michael A. Velbel	<a href="#">Primary-Silicate/Phyllosilicate Compositional Relationships and Elemental Mobility During Isovolumetric Weathering</a>

**Multi-scale Modeling of Clays and Layered Minerals** *Chairs: Jeff Greathouse and Chris Greenwell*

11:00	11:30	Oral	Hendrik Heinz (Invited Lecture)	<a href="#">Clay Minerals for Nanocomposites and Biotechnology: Surface Modification, Dynamics, and Responses to Stimuli</a>
11:30	11:55	Oral	H. Chris Greenwell	<a href="#">Computational Design of Clay-Swelling Inhibitors</a>
11:55	12:20	Oral	Cliff T. Johnston	<a href="#">Spectroscopic, molecular dynamics and sorption studies of PCDDs and PAHs interactions with four contrasting geosorbents</a>
12:20	12:45	Oral	Baptiste Dazas	<a href="#">Is Fluorohectorite a Reliable Model System to Determine the Hydration Properties of Natural Smectites?</a>
12:45	13:10	Oral	Stephanie L. Teich-McGoldrick	<a href="#">Swelling Behavior of Smectite Minerals: Temperature and Pressure Effects</a>

13:10 14:10 Lunch Break

**Industrial Clays** *Chair: Prakash Malla*

14:10	14:35	Oral	Michael C. Cheshire	<a href="#">Mineralogical and Sulfur Isotopic Evidence for Sulfur Disproportionating Bacteria in the Georgia Kaolins</a>
14:35	15:00	Oral	Croix W. Snapp	<a href="#">Developments in Aspect Ratio Analysis</a>
15:00	15:25	Oral	Michael E. Bishop	<a href="#">Reactivity of Clay Minerals Towards Chromium Immobilization</a>
15:25	15:30	Poster	William J. Miles	<a href="#">Amargosa Valley Sepiolite and Saponite Mineralogy and</a>

[Markets](#)

15:30 15:35 Poster Michael C. Cheshire [Hydrothermal Alteration of a Bentonite-Metal Engineered Barrier System at 150 Bar and up to 300° C Under Brine Conditions](#)

15:35 16:00 Break and Poster Discussions

16:00 16:25 Oral Jakub Matusik [Chromates Sorption by Functionalized Kaolin Group Minerals](#)

16:25 16:50 Oral Martin Penetrák/  
Peter Komadel [Changes Upon Acid Dissolution of a Fine Fraction of a Bentonite and Impact Factor of Our Journal](#)

16:50 17:00 Closing Remarks