

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

8:00 17:00 Workshop on Rich Organic Rocks

Sunday • July 8

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

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 CO2 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

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	Outcomes of the 2012 Reynolds Cup Quantitative Mineralogy Competition
8:25	8:50	Oral	Jing Zhang	Microbial Reduction of Fe(III) in Smectite Minerals by Thermophilic Methanogen Methanothermobacter Thermautotrophicus
8:50	9:15	Oral	Hongji Yuan	Improved Automated Fitting of X-Ray Diffraction Patterns from Interstratified Phyllosilicates
9:15	9:40	Oral	David Bish	Remote X-Ray Diffraction Analysis of Clay Minerals on Mars
9:40	9:45	Poster	Toshihiro Kogure	Atomic Structure and Origin of Corrensite-Chlorite Investigated by High-Resolution Transmission Electron Microscopy (Hrtem)
9:45	9:50	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
9:50	9:55	Poster	A. F. Koster van Groos/ S. Guggenheim	A High-Pressure Environmental Chamber for Clay Studies
9:55	10:10	Break		

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

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

[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 Microcopy (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) | Study of Carbon Dioxide Intercalation in Hydrated Na-Montmorillonite by Ab Initio and Classical Molecular Dynamics Simulations |
| 14:00 | 14:25 | Oral | Todd R. Zeitler | Force Field Development for Clay Mineral Edges |
| 14:25 | 14:50 | Oral | Craig M. Tenney | Molecular Simulation of Carbon Dioxide Nanodroplets on Clay in Deep Saline Aquifers |
| 14:50 | 15:15 | Oral | Quin R. S. Miller | In Situ Study of Montmorillonite Interactions with Variably Hydrated Supercritical CO₂ |
| 15:15 | 15:40 | Oral | Clémentine Meiller | Smectite Molar Volume Calculation and Implication of Its Variations as a Function of Hydration on Overpressure Generation in Sedimentary Basins |
| 15:40 | 16:05 | Oral | Robert A. Schoonheydt | Some Aspects of the Surface Chemistry of Smectites |
| 18:00 | 21:00 | | Reception and Dinner | Green Center – Friedhoff Hall |

Wednesday • July 11

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

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

9:45 10:10 Break and Poster Discussions

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

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

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

13:10 14:10 Lunch Break

Industrial Clays *Chair: Prakash Malla*

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

[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 Pentrák/
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