ORAL SESSION I - MONDAY MORNING - THE ALDER

Utilizing Technology in Modern Exploration and Production
Presiding: Shuvajit Bhattacharya

8:00  Characterizing the Development of North American Source Rock Reservoirs from the Ordovician-Jurassic: A Proxy-Based Multivariate Geochemical Approach
Samantha R. Ritzer and Erik A. Sperling

8:25  Water Vapor Condensing in Anisotropic Pores of Shales by Neutron Scattering
Guijie Sang, Shimin Liu, Derek Elsworth and Rui Zhang

8:50  Anisotropic Pore Structure of Marcellus Shale Under Uniaxial Compression: A Small-Angle Neutron Scattering Study
Rui Zhang, and Shimin Liu

9:15  3D Seismic Interpretation in Salt Basins: Analytic Review of Case Studies
Abdullah Basaloom

9:40  3D Seismic Characterization of Devonian Transfer Faults in the Appalachian Plateau
Travis Duran and Tom Bardol

10:05  BREAK

10:25  Machine-Learning with Multi-Seismic Attributes in Cambro-Ordovician Carbonates of Southwestern Pennsylvania
Randall Hunt

10:50  Using Artificial Intelligence (AI) to Develop a Predictive Landslide Susceptibility Model to Assist with Well Pad and Pipeline Planning and Design
Thomas E. Jordan, Jeffrey C. Dick, Coskun Bayrak and Peter Kimoop

Jeffrey M. Yarus, Sara Gutierrez, Afshin Fathi, Julie Bloxson, Roger H. French and Beverly Z. Saylor

11:40  NMR Log Calibration for Permeability Prediction with Multimodal Carbonates: A Case Study from a Silurian-Aged Pinnacle Reef in Northern Michigan
Z.M.K Cotter, B. Grove and A. Haagsma
Reservoir Characterization: Studies and Case Histories
Presiding: James McDonald

8:00  Combination of Simplified Local Density Theory and Molecular Dynamic Simulation to Study the Local Density Distribution of Hydrocarbon Gas in Shale Gas Reservoirs
Qiuhao Chang, Xingru Wu and Liangliang Huang

8:25  Modeling of Emission Behavior of Shale Gas Based on Canister Desorption Testing
Fengyang Xiong and Joachim Moortgat

8:50  Advanced Petrophysical Logging of Pennsylvanian Cyclic Carbonates, Sleepy Hollow Field, Nebraska
Valerie Smith and R.M. Joeckel

9:15  Silurian Reef Reservoir Heterogeneity in the Illinois Basin with a Focus on Germantown and Wapella East Fields. Reservoir Quality Variability as a Result of Differences in Depositional Environments, Diagenesis and Erosional Truncation at the End of the Silurian
Dennis Prezbindowski, Richard Inden, Michael Grammer and Mary Frush

9:40  Multiscale Assessment of Pore Structures in Unconventional Gas Shale Systems
David R. Cole, Alexander Swift, Julia Sheets, Lawrence M. Anovitz and Susan Welch

10:05 BREAK

10:25  Seismogenic Deformation Within the Utica/Pt Pleasant Reservoir in Northern Pennsylvania
Gregory C. Bank, Thomas A. Bardol, Andrew G. Smith and Dr. Shikha Sharma

10:50  Organic Matter Macerals and Associated Mineralogical Matrices—Marcellus Formation, West Virginia
Julia M. Sheets, Susan A. Welch, Alexander M. Swift, Aaron L. Evelsizor, and David R. Cole

11:15  Delta Slope Method: An Application of Mudgas Stable Isotopes to Map Fracture Influenced Production in Horizontal Wells
Dave Boyer

11:40  Point Pleasant Formation Produced Water Characterization and Estimation of Future Production
Jeffrey C. Dick and Victoria R. Wilson
ORAL SESSION III - MONDAY AFTERNOON - THE ALDER

Historical Perspectives on Energy Development in the Eastern USA
Presiding: Chuck Moyer

1:30  Development of the Classic Indiana Trenton Field: Exploration and Development Patterns Depicted in Historic and Recent Maps, and a Review of Recent TBR Exploration
Kevin Strunk

1:55  The Lima-Indiana Oil and Gas Trend: North America’s First Giant Oil Field
Larry Wickstrom

2:20  Early Drilling and Oil Production in and around Grand Lake, Ohio (1886-1911)
Jeff Spencer and Joyce Alig

2:45  Early Indicators of the Utica/Point Pleasant Potential, Appalachian and Michigan Basins
Charles C. Moyer

3:10  Historical Significance of the Macksburg Oil Field, Ohio
Jeffrey L. Deisher

3:35  BREAK

3:55  From the Good Ole Days of the Heartland to Today, Ohio’s 160+ Years of Oil And Gas Activity and How Things have Changed
Matthew S. Erenpreiss, Michael P. McCormac and Theresa Egresi

4:20  Highlights of Recent Exploration in Illinois
Joan E. Crockett and James Coffroth

4:35  The Forgotten Oil and Gas Fields in Southwestern Pennsylvania
Douglas C. Bowman

5:00  History of Structure Contour Mapping in the Appalachian Basin: 1870 – 1917
James McDonald
IVa  Horizontal Wells: Drilling, Completion, Hydraulic Fracturing and Production Techniques  Presiding: Gregory Mason

1:30  The Horizontal Drilling of the Henrietta Field, Michigan: A Reactivated Ancient Impact Crater Forming Trenton-Black River Hydrothermal Reservoirs
Murray Matson

1:55  Site Selection, Planning and Economics of Laterally Drilled Wells in Conventional Reservoirs
Greg Mason

2:20  Hydraulic Fracturing “Sweet Spots” Identified Using Radiogenic Noble Gases
Brent A. Lary, William K. Eymold, Gus Wulsin, Colin J. Whyte and Dr. Thomas H. Darrah

2:45  Improving Completion Techniques of Unconventional Shale Reservoirs Through the Analysis of Geomechanical Properties and Fracture Imaging; A Study of Horizontal Velocity and Image Logs Within the MIP-3H Marcellus Shale Well in Monongalia County, West Virginia
Kaitlin G. Evans, Tim R. Carr, Payam Kavousi Ghahfarokhi, Tobi Ore, Jarrett Smith and Randy Toth

3:10  Lithofacies Analysis of Two Marcellus Wells Using Core and Log Data in Northern West Virginia
Randy T. Toth, Thomas Paronish, Dustin Crandall, Jonathan Moore and Timothy R. Carr

3:35  BREAK

IVb  Conventional Exploration and Production in Eastern USA

3:55  Silurian Lockport in Ohio – Basins, Reefs, and “Newburg” Traps
Mark A. Neese

4:20  Dolomitized Reef Buildup in the Silurian Louisville Limestone, Muldraugh Gas Storage Field, Meade County, Kentucky
David C. Harris and Lewis P. Barnette

4:35  Seismic Interpretation of Rich Hill 3D, Salt Creek and Rich Hill Townships, Muskingum County, Ohio
Devin R. Fitzgerald, Robert B. Thomas and M. Wes Casto

5:00  Evidence of Thrust Sheets and Décollement Within the Sedimentary Sequence of Northern Ohio; Clues for Possible Hidden Oil and Gas Pools
Mohammad D. Fakhari
Energy Sustainability and the Environment
Presiding: Autumn Haagsma

8:00 What Have We Learned After 20 Years of Carbon Capture and Storage Research in the Illinois Basin?
H.E. Leetaru and C.P. Korose

8:25 A Retrospective Accounting of the Midwest Regional Carbon Sequestration Partnership’s Technical Achievements and Contributions
Kristin M. Carter and Neeraj Gupta

8:50 A Comparison of Resource Estimate Methodologies to Assess CO₂ Storage Capacity Across the Northern Niagaran Pinnacle Reef Trend, Michigan
Autumn Haagsma, Ashwin Pasumarti, Joel Main, Manoj Valluri, Srikanta Mishra and Neeraj Gupta

9:15 Geomechanical Characterization for Secure CO₂ Storage in the Pennsylvanian-Permian Storage Complex in the Midcontinent Region, U.S.A.
Mackenzie Scharenberg and Andrew Dugui

9:40 CCUS Opportunities in Southwestern Pennsylvania Oil Fields: Case Studies from the Midwest Regional Carbon Sequestration Partnership
Kristin M. Carter, Brian J. Dunst, Robin V. Anthony and Katherine W. Schmid

10:05 BREAK

James F. Kasting

10:50 Unusual and Unprecedented Warming? What do Geologic and Human History Tell Us?
Gregory R. Wrightstone

11:15 Panel Discussion on Climate Change & Carbon Capture and Storage
Panel to include: James F. Kasting, Gregory R. Wrightstone, and Hannes Leetaru
Facilitators: John Wicks and Larry Wickstrom
Regional Geology of the Eastern USA  
Presiding: Marty Shumway

8:00  New Interpretation of the Cambridge Arch and Parkersburg – Lorain Syncline in Ohio  
Michael P. Solis

8:25  New Interpretation on the Structural Geology of Strata in Chapel Creek and Berlin Heights, North-Central Ohio  
Mohammad D. Fakhari, Dalton Oxner-Jones and Mark T. Baranoski

8:50  Using Outcrops to Understand and Explain Subsurface Geological Phenomenon: Examples from the Upper Devonian (Famennian) Cleveland Shale Outcrop Belt, Greater Cleveland Metro Area, Ohio  
David R. Blood, Gordon C. Baird and Joe T. Hannibal

9:15  The Origin and Significance of the Lower Mississippian Sunbury Shale in East-Central United States  
Frank R. Ettensohn and Jun Li

9:40  Anticlines We Have Admired: A Review of Styles and Implications for Anticlines Observed in Seismic Reflection Data of the Northern Appalachian Basin  
Robert D. Jacobi, Craig Eckert, Joel Starr and Ryan Mathur

10:05  BREAK

10:25  Far-field Tectonic Controls on Deposition of the Ordovician Utica/Point Pleasant Play, Ohio Using Core Logging, Well Logging, and Multi-variate Analysis  
Julie M. Bloxson

10:50  Mesoproterozoic Rocks and Cambrian Magmatism: How Rodinian Rifting Influenced Deposition of the Thickest, Most Porous and Permeable Unit in the Illinois Basin  
Jared Freiburg, David H. Malone, Mansour Khosravi, Franck Delpomdor and Georg Grathoff

11:15  Extension of Appalachian Black-Shale Source Rocks into Adjacent Intracratonic Basins Through Basin Yoking  
Frank R. Ettensohn

11:40  Constraining Unusual Patterns of Thermal Maturity Within the New Albany Shale, Illinois Basin Using Source Rock Pyrolysis Geochemical Parameters and Aromatic Markers and Biomarkers in Fluid and Rock Extracts  
Donna Caraway Willette
ORAL SESSION VII - TUESDAY AFTERNOON - THE ALDER

VIIa Recent Advances and Case Studies in Enhanced Recovery of Oil and Gas
Presiding: Don Zuch

1:30 History of Secondary and Enhanced Oil Recovery in Michigan
William B. Harrison, III

1:55 Large Potential Reserves Remain for Secondary Oil Recovery in Ohio
Thomas E. Tomastik

2:20 It’s Time For A Fresh Look At Berea and Clinton Secondary Recovery
Robert D. Winland

2:45 Enhanced Oil Recovery Potential in Four Northern Appalachian Basin Oil Fields
Brian J. Dunst, Katherine W. Schmid, Robin V. Anthony and Kristin M. Carter

3:10 Integrated Geologic Analysis of East Canton Consolidated Field (Ohio) for CO₂-EOR
Robin V. Anthony

3:35 BREAK

VIIb Environmental Impacts from Hydraulic Fracturing, Wastewater Disposal, and Minerals Extraction

3:55 Challenges Facing Class II Disposal Well Operations in the Appalachian Basin
Thomas E. Tomastik and J. Daniel Arthur

4:20 Seismicity Induced by Hydraulic Fracturing and Wastewater Disposal in the Appalachian Basin
Michael Brudzinski, Maria Kozlowska, Robert Skoumal, Paul Friberg, Brian Currie and Seth Young

4:35 Managing Potential Injection-Induced Seismicity Through Monitoring and Mitigation
Thomas E. Tomastik, J. Daniel Arthur, and Steve Tipton

5:00 Production and Water Use in Pennsylvania’s Organic Shales
Katherine Schmid
Hydrocarbon Exploration and Production from Unconventional Reservoirs
Presiding: Ed Rothman

1:30 Progress and Findings from “MSEEL 1” and the Transition to “MSEEL 2”: Creating Value from a Cooperative Project
B.J. Carney, Tim Carr, Jay Hewitt, Robert Vagnetti, Shikha Sharma and Alexandra Hakala

1:55 Utica-Pt Pleasant and Marcellus Activity Update and Production Analysis
Marty Shumway, Tim Knobloch and Mitchell Houston

2:20 The Conasauga Shale Research Consortium (CSRC) Will Attempt to Unlock the Secrets of Appalachia’s Newest Unconventional Reservoir
John B. Hickman and David C. Harris

2:45 Petroleum Geochemistry of the Upper Ordovician Maquoketa Group Source Rocks, Illinois Basin, USA
Tim E. Ruble, Richard J. Drozd, Wayne R. Knowles, Elizabeth A. Roberts and Donna C. Willette

3:10 Temperature Dependent Diffusion of Noble Gases in Unconventional Shale Formations: A Comparison of the Appalachian and Permian Basins

3:35 BREAK

3:55 Determining the Type, Amount and Kinetics of Hydrocarbons Generated in a Marcellus Shale Maturity Series
Vikas Agrawal, Shikha Sharma and Nicolaj Mahlstedt

4:20 Characterization of the Late Famennian Lower Huron Shale Member of the Ohio Shale, Southern Scioto County, Ohio
Aaron L. Evelsizor, Julie M. Sheets, David R. Cole, John W. Olesik and Anthony D. Lutton

4:35 Log Sampling Scales: How Ultra-High Resolution Logs Highlight the Intricacies of the Marcellus and Upper Devonian Shales
Timothy Vance

5:00 Devonian Shale Oil Production in the Burning Springs Anticline, West Virginia
Ed Rothman and Gregory Wrightstone
POSTER SESSION 1 MONDAY MORNING

Buckeye 1 & 2 8:30 – 11:30

Utilizing Technology in Modern Exploration and Production

An Efficient Repeating Signal Detector That Uses Machine Learning to Improve Detection of Induced Seismicity
Sutton Chiorini, Robert Skoumal and Michael R. Brudzinski

Application of Log-Based Transforms to Characterize Mechanical Properties of Silurian-Aged Carbonate and Evaporate Formations within the Northern Niagaran Pinnacle Reef Trend, Michigan
Z. Cotter, S. Raziperchikolaee and A. Haagsma

Alaskan Unconventional Shale Core Characterization
Dustin Crandall and Shuvajit Bhattacharya

Secondary Porosity Prediction in Complex Carbonate Reefs Using 3D CT Scan Image Analysis and Machine Learning
Autumn Haagsma, Mackenzie Scharenberg, Laura Keister, Jared Schuetter and Neeraj Gupta

How Polishing Related Surface Roughness of Rock Minerals Control its Wettability
Konstantinos Kasamias and Kuldeep Chaudhary

Silurian Tuscarora Sandstone in Western West Virginia: Will It Work as a Geothermal Reservoir Rock?

Rapid Core Characterization and Database Management
Thomas Paronish, Dustin Crandall, Paige Mackey, Jonathan Moore and Sarah Brown

Using Landscape Evolution Modeling to Evaluate Potential for Buried Mega-Landslide Reservoir Units within the Basin and Range, Western USA
Nicholas T. Ferry, Daniel M. Sturmer and Dylan J. Ward
Reservoir Characterization: Studies and Case Histories

Porosity Decrease in the Trenton Limestone of Williams County, Ohio
Mason Harris, Ann E. Cook, Christopher B.T. Waid and Erika Danielsen

Varimax-Rotated Visible Derivative Reflectance Spectroscopy of the Utica Shale/ Point Pleasant Formation in Ohio
Julie M. Bloxson and Beverly Z. Saylor

Seal Capacity of Upper Ordovician Units in the Midwest Region: A Quantitative Approach Using Mercury Injection Capillary Pressure
Cristian R. Medina, Maria Mastalerz, Richard W. Lahann and John A. Rupp

A Study on the Origins of Permeability within the Point Pleasant Formation, Eastern Ohio
Zachary L. Fernandes, Adeline R. Evans, and Dr. Jeffry D. Grigsby

Deconvolving Biogeochemical Controls on Source Rock Reservoir Development Using a Quantitative Multivariate Approach: A Case Study from the Late Ordovician Utica-Point Pleasant Formation
Samantha R. Ritzer, Jochen J. Brocks, and Erik A. Sperling

Evaluation of Production Data and Reservoir Compartmentalization for the Trenton-Black River Reservoirs in the Albion-Scipio Field, Southern Michigan
Jennifer L. Trout and William B. Harrison, III

A New Petrophysical Model for Shale Gas Reservoir Evaluation
Guochang Wang

Horizontal Wells: Design, Drilling, Completion, Hydraulic Fracturing and Production Techniques

Horizontal Reservoir Value Increased by Enhanced Geological Knowledge
David Williamson, Keith Kimme, Charles H. Smith and Tiffani Kennedy
**Energy Sustainability and the Environment**

**Impact of Methane on Carbon Dioxide Sequestration Within Multiscale and Hierarchical Fluvial Architecture**
Reza Ershadnia, Sassan Hajirezaei, Naum I. Gershenzon, Robert W. Ritzi Jr. and Mohamad Reza Soltanian

**Reaction Path Geochemical Modeling as an Essential and Inexpensive Tool in Evaluating Mineral Carbonation-Type Carbon Capture, Utilization, and Storage Projects**
Daniel M. Sturmer

**Regional Geology of the Eastern USA**

**Characterization of Surficial Sediments from a Modern Delta Wetland**
Alexander M. Brown, Deon Knights, Audrey H. Sawyer, Derek E. Sawyer, Douglas A. Edmonds and Rebecca T. Barnes

**CO\textsubscript{2} Storage Resource Assessment and 3-D Property Modeling of the Middle Cambrian Mt. Simon Sandstone in Illinois**
Mansour Khosravi, Jared T. Freiburg, Charles C. Monson and James R. Damico

**Curious Case of Lack of Strata Assignable to the *Pterospathodus celloi* Superzone (Telychian, Llandovery, Silurian) in the Eastern Portion of the Midwestern Basins and Arches Region (New York, Ohio, Kentucky, and Indiana)**
Mark A. Kleffner and Stig M. Bergström

**Precambrian Hydrocarbon Rift Basin Potential, Western North Carolina**
Jeffrey C. Reid and Kenneth B. Taylor

**Silurian Through Middle Devonian Far-Field Tectonics During the Appalachian Orogen in Ohio**
Michael P. Solis and Julie M. Bloxson

**Recent Advances and Case Studies in Enhanced Recovery of Oil and Gas**

**Secondary Recovery Efforts in the Richfield Member (Lucas Formation, Detroit River Group) at Winterfield Field, Clare County, Michigan**
Ayu Nurhidayati, Elizabeth Gaines, Peter Voice* and William B. Harrison III
Case Studies and Current Research on Environmental Impacts from Hydraulic Fracturing, Wastewater Disposal, and Minerals Extraction

Identification of the Causes and Extent of Elevated Methane Concentrations in the Groundwater of Eastern Kentucky
Cristopher Alvarez Villa, Andrea M. Erhardt, Alan Fryar, Thomas M. Parris, Junfeng Zhu and Steven E. Webb

Comparative Geochemistry of Flowback Fluids from the Utica and Marcellus Formations
Susan A. Welch, Julia M Sheets, Reb Daly, Andrea Hanson, Anthony Lutton, John Olesik, and David R. Cole

Factors Influencing the Likelihood of Hydraulic Fracturing Induced Seismicity in Oklahoma
Rosamiel Ries, Michael R. Brudzinski, Robert J. Skoumal, Brian S. Currie and J. Connor Cunningham

Hydrocarbon Exploration and Production from Unconventional Reservoirs

Abiogenic Methanogenesis Associated with Geocatalysis: Evidence from Biomarker Transformations and Isotopic Variations Across a Maturity Transect of the Devonian New Albany Shale
Kelsey E. Doiron, Simon C. Brassell, Arndt Schimmelmann, Peter E. Sauer, Agnieszka Drobnial and Maria Mastalerz

Hydraulic Fracture Induced Seismicity in the Eagle Ford Shale
Shannon L. Fasola, Michael R. Brudzinski, Robert J. Skoumal and Teresa Langenkamp

Mansour Khosravi and Donna C. Willette

Fractures and Vein-Fill Evolution of the Middle Devonian Marcellus Shale
Natalie Odegaarden and Tim Carr

Cross-comparison of Stacked Unconventional Plays of Delaware and Appalachian Basins: Reservoir Characteristics and Production Profiles
Olga Popova, Emily Geary, April Patel, Gary Long, Jeffrey Little, Steven Grape and Elizabeth Panarelli