

**Agenda for Annual Meeting of MSRL  
April 1-4, 2019  
Austin, Texas**

**Meeting Highlights**

- Evolutionary history of the Permian Basin
- Facies characterization, mapping, and 3D modeling of the Delaware Basin Wolfcamp and the Eagle Ford of the Texas shelf
- Hydrocarbon chemistry, expulsion and migration of Wolfcamp oils
- Understanding water movement in mudrocks
- Approaches to defining mudrock permeability

**Day 1: Monday, April 1, 8:30 AM – 3:30 PM**

**Core Workshop: Held at Bureau of Economic Geology, Core Research Center**

**Workshop Agenda**

8:30–9:30AM Short oral presentations of cores to be viewed

9:30–11:30AM Core and poster presentations

11:30–1:00PM **LUNCH (provided)**

1:00–2:00PM Core and poster presentations

2:00–3:30PM Open core viewing

**Cores to be presented**

Bone Spring (Leonardian), Delaware Basin: *Loucks et al*

Wolfcamp A & B, Delaware Basin: *Ruppel*

Wolfcamp, Delaware Basin: *Janson*

Wolfberry, Midland Basin: *Hamlin*

Tuscaloosa Fm. (upper Cretaceous), Louisiana: *Loucks et al*

Eagle Ford (upper Cretaceous), South Texas Shelf: *Larson*

**Day 2: Tuesday, April 2, 8:00 AM – 7:00 PM**

**Oral and Poster Presentations**

**(Held in ROC adjacent to Bureau of Economic Geology main building)**

**Oral Presentations**

8:00–8:20AM Welcome by the Bureau of Economic Geology's Associate Director for Energy: *Shuster*

8:20–8:40AM Introduction, overview, highlights: *Ruppel et al.*

**Regional Stratigraphy**

8:40–9:10AM Anatomy of a Paleozoic Super Basin - The Permian Basin, USA: Synthesis and evolutionary history: *Ruppel*

**Reservoir Architecture and Attributes: I**

9:10–9:40AM Defining platform to basin sediment pathways in the Delaware Basin: *Janson*

9:40–10:10AM Stratigraphy and facies mapping in the Delaware Basin Wolfcamp: *Hamlin*

10:10–10:25AM **BREAK**

10:25–10:55AM Integrating core-based geochemical lithofacies with regional 3D models for the Wolfcamp in the Delaware Basin: *Larson et al*

10:55–11:25AM 3D modeling of the Delaware and Midland Basins: *Dommissse*

11:25–11:55AM Refining XRF Lithofacies with SEM Analysis for the Permian Wolfcamp Shale from the Delaware Basin, Texas: *Reed*

**11:55–1:00PM LUNCH**

1:00–1:30PM Quartz in siliciclastic mudstones—micro-authigenic versus silty textures and possible influence on rock brittleness: Examples from the Barnett, Woodford and Wolfcamp Shales: *Reed*

1:30–2:00PM Eagle Ford core chemostratigraphy. Integrating large geochemical datasets with statistical methods: *Larson*

2:00–2:30PM Integrated 3D geomodel for the Eagle Ford Shale: *Dommissse*

2:30–3:00PM Louisiana Austin Chalk characterization based on core analysis: *Loucks et al*

3:00–3:30PM Group Discussion: *Group*

3:30–4:00PM Introduction to poster session

4:00–7:00PM Poster Session. *Hors d'oeuvres and drinks provided*

**Poster Presentations (Display in Bureau Library)**

- Bridging the gap between molecular- and macro-scale water flow in nanotubes: *Zhang and Javadpour*
- Multi-scale multi-modal imaging for complete characterization of pore systems in unconventional reservoir rocks: *Burt & Santisteban (FEI-ThermoFisher)*
- Tracer-guided dominant pore network characterization: *Peng*
- Effect of pore fluids on methane adsorption in organic-rich Lower Bakken mudrocks: *Zhang*
- Eagle Ford Shale - a compartmentalized reservoir? Insights from a noble gas study: *Larson*
- Core characterization work flow. Developing internally consistent geochemical databases: *Sivil*
- Advanced X-ray fluorescence techniques: Integrating XRF data from multiple scales: *Knapp (Bruker)*
- A parallel pore-scale simulator for multiphase flow in 3d digital rock images: *Bakhshian*
- The Wolfcamp in the Southern Delaware Basin: facies, sediment sources, and sequence stratigraphy: *Ruppel*
- Plus 5 more core posters

**Day 3: Wednesday, April 3, 8:30 AM – 4:00 PM**

**Oral and Poster Presentations**

**(Held in ROC adjacent to Bureau of Economic Geology main building)**

**Oral Presentations (continued)**

**Reservoir Architecture and Attributes: II**

8:30 – 9:00AM Micropetrography of the Austin Chalk; Texas-Mexican border to central Louisiana: *Loucks*

**Pores, Porosity, and Permeability**

9:00–09:30AM Re-evaluation of Pore Systems and SEM Lithology from the Permian Wolfcamp Shale from the Delaware Basin, Texas: *Reed*

9:30–10:00AM Using digital techniques to define three-dimensional and anisotropic permeability in the Eagle Ford: *Javadpour*

**10:00–10:15AM BREAK**

10:15–10:45AM Dynamic porosity and apparent permeability in porous organic matter: *Javadpour*

10:45–11:15AM Relative permeability for mudrock: direct laboratory measurement and implications: *Peng*

11:15–11:45AM Semi-analytic solution for temporal pressure and production rate in a shale reservoir with non-uniform distribution of induced fractures: *Javadpour*

11:45–1:00PM **LUNCH (Plus Optional Tour of New Bureau Core Research Facility)**

**Hydrocarbon Chemistry**

1:00–1:30PM Organic geochemical characterization of source difference between Wolfcamp A and B Units, Midland Basin: *Sun*

1:30–2:00PM Defining pore size distributions and oil storage mechanism by N<sub>2</sub> adsorption in the Midland Basin Wolfcamp: *Zhang*

2:00–2:30PM Evidence for episodic oil expulsion in Wolfcamp shale, Midland Basin: insight of hydrocarbon composition changes: *Sun*

2:30–3:00PM Chemical and carbon isotopic gas compositions from the Wolfcamp in Midland Basin and their significance as geochemical tracers for well completion: *Zhang*

3:00–3:30PM Discussion of current and future research directions: *Group*

**Day 4: Thursday, April 4, 7:30 AM – 5:00 PM**

**Mudrocks Short Course: (Held in ROC adjacent to Bureau of Economic Geology main building)**

**Title: Characterization of Mudrock Reservoirs**

7:30 AM Introductions. Coffee and munchies provided

8:00 AM: **Mudrocks: origin and characterization** (*Stephen Ruppel*)

- Where they are and how they form
- Tools for defining mudrock attributes

9:30 AM: **Diagenesis and pore networks** (*Robert Loucks*)

- Diagenetic processes in mudrocks from deposition through burial
- Introduction to mudrock pore types, pore networks, and pore classification

10:30 AM: **Hydrocarbon geochemistry** – (*Tongwei Zhang, Xun Sun*)

- Methods for characterizing organic matter, and oil and gas in mudrocks
- Defining organic matter type, oil and gas generation and migration
- Biomarkers and their application in source input and thermal maturity

**12:00 – 1:00 PM LUNCH (provided)**

1:00 PM: **Trace element and isotope geochemistry of the oceans** (*Toti Larson*)

- Using trace elements and isotopes to define ocean chemistry
- Importance of trace element chemistry in mudrock characterization

2:00 PM **Porosity and Permeability** (*Sheng Peng*)

- Pros and cons of laboratory methods
- Permeability-porosity relationships
- Importance of relative permeability and laboratory measurement

3:00 PM: **Fluid flow in mudrock systems** (*Farzam Javadpour*)

- NonDarcy gas flow
- NonDarcy liquid flow

4:00 PM **Discussion and questions**