

GCSSEPM 40th Annual Perkins-Rosen Research Conference
2–4 December 2024, Houston, Texas

Old Rocks, New Energies: The Energy Transition in the Gulf Coast and Basin

Monday, 2 December

- 7.30–8.15 Registration (breakfast served)
8.15–8.20 Conference Welcome—*John Suter*
8.20–8.30 Welcome and Safety Moment—*Matt Croy, Equinor US*

Session I: Plenary Special Session—Chairs: Clare Falcon (LSU), Cindy Yeilding (The Center for Houston's Future)

- 8.30–9.00 **Keynote:** Equinor in the energy transition—*Sarah Delille* (Equinor)*
9.00–9.30 **Keynote:** TBA—*Mark Dean* (Chevron)*
9.30–9.55 Gulf of Mexico stratigraphic and structural foundation for the energy transition—*John Snedden**
9.55–10.30 *Coffee Break and Posters*

Session IIA: CCUS Regional and Site Evaluation (Geophysics)—Chairs: Janine Helmich (Equinor), Ayşe İbrahimbaş (Shell)

- 10.30–11.00 **Keynote:** From legacy to the future—how vintage seismic is being used to characterize CCS sites with machine learning—*Jeni Masi*, Mike Powney, Dan Austin, Theresia Citraningtyas, Monika Dyrendahl, Behzad Alaei, Anastasiia Jacobsen, Sharon Cornelius, Felix Dias, Pete Emmet*
11.00–11.25 New energy perspectives for carbon storage along the Texas Gulf Coast—*Alex Fick*, Sougata Halder, Makayla Christensen*
11.25–11.50 Time-lapse microgravity screening for CCS—*Dominik A. Kardell**
11.50–1.00 *Lunch and Poster Viewing*

Session IIA (continued): CCUS Regional and Site Evaluation (Offshore)—Chairs: Janine Helmich (Equinor), Ayşe İbrahimbaş (Shell)

- 1.00–1.25 CO₂ storage resources of the offshore Gulf of Mexico continental shelf—*Alex Bump*, Ismail Faruqi*
1.25–1.50 Faulting within and above CO₂ storage interval across the northern Gulf of Mexico shelf—*Bryan P. Stephens*, Liepin He, Kevin Trosclair, Cheri Cruz, Erin Elliott*
1.50–2.15 Effect of fault geometry and top seal stratigraphy on fault migration of sequestered CO₂ in the Miocene section, offshore Texas—*Lluis Salo-Salgado*, Josimar Silva, Lisa Lun, Christie Rogers, Ruben Juanes*
2.15–2.40 Enhanced seismic imaging and pore pressure prediction for CCUS in the Gulf of Mexico—*Ravi Kumar*, Minshen Wang, Shengda Ding, Mothi Sabaresan, Daniel Carruthers, Paola Fonseca*
2.40–3.15 *Coffee Break and Posters*

Session IIb: Modeling and Risking of Carbon Storage and Containment—Chairs: Hailun Ni (UT-Austin), Tao Sun (Chevron)

- 3.15–3.45 **Keynote:** Evaluating CO₂ retention risk for geological sequestration sites—*J. Steven Davis, Rene Jonk, Kevin Bohacs**
- 3.45–4.10 Calibrating performance predictions for large-scale injection—*Chinemerem C. Okezie, Alexander Bump*, Susan D. Hovorka*
- 4.10–4.35 Controls on pore-scale properties of mudrocks and their sealing capacity—*Hugh Daigle**
- 4.35–5.00 Modeling CO₂ plume migration and retention with physical analogs—*Hailun Ni**
- 5.00–5.25 Capturing geologically realistic high-resolution reservoir heterogeneity with computational stratigraphy in modeling CO₂ geological storage—*Boxiao Li**
- 5.25–5.50 The impact of capillary heterogeneity trapping on field-scale CO₂ geologic storage simulations—*Jose Eduardo Ubillus*, Hailun Ni, Sahar Bahkshian, David DiCarlo, Tip Meckel*
- 5.50–6.00 **Open Discussion**
- 6.00–8.00 **Icebreaker**

Tuesday, 3 December

- 8.00–8.30 Registration (breakfast served)

Session III: Geothermal Energy—Chairs: Milly Wright (Rohmtek), Malcolm Ross (UT-Austin, Eavor Technologies)

- 8.30–9.00 **Keynote:** Is geothermal energy a viable option for campus/community decarbonization of heating and cooling in the Gulf Coast?—*Malcolm Ross*, Andrew Parker*
- 9.00–9.25 Geothermal Play Fairway Analysis (GPFA)—Texas/Gulf Coast mechanisms of heat generation—*Kevin McCarthy*, Will Pettitt, Rich Priem*
- 9.25–9.50 Applied petrophysics in geothermal reservoirs: leveraging oil and gas evaluation techniques for energy transition—*Katerina Yared**
- 9.50–10.15 Implications for geothermal energy in the context of a global energy outlook—*Richard Chuchla**
- 10.15–10.40 *Coffee Break and Posters*

Session IV: Critical Minerals—Chairs: Bianca Kennedy (LSU), Rob Bruant (BP)

- 10.40–11.10 **Keynote:** Critical mineral potential of the Gulf Coast region—*Brent A. Elliott* and J. Richard Kyle*
- 11.10–11.35 Understanding the lithium content trends in the Smackover Formation: potential influencing factors in the Ark-La-Tex region—*Julie Bloxson**
- 11.35–12.00 Data analytics and machine learning workflows for optimization of lithium-rich brine assets. Case study: Smackover Formation, Arkansas—*Jesus Ochoa*, Swapan Sahoo, Stephen O'Leary, Michael Zeller*
- 12.00–12.45 *Lunch and Poster Viewing*

Session IV (continued): Critical Minerals—Chairs: Bianca Kennedy (LSU), Rob Bruant (BP)

- 12.45–1.10 Exploring for critical metals in Louisiana—*Bianca Kennedy*, Matthew Locke, Clare Falcon*

- 1.10–1.35 Estimating the mass of lithium in Smackover Formation brines using machine learning—*Katherine Knierim**, *Andrew Masterson*, *Philip Freeman*, *Amanda Herzberg*, *Aaron Jubb*, *Bonnie McDevitt*, *Colin Doolan*, *Jessica Chenault*
- 1.35–2.00 Lithium: a developing industry in the ranches and forests of NE Texas and Arkansas—*Peter Mullin**, *Dmitry Daudin*, *Sergei Pokrovsky*
- 2.00–2.25 Opportunities for the energy transition in further exploration and exploitation of Gulf Coast salt domes—*Matthew Loocke**, *Bianca Kennedy*, *Clare Falcon*

Session IIa (continued): CCUS Regional and Site Evaluation—Chairs: Matt Croy (Equinor), Alex Bump (UT-Austin BEG)

- 2.25–2.50 Geological characterization of the Chandeleur Sound 3D seismic survey area, offshore Louisiana, and the potential for anthropogenic carbon sequestration within a newly discovered Middle Miocene submarine canyon—*Marcie Phillips**, *Annie Walker*, *Dallas Dunlap*, *John W. Snedden*, *Michael L. Sweet*, *Shuvajit Bhattacharya*
- 2.50–3.15 CO₂ storage site screening for depleted fields on the Texas Gulf Coast—an integrated approach—*Yijie Zhu**, *Sophie Boulter*, *Tianyu Chen*, *Marie McKechnie*
- 3.15–3.45 *Coffee Break and Posters*

Session IIa (continued): CCUS Regional and Site Evaluation—Chairs: Matt Croy (Equinor), Alex Bump (UT-Austin BEG)

- 3.45–4.15 **Keynote:** CO₂ residence time and geothermal resource potential of the Hosston and Travis Peak Formations, onshore US Gulf Coast region—*Laurie A. Burke**
- 4.15–4.40 Sleipner, Snohvit, Smeaheia, northern lights, and Kalundberg, Norway and Denmark—*Michael Schoemann**, *Janine Helmich*
- 4.40–5.05 Wedges, bridges, and hockey sticks: exploring the energy transition—*Cindy Yeilding*
- 5.05–5.30 **Open Discussion**

Wednesday, 4 December

- 8.00–8.30 Registration (breakfast served)

Session V: Hydrogen—Chairs: Barry Katz (HGS), Lorena Moscardelli (UT-Austin BEG)

- 8.30–9.00 **Keynote:** An overview of hydrogen in the subsurface—*Barry J. Katz**
- 9.00–9.25 The role of salt tectonics in the energy transition: an overview and future challenges—*Oliver Duffy*, *Michael Hudec*, *Frank Peel*, *Gillian Apps*, *Alex Bump*, *Lorena Moscardelli**, *Tim Dooley*, *Naiara Fernandez*, *Shuvajit Bhattacharya*, *Ken Wisian*, *Mark Shuster*
- 9.25–9.50 The new gold rush—gold hydrogen: why is it important, what do we know and where could it be?—*Mike Powney**, *Ian Hutchinson*, *Owain Jackson*, *Andrew E. Stocks*, *Andrew C. Barnicoat*, *Stephen R. Lawrence*
- 9.50–10.15 **Keynote:** Emerging hydrogen economy in Texas: the role of the subsurface in geological storage—*Lorena Moscardelli**, *Leopoldo Ruiz-Maraggi*, *Ning Lin*, *Nur Schuba*, *Ander Martinez-Doñate*, *Leandro Melani*, *Lucy Ko*, *Edna Rodriguez Calzado*, *Mark Shuster*
- 10.15–10.50 *Coffee Break and Posters*

Session V (continued): Hydrogen—Chairs: Barry Katz (HGS), Lorena Moscardelli (UT-Austin BEG)

- 10.50–11.15 Mississippi salt basin diapirs: considerations for geological hydrogen storage—*C. Nur Schuba, Lorena Moscardelli**, *Leopoldo Ruiz-Maraggi*
- 11.15–11.40 Hydrogen storage in salt caverns; evaluating the potential of Permian Basin evaporitic sequences for cavern development (USA)—*Ander Martinez-Doñate**, *Leandro Melani, Leopoldo Ruiz-Maraggi, Lorena Moscardelli*
- 11.40–12.05 Evaluating depleted gas reservoirs for hydrogen storage: a criteria-driven approach—*Rita Okoroafor**, *Lokesh Kumar Sekar, Adeshina Badejo*
- 12.05–12.25 Hydrogen and ammonia projects at Equinor—*Stephanie Curran**
- 12.25–1.15 *Lunch and Poster Viewing*

Session VI: Energy Transition Workforce—Chairs: Bianca Kennedy (LSU), Rob Bruant (BP)

- 1.15–1.40 Determining the favorability of sedimentary lithium accumulation in the geological record: a global approach—*David Lee, Amanda Galsworthy, Bill Heins**, *Howard Golden*
- 1.40–2.05 SEG EVOLVE carbon solutions internship: preparing students for industry—a mentor's perspective—*Ryan Ruppert**
- 2.05–3.15 **Panel Discussion:** The energy transition: perspectives from the Gulf Basin and global analogs—**Moderator:** *Ayşe İbrahimbaş (Shell)*, **Panelists:** *TBD*

POSTER PRESENTATIONS (listed in alphabetical order)

- Determining the favorability of sedimentary lithium accumulation in the geological record: a global approach—*David Lee, Amanda Galsworthy, Bill Heins**, *Howard Golden*
- Exploring for critical metals in Louisiana—*Bianca Kennedy**, *Matthew Loocke, Clare Falcon*
- Geology for CO₂ is still geology—borehole images for understanding local capillary trapping in reservoirs—*Anish Kumar, Elia Haddad, Adaobi Elekwachi*
- Opportunities for the energy transition in further exploration and exploitation of Gulf Coast salt domes—*Matthew Loocke**, *Bianca Kennedy, Clare Falcon*
- Analyzing critical metal and fluid interactions of a historic subsurface volcanic core drilled from Door Point, LA, US Gulf Coast—*Ashlyn Schneida**, *Bianca Kennedy, Matthew Loocke*
- Identification and analysis of reservoir-seal pairs for sequestration of CO₂ in the greater Mississippi Embayment, onshore Gulf of Mexico—*Robert Wellner**, *Kathryn Denommee, Raed El-Awawdeh, Peter Gold*