

Applied Geoscience Conference

November 6-7, 2019

SOUTHWESTERN ENERGY • 10000 Energy Drive • Spring, TX 77389



Applied Geomechanics: Through the Life Cycle of the Field

Day 1 AM Session 1	Accessing Targets Faster with Safer Wellbores
Lunch Keynote	Robert W. Zimmerman , <i>Imperial College, London</i>
Day 1 PM Session 2	Optimizing Completion Footprint and Stimulation Designs
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Day 2 AM Session 3	Post-stimulation Diagnostics and Monitoring
Lunch Keynote	Tony Settari , <i>CGG Services (Canada) Inc.</i>
Day 2 PM Session 4	Extending the Life of the Field: Production, Refracturing, and EOR

University Poster Session represented by: Georgia Tech, Oklahoma State University, Purdue University, University of Calgary, University of Houston, University of Oklahoma, University of Texas, Utah State University

This Fourth Applied Geoscience Geomechanics Conference (since 2013) by an industry expert committee provides the highest value through invited subject matter experts represented by:

Baker Hughes GE, CGG, Carboceramics, Excellence Logging, FracGeo Halliburton, Optasense, Saudi Aramco, Schlumberger, Weatherford

Cost structure

General registration: July 1 – November 5, 2019

HGS member \$400.00

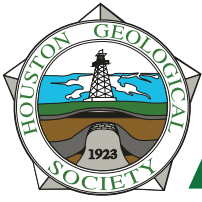
Non-member \$455.00

HGS student member \$75.00

Note: Unemployed HGS members contact the office for discount

For more information please visit www.hgs.org or contact the HGS office: office@hgs.org



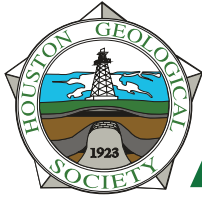


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Oral Presentations – Wednesday, November 6, 2019

7:00	Registration and Coffee	
8:00 - 8:10	Welcome and Opening Remarks: Jon Blickwede, HGS President; Umesh Prasad, <i>Baker Hughes, a GE company</i> ; SWN representative	
Session 1: Accessing Target Faster with Safer Wellbores Chairs: Lauren Cassel; Mark Herkommer, <i>Excellence Logging</i>		
8:10 - 8:45	Advanced Seismic Inversion for Geomechanics Applications in Unconventional Reservoirs	Colin Sayers , <i>Schlumberger</i>
8:45 - 9:20	Lost-in-hole Diagnostics and Mitigation	Agus Tjengdrawira , Julie Kowan, and Namsu Park, <i>Baker Hughes, a GE company</i>
9:20 - 9:40	Coffee, Posters, Exhibits	
9:40 - 10:15	Laboratory Modelling of Salt Deformation and its Correlation with Drilling Mechanics of Record Hybrid Drill Bit Runs in the GOM	Ashabikash Roy Chowdhury , Umesh Prasad and Ryckman Callais, <i>Baker Hughes, a GE company</i>
10:15 - 10:50	Novel Pore Pressure Prediction Technique for Unconventional Reservoirs	David P. Yale , Adriana Perez, and Robert Raney, <i>Geomechanics Consulting</i>
10:55 - 11:55	Open Floor Discussion & Posters	
11:55 - 1:00	Lunch, Posters, Exhibits	
12:15 - 1:00	Chair: Deepak Gokaraju, <i>Metarock Laboratories</i> Keynote: Failure of Anisotropic Rocks such as Shales, and Implications for Borehole Stability	Robert W. Zimmerman and Widad Al-Wardy, <i>Dept. of Earth Science and Engineering, Imperial College of Science, Technology and Medicine, London, UK.</i>
Session 2: Optimizing Completion Footprint and Stimulation Designs Chairs: Haleigh Howe, <i>Weatherford</i> ; Mark Morford, <i>Fracgeo</i>		
1:05 - 1:40	Digital Rock Simulation: A Novel Approach for Accurate Characterization of Perforation Tunnel Damage	Rajani Satti , <i>Baker Hughes, a GE company</i>
1:40 - 2:15	Digital Twins for Drilling Fluid and How Digitalization Could Help to Reduce the Cost and Increase the Wellbore Stability	Mehrdad G Shirangi, Reza Etehad , and Charles A Thompson Jr, <i>Baker Hughes, a GE company</i>
2:15 - 2:35	Coffee, Posters, Exhibits	
2:35 - 3:10	Stress Sensitivity of Sonic Wave Velocity and the Reliability of Sonic Tools in Unconventional Tight Gas Sand Reservoirs	Dr. Christophe Gernay and Tanguy Lhomme, <i>EPSLOG</i>
3:10 - 3:45	Characterizing Off-Normal Occurrence and Leakage Risk at Underground Natural Gas Storage Facilities	Richard A. Schultz , <i>Orion Geomechanics</i>
3:45 - 4:45	Open Floor Discussion & Posters	
5:00 - 8:00	Social Hour • Booths • Posters	



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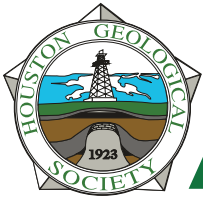
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Oral Presentations – Thursday, November 7, 2019

7:00	Registration and Coffee	
8:00 - 8:10	Welcome and Opening Remarks: Umesh Prasad, Baker Hughes, a GE company	
Session 3: Post-stimulation Diagnostics and Monitoring Chairs: David Katz, <i>Baker Hughes, a GE company</i> ; Jing Zhang, <i>University of Oklahoma PH D Student</i>		
8:10 - 8:45	Geomechanics of Unconventional Hydraulic Fracturing Clusters, Complexity, “Frac-Hits” and All That	Professor Ahmas Ghassemi , <i>The University of Oklahoma</i>
8:45 - 9:20	Estimation of Propped Fracture Geometry Using Electromagnetic Geophysics	Terry Palisch , <i>Carboceramics</i>
9:20 - 9:40	Coffee, Posters, Exhibits	
9:40 - 10:15	Near and Far Field DAS Diagnostics for Unconventional Reservoir Monitoring	Andres Chavarria , <i>Optasense</i>
10:15 - 10:50	Early Warning Systems – Using PTA Analysis of DFITs to Understand Complex Hydraulic Fractures and Optimize Treatment Designs	Bob Bachman , <i>CGG</i>
10:55 - 11:55	Open Floor Discussion & Posters	
11:55 - 1:00	Lunch, Posters, Exhibits	
12:15 - 1:00	Chair: Deepak Gokaraju, <i>Metarock Laboratories</i> Keynote: Integrating Geology and Geophysics into Engineering Workflows to Enhance Unconventional Production	A (Tony) Settari , <i>CGG</i>
Session 4: Extending the Life of the Field: Production, Refracturing, and EOR Chairs: Barbara Hill, <i>Schlumberger</i> ; Chi Vinh Ly, <i>CGG</i>		
1:05 - 1:40	Role of Multiple Fracturing of Vertical And Horizontal Wells in Maximizing Production and Extending Life of the Field	Professor Mohamed Soliman , <i>University of Houston</i>
1:40 - 2:15	Limits on the Accuracy of Pore Pressure Estimates by Analysis of Random Measurement Error and Means for Improvement	Mark Herkommer , <i>Excellence Logging</i>
2:15 - 2:35	Coffee, Posters, Exhibits	
2:35 - 3:10	Extending the Life of Enhanced Permeability Zones Created During Hydraulic Fracturing	Ron Dusterhoft , Z Philips and U Inyang, <i>Halliburton</i>
3:10 - 3:45	Predrill Pore Pressure Estimation in Wildcat Prospectivity	Saad T. Saleh , <i>GEOMECH, USA</i>
3:45 - 4:45	Open Floor Discussion & Posters	
Closing Comments and Invitation to Posters		

Poster Session

Invited Presentations from Graduate Students • Open during Coffee and Lunch Breaks



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Posters – November 6-7, 2019

Poster Session Chair: Mike Effler

University	Student Name	Poster Topic
Georgia Institute of Technology	Ming Lui	Poroelectric Indentation – Feasibility of a New Testing Method for Tight Rocks
Oklahoma State University	Jingyao Meng	Geomechanical Characteristics of the Prospective CO ₂ Sinks and Seals, Eastern Gulf of Mexico
Purdue University	Wenging Wang	Heterogeneous Stress State in the Crystalline Crust Beneath the Western Canadian Sedimentary Basin: Observations from Borehole Image Logs to 2.4 km
The University of Oklahoma	Zhi Ye	The Role of Pre-Existing Fractures in Shale Reservoir Stimulation
The University of Oklahoma	Juan Acosta	Study of Creep Behavior in Barnett Shale Using Nano-Indentation
The University of Texas	Mehdi Teymouri	Coupled Hydro-Mechanical Analyses and Modeling for Reliable Characterization of Fracture Propagation in Anisotropic and Spatially Heterogeneous Formations
The University of Texas	Shivam Agrawal	Effect of Rock Heterogeneity at Different Length Scales on Fracture Geometry
University of Calgary	Marco Venieri	Predicting Reservoir Potential of Unconventional Shale Plays from Wireline Logs: A Correlation Between Compositional and Geomechanical Properties of the Devonian Duvernay Formation, Alberta, Canada
University of Houston	Abdullah Bilal	Predicting Static Data, Using Dynamic Properties and Quantitative Sample Characterization
University of Houston	Suresh Dande	Elastic Properties of Propped and Unpropped Eagle Ford Shale and 3D-printed Fractured Rock Models
University of Houston	Rongrong Lin	A Damped Dynamic Finite Difference Approach for Modeling Static Stress-Strain Fields
University of Houston	Sabyasachi Prakash	Analysis of Unconsolidated Sands' Yielding Behavior Under Unloading Conditions

Participating Schools

Georgia Institute of Technology • Oklahoma State University
Purdue University • The University of Oklahoma
The University of Texas • University of Calgary
University of Houston

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93% Rated the overall quality of the technical presentations as good or exceptional compared to other industry conferences

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Complimentary Vendor Booth	✓	✓		
Recognition by HGS in Program Book, onsite signage, post show highlights and thank you in the HGS <i>Bulletin</i>	✓	✓	✓	✓
Recognition in Conference Announcements and Website (logo with hyperlink)	✓	✓	✓	✓

91% Rated the talks as applicable to their every day work

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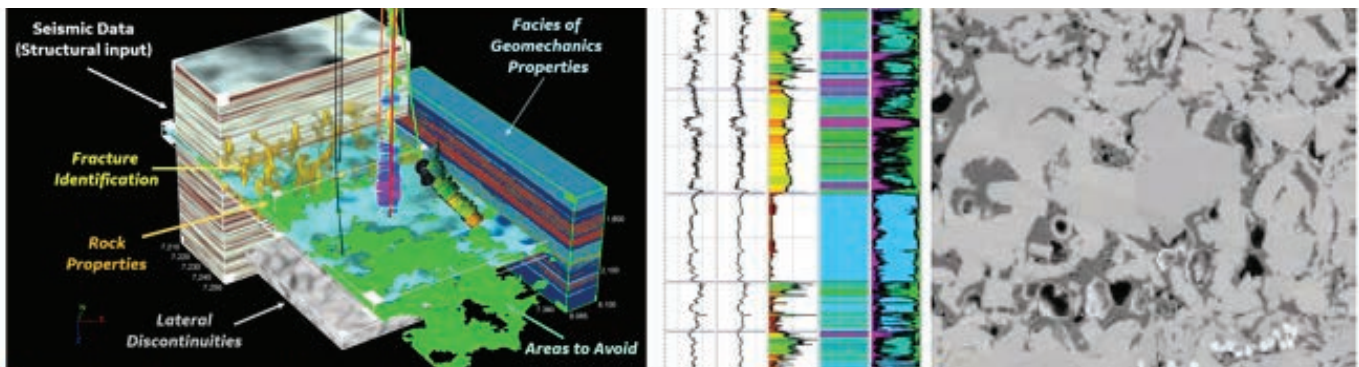
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