



57 U.S. Rock Mechanics
Geomechanics
Symposium
ATLANTA 2023

Save the date: June 25, 2023



Commemoration of Sau-Wai Wong

What: Workshop on Distributed Fiber Optic Sensing for Geomechanical Applications

Where: Atlanta, Georgia; Westin Peachtree Hotel

When: June 25, 2023

Cost: \$175 (includes continental breakfast, lunch, and breaks)

Affiliation: ARMA Hydraulic Fracture Community

Conference: ARMA 57th U.S. ROCK MECHANICS / GEOMECHANICS SYMPOSIUM

Distributed Fiber Optic Sensing for Geomechanical Applications

8:10 am – 8:15 am Opening Remarks & Welcome (John McLennan)

8:15 am – 8:30 am Commemoration of Sau-Wai Wong (Alexei Savitski)

Session 1: Introduction of Distributed Fiber Optic Sensing (DFOS) and data interpretation

Session Chairs: Kan Wu, Egor Dontsov

- **8:30 am-9:00 am:** Fiber optic sensors for fracture monitoring: from lab to field scale (Andres Chavarria, OptaSense)
- **9:00 am-9:30 am:** Sensitivity and performance characterization of fiber optic cables for near-Static Strain Sensing Applications (Michel LeBlanc, Halliburton)
- **9:30 am-10:00 am:** Impact of mechanical coupling on distributed strain sensing measurements (Ge Jin, Colorado of School Mines)

10:00 am – 10:30 am Coffee Break

Session 2: Geomechanics modeling

Session Chairs: John McLennan, Jesse Hampton

- **10:30 am-11:00 am:** Numerical modeling of low frequency distributed acoustic sensing signals for mixed-mode reactivation (Chaoyi Wang, University of Calgary)



- **11:00 am-11:30 am:** Use the zero strain-rate location method to assess hydraulic fracture dimensions from crosswell low-frequency distributed acoustic sensing (Smith Leggett, Texas Tech University)
- **11:30 am-12:15 pm:** Catalogue of modeled and field examples of far-field FO strain-rate fracture driven interactions (FO Strain Rate FDI) (Kan Wu, Texas A&M University)

12:15 pm – 1:30 pm Lunch

Session 3: DFOS applications in unconventional reservoir development

Session Chairs: Ge Jin, Mohsen Babazadeh

- **1:30 pm-2:00 pm:** DAS microseismic reflection imaging for fracture characterization (Yuanyuan Ma, Rice University)
- **2:00 pm-2:30 pm:** In-Well stress shadow and near-wellbore fracture geometry diagnosis using high-resolution distributed strain sensing via Rayleigh Frequency Shift (Dana Mark Jurick, Neubrex)
- **2:30 pm-3:00 pm:** Quantitative analysis of HFTS-2 completion designs using cross-well strain measurements (Kan Wu, Texas A&M University)

3:00 pm – 3:30 pm Coffee Break

Session 4: DFOS applications in CO₂ storage, geothermal development, and other subsurface activities

Session Chairs: Herb Wang, Alexei Savitski

- **3:30 pm-4:00 pm:** Simulation-based evaluation of the effectiveness of fiber-optic sensing in monitoring water circulation in enhanced geothermal systems (Yongzan Liu, SLB)
- **4:00 pm-4:30 pm:** Measuring and interpreting the shallow strain tensor during transient well testing (Larry Murdoch, Clemson)

4:30 pm – 4:35 pm Wrap up