



Save the date: June 23, 2024

**What:** Workshop on Distributed Fiber Optic Sensing for Geomechanical Applications

**Where:** Golden, Colorado

**When:** Sunday, June 23, 2024 (~8:00 a.m. to 4:00 p.m.)

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

**Affiliation:** ARMA Hydraulic Fracturing Technical Community

**Conference:** ARMA 58<sup>th</sup> U.S. ROCK MECHANICS / GEOMECHANICS SYMPOSIUM

## Distributed Fiber Optic Sensing for Geomechanical Applications

**8:00 am – 8:05 am Opening Remarks & Welcome (John McLennan)**

**Session 1: Hand on Demo of Introduction of Distributed Fiber Optic Sensing (DFOS) and DSS instrument**

**Session Chair: Kan Wu**

- **8:05 am-8:50 am:** Live Demo of DFOS: A DSS integrator will be brought in for an interactive experiment. Attendees will have the opportunity to physically interact with the fiber optic cable, pressing it to observe real-time measurements of strain changes. Additionally, participants can hold the fiber to witness the effects of temperature on strain variation. (Ge Jin, Colorado of School Mines)
- **8:50 am-09:30 am:** Introduction to Disposable Fiber: Deployment, Measurements, and Interpretation of Field Data (Casey Cox, Halliburton)

**09:30 am – 10:00 am Coffee Break**

**Session 2: Geomechanics modeling based Data Interpretation**

**Session Chair: John McLennan**

- **10:00 am-10:30 am:** Monitoring fluid circulation in an enhanced geothermal system with permanent fibers. (Yuhao Ou and Mukul M. Sharma, The University of Texas at Austin)
- **10:30 am-11:00 am:** Modeling and Analysis of Fiber Optic Strain Responses to Stimulation with Shear with Reference to the Utah FORGE EGS (Ahmad Ghassemi, University of Oklahoma)
- **11:00 am-11:30 pm:** Interpreting Heart-Shape Signal for Fracture -to-Well Distance Using Cross-well Strain Measurements (Ge Jin, Colorado of School Mines)



**11:45 pm – 1:00 pm Lunch**

**Session 3: DFOS applications in unconventional reservoir development**

**Session Chair: Ge Jin**

- **1:00 pm-1:30 pm:** Real-Time Awareness: A Novel Application of Fiber Optics to Optimize Simultaneous Operations of Drilling and Frac (John Tran, Halliburton)
- **1:30 pm-2:00 pm:** Value Proposition of DAS Microseismic (Shawn Maxwell, Ovintiv)
- **2:00 pm-2:30 pm:** Geological Insights from LFDAS Measurements: Monitoring Fracture Development in Hydraulic Fracturing in Longmaxi Formation, Sichuan Basin (Joseph Mjehovich, IFdata)

**2:30 pm – 3:00 pm Coffee Break**

**Session 4: DFOS applications in CO<sub>2</sub> storage, geothermal development, and other subsurface activities**

**Session Chair: Egor Dontsov**

- **3:00 pm-3:30 pm:** LF-DAS and DSS Monitoring of Horizontal EGS Stimulation, Well Testing, and Production using Offset Vertical and Horizontal Wells (Aleksei Titov, Fervo Energy)
- **3:30 pm-4:00 pm:** Use of Fiber for EGS Optimization: FORGE case study (John McLennan, University of Utah)

**4:00 pm – 4:05 pm Wrap up**