ARMA american rock mechanics association

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

Workshop Description

Distributed Fiber Optic Sensing (DFOS) has gained much attention for its ability to directly monitor induced hydraulic fracturing processes in the subsurface. This one-day workshop briefly overviews the current and evolving state of the technology, explores its applications and limitations in different subsurface activities, and evaluates the benefits the measurements can offer. The workshop will bring together operators, service companies, and academic professionals to discuss the technology in five sessions.

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

The session will briefly provide background on the DFOS technology for those who are not familiar with it. We will also discuss the challenges associated with data collection, processing, and interpretation to enable a more comprehensive discussion in the later sections.

Session 2: Geomechanics modeling

The use of fiber optic sensing in geomechanics has been rapidly expanding, but there are still areas of uncertainty and confusion regarding data interpretation. This session will discuss how geomechanical modeling can support interpreting and explaining measured signals to gain a better understanding of in-situ processes. The session will cover cutting-

edge research on using geomechanical modeling to quantitatively interpret strain data and constrain reservoir and fracture properties.

Session 3: DFOS applications in unconventional reservoir development

This session will explore the value that DFOS technology can provide for unconventional reservoir development and how it can be integrated with other diagnostic methods to optimize completion, well spacing, and production operations. Attendees will gain a comprehensive understanding of the advantages that DFOS can offer and how it can be used to optimize engineering designs and enhance efficiency of the operations.

Session 4: DFOS applications in CO_2 storage, geothermal development, and other subsurface activities

DFOS is a versatile technology that has numerous applications in subsurface activities besides hydrocarbon production, including CO_2 storage, geothermal development, induced seismicity monitoring, etc. This session will highlight case studies and data acquisition examples for these applications. Attendees will gain an in-depth understanding of the potential benefits that DFOS can bring to these areas.

Session 5: Open discussion on future directions

This session will provide an opportunity for all attendees to exchange ideas regarding the next primary research focuses for DFOS technology. Participants will have a chance to share their thoughts on the issues the community should prioritize, as well as to discuss potential expectations for the next ARMA DFOS workshop in 2024. This session will enable attendees to collaborate, exchange ideas, and identify new research directions in the field of DFOS.

We welcome submissions from potential speakers. If you are interested in presenting at this workshop, please click on the link and submit an abstract for evaluation by the organizing committee before March 31st, 2023.

https://forms.gle/hi8bPRaXqzf8Y5Sr8

For additional information or questions, please contact Dr. Kan Wu at kan.wu@tamu.edu, Dr. Ge Jin at gjin@mines.edu, or Peter Smeallie at smeallie@armarocks.org.