

2023 ARMA Future Leader Webinar Series

Every Two Weeks on Fridays 9-10 AM MT



7th lecture: June 02, 2023

Please reach out to shahrzad.roshankhah@utah.edu to get the Zoom meeting information.

Speaker: Zhuang Sun

Title:

Improve Carbon Capture, Utilization and Storage Projects with Subsurface Modeling & Simulation

Abstract:

Achieving global net-zero emissions goals will be impossible without CCUS. To be successful, CCUS project teams must meet time and cost constraints while addressing three major engineering stages: 1) CO₂ Capture, 2) Transportation 3) Geological Storage. In this webinar, we will focus on Geological Storage modeling & simulation capabilities. In general, Geological formations for CO₂ storage must have sufficient capacity and injectivity as well as the ability to confine the lateral or vertical migration of CO₂ to the surface. By attending this webinar, you will learn how multiphysics and multiscale simulation, including geomechanics simulation with SIMULIA Abaqus and pore-scale simulation with SIMULIA DigitalROCK, a virtual rock lab, are used to avoid costly mistakes and project delays by assessing CO₂ storage capacity, injectivity and containment. Multiphysics / Multiscale Simulation Highlights: (1) Molecular and meso scale simulation of fluid/rock interactions; (2) pore-scale and core scale simulation of multiphase digital rock floods; and (3) field scale mechanical earth model simulation.

Biography:

Dr. Zhuang Sun is an Industry Process Expert Specialist at Dassault Systemes SIMULIA Corp. in San Francisco, California. He holds a Ph.D. degree (2019) in Petroleum and Geosystems Engineering from the University of Texas at Austin, and a bachelor's degree (2014) in Chemical Engineering from Tsinghua University. His research interests include micromechanics, reservoir geomechanics, and underground gas storage. Dr. Sun holds two granted U.S. patents and has authored or co-authored more than 30 technical papers. He serves on the Data Science and Engineering Analytics Committee of the Society of Petroleum Engineers and was a member of the Organizing Committee of 56th U.S. Rock Mechanics / Geomechanics Symposium (Santa Fe 2022). Dr. Sun is also a recipient of the Future Leader Award from the American Rock Mechanics Association (ARMA).