2023 ARMA Future Leader Webinar Series

Every Two Weeks on Fridays 9-10 AM MT

8th lecture: June 16, 2023

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

Speaker: Oladoyin Kolawole

Title & Abstract:

Geomechanical Assessment of Rock-Microbial Interactions in Geosystems and their Impact on Sustainability and Energy Geo-Resources

The world is currently being threatened by geohazards and extreme weather conditions due to climate change. The mitigation of these geohazards requires technical knowledge of geomechanics and geo-energy resources. However, as engineers and scientists, irrespective of our expertise, we all have a role to play in sustainability, geohazard mitigation, and improving energy resources. The efficient development and application of engineering technology to sustainable resources and geomaterials require a multidisciplinary approach. Microbial processes and actions in the pores of geologic media have been adopted for various biocementation and bio-inspired applications. However, there is limited knowledge of mechanical responses in rocks due to rock-microbial interactions. This webinar talk will show how we can integrate geomechanics, biotechnology, energy engineering, and geo-environmental engineering to address critical problems related to CO2 sequestration and improved geo-energy recovery, and provide potential pathways for addressing problems related to sustainable geo-energy development.

Biography:

Dr. Oladoyin Kolawole is an Assistant Professor in the Department of Civil and Environmental Engineering Department, New Jersey Institute of Technology (NJIT). He is the director of the Geomechanics for Geo-Engineering and Sustainability (GGES) Lab at NJIT. Prior to joining NJIT, Dr. Kolawole was a Postdoctoral Research Associate at Texas Tech University, before later working as a Faculty Fellow (Visiting Faculty) at Hope College, Michigan. His unique interdisciplinary research conducts fundamental studies on the deformation and failure of geomaterials (rocks and soils) in response to distinct stress, pressure, and temperature changes. Additionally, He researches rock-fluid and rock-microbial interactions and its implications for thermo-hydro-chemo-mechanical processes with applications to geo-infrastructure, energy, sustainability, and the environment. Dr. Kolawole is a recipient of the Future Leader Award and the Distinguished Service Award from the American Rock Mechanics Association (ARMA). He currently serves on the Committee on Geological and Geotechnical Engineering at the National Academies. He has authored and co-authored over 30 peer-reviewed journal and conference papers on rock mechanics and geo-resources. He volunteers as a peer reviewer for Nature Scientific Reports, Rock Mechanics and Rock Engineering, and other reputable scientific journals, in addition to mentoring undergraduate and graduate students.