



MSE

Materials Science and Engineering Department
King Fahd University of Petroleum and Minerals

From Atoms to Applications: Computational Discovery of Catalytic Materials for Energy and Environmental Technologies



Speaker:

Dr. Hassan Aljama

Digital R&D Division Manager
Saudi Aramco



Wednesday, 25/2/2026



2:00 – 3:00 PM



Building 63 - Room 362

ABSTRACT:

This seminar will present several examples in which computational modeling at the atomistic level provides new fundamental insights, and how these insights can open opportunities for discovering novel materials for industrial applications. Examples of his work include the development of materials for methane conversion, sorbents for CO₂ capture, natural gas storage, H₂S decomposition, hydrocarbon combustion, and passive NO_x adsorption. In his research, he utilizes Density Functional Theory (DFT), micro-kinetic modeling, molecular dynamics, and Generative AI (GenAI).

BIOGRAPHY:

Dr. Hassan Aljama currently serves as the Digital R&D Division Manager at Saudi Aramco. Dr. Hassan completed his Ph.D. in Chemical Engineering at Stanford University, following his M.S. in Chemical Engineering from Stanford University and his B.S. in Chemical and Biomolecular Engineering from Penn State University. He subsequently worked as a Postdoctoral Researcher at UC Berkeley and Stanford University from 2019 to 2021. Dr. Hassan Aljama is a computational scientist whose work focuses on the discovery of novel materials for industrial applications, with a primary emphasis on heterogeneous catalysis and solid sorbents.