

Welcome to InterPore Saudi Chapter 2024!

The Saudi Chapter aims to foster a vibrant community dedicated to advancing the science and technology of porous media in the Kingdom. Our mission is to:

- Facilitate interdisciplinary collaboration between academic institutions, research centers, and industry to address critical challenges in energy, environment, and materials.
- Promote knowledge exchange through workshops, conferences, and educational programs tailored to the region's unique needs.
- Support the development of young researchers and professionals, equipping them with the skills and networks to lead in porous media science.
- Drive innovation by encouraging research that offers sustainable solutions for Saudi Arabia's evolving industrial and environmental landscape.

This mission reflects our commitment to becoming a hub of excellence that not only contributes to global advancements but also aligns with the Kingdom's strategic vision for scientific and technological growth.

When
December 15- 16 2024

Where
Online Zoom link:
[Click here](#)

Registration
[Click here](#)

Program:

December 15

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| 8:30 | Opening Remarks: Welcome to the 3rd Interpore Saudi Chapter Annual Meeting (Day 1) – Dr. Manal Alotaibi (KFUPM) |
| 8:45 | Brief Overview of Interpore Saudi Chapter – Prof. Majid Hassanizadeh , Managing Director; International Society for Porous Media |
| MS 01: Advances in Subsurface Storage and Computational Modeling MS 01 Chair: Prof. Abdullah Shah - KFUPM | |
| 9:00 | Keynote Speech (1): Prof. Saad Alafnan (KFUPM) Are geological formations really suitable for hydrogen storage? |
| | Dr. Muhammad Sabeel Khan |
| 10:00 | On the observation of three-phase elastic deformation within micropolar continuous media through implementation in FreeFEM++ |
| 10:20 | Dr. Muhammad Sohaib Diffuse Interface Methods for Two-Phase Flow with Moving Interfaces: Numerical Simulations |
| MS 02: Pores under stress MS 02 Chair: Dr. Osman Hamid - ARAMCO | |
| 10:40 | Dr. Mostafa Mobasher Leveraging Machine Learning to Enhance Coupled Processes Simulations: A focus on fracture modeling |
| 11:00 | Dr. Gaisoni Naseldin Ensuring protection of critical turtle nesting habitat: 3D Geomechanical Modelling estimates production induced subsidence at Torosa Field, Browse Basin, Australia |
| 11:20 | Rima Alfaraj SAGE (Saudi Aramco Geomechanics Expert): A Well from Geomechanics Perspective |
| 11:40 | Lunch Break |
| MS 03: Data-driven and AI applications in Porous Media MS 03 Chair: Prof. Bicheng Yan (main), Co-Organizer: Prof. Shuyu Sun - KAUST | |
| 12:40 | Dr. Zeeshan Tariq Multiphase Flow Prediction in Carbon Storage: A Comparative Study of Deep Learning Algorithms |
| 13:00 | Dr. Xupeng He Subsurface Gas Leakage Detection Using Machine Learning and Well Testing Techniques |
| 13:20 | Dr. Billal Aslam CGNet - Frac : A Novel Hybrid Physics/Data-Driven Model for Fractured Reservoir Simulation |

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| 13:40 | Dr. Ali Alhubail Modeling fluid flow in heterogeneous porous media utilizing the mixed pressure-velocity formulation with weighting strategies |
| 14:00 | Keynote Speech (2): Dr. Horacio Florez (ARAMCO) |
| MS 04 : Innovative Horizons in CCUS: Perspectives, Methods, and Advancements MS 04 Chair: Dr. Abeer Alarawi – (ARAMCO) | |
| 15:00 | Dr. Ahmad Shubbar Carbon Capture Utilization and Storage (CCUS): A Reservoir Simulation Engineer Perspective |
| 15:20 | Dr. Tameem Almani Flow and Geomechanics Iterative Coupling Schemes with Contact Mechanics |
| 15:40 | Dr. Abeer Alarawi Recent Advancements in Upstream CCUS Research. |
| 16:00 | End of Day 1 and Online Networking |

December 16

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| 8:40 | Opening Remarks: Welcome to the 3rd Interpore Saudi Chapter Annual Meeting (Day 2) – Dr. Manal Alotaibi |
| MS 05: Digital rock techniques: from direct numerical simulation and pore network models to molecular simulation and electronic density functional theory MS 05 Chair: Prof. Shuyu Sun (main), Co-Organizer: Prof. Bicheng Yan - KAUST | |
| 9:00 | Dr. Arun Narayanan Nair, KAUST Presentation title: CO ₂ -EOR: Insights from Molecular Dynamics Simulations |
| 9:20 | Dr. Xiuping Wang, KAUST Presentation title: An Unconditionally Structure-Preserving Iterative Scheme for The Kohn-Sham Gradient Flow Model |
| 9:40 | Dr. Remya Nair, KAUST Presentation title: Adsorption of gases on fullerene-like nanocages |
| 10:00 | Dr. Ronghao Cui, KAUST Presentation title: Molecular simulations of clay swelling in the presence of polar solvents |
| MS 06: Mathematical Insights in Porous Media Applications MS 06 Chair: Dr. Manal Alotaibi - KFUPM | |
| 10:20 | Prof. Mohammed Yousef, KFUPM Simulation of Anomalous Diffusion and Pressure Dynamics in Porous Media Near Wellbores |
| 10:40 | Dr. Ibrahim Saromi, KFUPM Memory Effects in Diffusive Processes: Modeling and Simulation Insights |
| 11:00 | Dr. Jamal Al-Smail, KFUPM Material Porosity Design for Controlling Electro-Chemical Reactions in Hydrogen Fuel Cells |
| 11:20 | Prof. Naseer-Aldeen Tatar, KFUPM Recent advances in the theory of porous media |
| 11:40 | Lunch Break |
| MS 07: Innovative AI and HPC Applications for Enhanced Reservoir and Carbon Storage Modeling. MS 07 Chair: Dr. Abdulrahman Almanea- ARAMCO | |
| 12:40 | Keynote Speech (3): Prof. Hadi Hajibeygi (TU Delft) CCS in Fractured Reservoirs: will it work? |
| 13:40 | Dr. Michel Cancelliere Scaling up Geochemical Complexity: Harnessing Computational Power for Field-Scale Reactive Transport Simulations |
| 14:00 | Dr. Rayan Kanfar Graph neural networks as a surrogate model for reservoir simulation |
| 14:20 | Dr. Omar Al-Olayyan AI Parallel History Matching |
| 14:40 | Keynote Speech (4): Prof. Eduardo Gildin (Texas A&M) Fast and Robust Data-driven surface and subsurface simulation for leveraging decarbonization efforts in the Oil & Gas Industry |
| 15:40 | Concluding Remarks: Prof. Shuyu Sun, Dr. Tameem Amani & Dr. Manal Alotaibi |

Steering Committee Saudi Arabia InterPore Chapter

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