

Detailed Meeting Agenda:

Day (1): Sunday, December 15, 2024

8:30 AM– 8:45 AM	Opening Remarks: Welcome to the 3rd Interpore Saudi Chapter Annual Meeting (Day 1) – Dr. Manal Alotaibi (KFUPM)
8:45 AM – 9:00 AM	Brief Overview of Interpore – 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 AM – 10:00 AM	Keynote Speech (1): Prof. Saad Alafnan (KFUPM) Are geological formations really suitable for hydrogen storage?
10:00 AM – 10:20 AM	Dr. Muhammad Sabeel Khan On the observation of three-phase elastic deformation within micropolar continuous media through implementation in FreeFEM++
10:20 AM – 10:40 AM	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 – Saudi Aramco	
10:40 AM – 11:00 AM	Dr. Mostafa Mobasher Leveraging Machine Learning to Enhance Coupled Processes Simulations: A focus on fracture modeling
11:00 AM – 11:20 AM	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 AM – 11:40 AM	Rima Alfaraj SAGE (Saudi Aramco Geomechanics Expert): A Well from Geomechanics Perspective
11:40 AM – 12:40 PM	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 PM – 1:00 PM	Dr. Zeeshan Tariq Multiphase Flow Prediction in Carbon Storage: A Comparative Study of Deep Learning Algorithms
1:00 PM – 1:20 PM	Dr. Xupeng He Subsurface Gas Leakage Detection Using Machine Learning and Well Testing Techniques
1:20 PM – 1:40 PM	Dr. Billal Aslam CGNet - Frac : A Novel Hybrid Physics/Data-Driven Model for Fractured Reservoir Simulation
1:40 PM – 2:00 PM	Dr. Ali Alhubail Modeling fluid flow in heterogeneous porous media utilizing the mixed pressure-velocity formulation with weighting strategies
2:00 PM – 3:00 PM (Houston Time 5:00 AM – 6:00 AM)	Keynote Speech (2): Dr. Horacio Florez (Saudi Aramco)
MS 04 : Innovative Horizons in CCUS: Perspectives, Methods, and Advancements MS 04 Chair: Dr. Abeer Alarawi – (Saudi Aramco)	
3:00 PM – 3:20 PM	Dr. Ahmad Shubbar Carbon Capture Utilization and Storage (CCUS): A Reservoir Simulation Engineer Perspective
3:20 PM – 3:40 PM	Dr. Tameem Almani Flow and Geomechanics Iterative Coupling Schemes with Contact Mechanics
3:40 PM – 4:00 PM	Dr. Abeer Alarawi Recent Advancements in Upstream CCUS Research.
4:00 PM – 4:20 PM	End of Day 1 and Online Networking

Day (2): Monday, December 16, 2024

8:40 AM – 9:00 AM	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 AM – 9:20 AM	Dr. Arun Narayanan Nair, KAUST Presentation title: CO ₂ -EOR: Insights from Molecular Dynamics Simulations
9:20 AM – 9:40 AM	Dr. Xiuping Wang, KAUST Presentation title: An Unconditionally Structure-Preserving Iterative Scheme for The Kohn-Sham Gradient Flow Model
9:40 AM – 10:00 AM	Dr. Remya Nair, KAUST Presentation title: Adsorption of gases on fullerene-like nanocages
10:00 AM – 10:20 AM	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 AM – 10:40 AM	Prof. Mohammed Yousef , KFUPM Simulation of Anomalous Diffusion and Pressure Dynamics in Porous Media Near Wellbores
10:40 AM – 11:00AM	Dr. Ibrahim Saromi, KFUPM Memory Effects in Diffusive Processes: Modeling and Simulation Insights
11:00 AM – 11:20 AM	Dr. Jamal Al-Smail, KFUPM Material Porosity Design for Controlling Electro-Chemical Reactions in Hydrogen Fuel Cells
11:20 AM – 11:40 AM	Prof. Naseer-Aldeen Tatar. KFUPM Recent advances in the theory of porous media
11:40 AM – 12:40 PM	Lunch Break



MS 07: Innovative AI and HPC Applications for Enhanced Reservoir and Carbon Storage Modeling. MS 07 Chair: Dr. Abdulrahman Almanea- Saudi Aramco	
12:40 PM – 1:40 PM (Delft Time – 10:40 AM - 1: 40 PM)	Keynote Speech (3): Prof. Hadi Hajibeygi (TU Delft) CCS in Fractured Reservoirs: will it work?
1:40 PM – 2:00 PM	Dr. Michel Cancelliere Scaling up Geochemical Complexity: Harnessing Computational Power for Field-Scale Reactive Transport Simulations
2:00 PM – 2:20 PM	Dr. Rayan Kanfar Graph neural networks as a surrogate model for reservoir simulation
2:20 PM – 2:40 PM	Dr. Omar Al-Olayyan AI Parallel History Matching
2:40 PM – 3:40 PM (Houston Time 5:40 AM – 6:40 AM)	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
3:40 PM – 4:20 PM	Concluding Remarks: Prof. Shuyu Sun, Dr. Tameem Amani & Dr. Manal Alotaibi