

Session Program

May 19 - 22, 2025



 **InterPore2025**

Sandia National Laboratories
Los Alamos NATIONAL LABORATORY
NEW MEXICO TECH
SCIENCE • ENGINEERING • RESEARCH • UNIVERSITY
THE UNIVERSITY OF NEW MEXICO

**17th Annual Meeting
& Conference Courses**

19 - 22 May 2025
Albuquerque, New Mexico, *USA*
Conference Courses 18 & 23 May

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InterPore2025

MS15

Mon, May 19

1:50 PM

MS15: 1.2

Session

1:50 – 2:05 PM

Optimization of Thermochemical Energy Storage Reactors Using Machine Learning

Speaker

Dr Torben Prill

2:05 – 2:20 PM

Model-based Reinforcement Learning for Optimal Control of Subsurface Flow Systems

Speaker

Prof. Ahmed H. Elsheikh

2:20 – 2:35 PM

Limitations of Deep Neural Network for Inversion Problems in Porous Materials: The Necessity of Mechanical Feature Integration

Speaker

Ms Qinyi Tian

2:35 – 2:50 PM

GenAI4UQ: A Generative AI Framework for Accurate and Fast State Variable Forecasting in Geological Carbon Storage

Speaker

Ming Fan

2:50 – 3:05 PM

Deep Learning Prediction of Reactive Dissolution in Porous Media

Speaker

Hannah Menke

3:05 PM

5:10 PM

MS15: 1.3

Session

5:10 – 5:25 PM

Advanced Pore Network Modelling (PNM) for Packed-Bed Reactors: A Neural Network Approach Using PR-CFD Data

Speaker

Cristina García Llamas

5:25 – 5:40 PM

Learning to Simulate Flow through Porous Media with Graph Neural Networks from Experimental Data

Speaker

Linqi Zhu

5:40 – 5:55 PM

Scaled-cPIKANs for Porous Media Flows: Chebyshev-based Physics-informed Kolmogorov-Arnold Networks

Speaker

Salah A Faroughi

5:55 - 6:10 PM

Upscaling Microscale Flow Effects using Differentiable Programming

Speaker

Agnese Marcato

6:10 PM

Tue, May 20

9:05 AM

MS15: 2.1

Session

9:05 – 9:20 AM

Estimating Capillary Pressure Using Wasserstein Generative Adversarial Network With Gradient Penalty

Speaker

Dr Ahmad Sakhaee-Pour

9:20 – 9:35 AM

Identifying Aquifer Recharge Signatures Using Unsupervised Machine Learning: A Case Study of the Pajarito Plateau, NM

Speaker

Noah Hobbs

9:35 – 9:50 AM

Deep Learning to predict Oil Volume Production in Pore-Scale Two-Phase Flow

Speaker

Pedro Calderano

9:50 – 10:05 AM

Nowcasting and forecasting soil moisture using meteorological parameters

Speaker

Hassan Dashtian

10:05 AM

11:35 AM

MS15: 2.2

Session

11:35 – 11:50 AM

Artificial Intelligence for Predicting and Accelerating Reactive Contaminant Transport in Porous Media

Speaker

Laila AMIR

11:50 AM – 12:05 PM

Determination of effective transport parameters on high-resolved 3D microstructures using CNN

Speaker

Mr Rishabh Saxena

12:20 – 12:35 PM

Quantification of Pore Diameter in Solder Joints of Printed Circuit Boards Based on Super-Resolution Microcomputed Tomography

Speaker

Sascha Senck

12:35 - 12:50 PM

PoroNet: An Interpretable Pore Graph Neural Network for Prediction of Gas Adsorption in Nanoporous Materials

Speaker

Prof. Kaihang Shi

12:50 - 1:05 PM

Computer vision benchmark for multi-resolution micro-CT images of carbonate rocks from the Brazilian pre-salt

Speaker

Felipe Bevilaqua Foldes Guimarães

1:05 PM