

## **Session Program**

**30 May 2022 to 2 June 2022**



# **InterPore2022**

## **Poster**

# Monday 30 May

09:40

## Poster: Poster Session 1 Session

09:40–10:50

**Modeling Microbial Enhanced Oil Recovery (MEOR) Optimization Augmented with Formation Damage Mitigation Within Sandstone Core Under Adverse Subsurface Oil-Field Conditions**

**Speaker**

Mr Susmit Chakraborty

09:40–10:50

**Molecular Dynamics Study of Carbonated Water Confined in Nano Slit Illite Pore: Effect of the Layer Charge**

**Speaker**

Dr Masashige Shiga

09:40–10:50

**Experiment and model of multi-scale dynamic diffusivity and permeability for gas(CH<sub>4</sub>/He)) flow in micro-nano pores in series connection of coal**

**Speaker**

Dr zhiqiang Li

09:40–10:50

**Study on laboratory measurement method of anisotropic permeability based on passive differential pressure ratio**

**Speaker**

Dr Xuehao Pei

09:40–10:50

**The degree and law of the influence of microscopic pore structure on permeability in digital rocks**

**Speaker**

Dr Xiaobin Li

09:40–10:50

**Pore-scale displacement and trapping mechanisms for underground hydrogen storage**

**Speaker**

Maksim Lysyy

09:40–10:50

**Pore level vs. continuum level model for solar thermochemical fuel production**

**Speaker**

Mr Da Xu

09:40–10:50

**Quantifying risks of salt contamination of freshwater aquifers during Aquifer Thermal Energy Storage**

**Speaker**

Ms Geraldine Regnier

09:40–10:50

**Low-field NMR studies to investigate the effects of salinity in the behaviour of brines within porous media.****Speaker**

Mr Aristarchos Mavridis

09:40–10:50

**Molecular investigation on sorption-induced kerogen deformation and its impact on gas transport****Speaker**

Mr Jian Wu

09:40–10:50

**Parameter estimation for unsaturated flow with an efficient encoder-decoder convolutional neural network****Speaker**

Mr Mohammad Reza Hajizadeh Javaran

09:40–10:50

**Test of multi task XGBoost model and its application in Maokou-1 Member, east Sichuan Basin****Speaker**

Mr Keran Li

09:40–10:50

**The First Experimental Design and Application of Large Horizontal Well Spacing Superheated Steam Flooding for Thin Heavy Oil Reservoir in Bohai Bay****Speaker**

Guangming Pan

09:40–10:50

**Hydrate growth and electrical properties modeling based on digital rock techniques****Speaker**

Dr Haitao Tian

09:40–10:50

**Toward integration of NMR and traditional centrifuge capillary pressure curves: A comparison study****Speakers**

George Yabesh, Dr Ausama Giwelli

09:40–10:50

**Enhanced Super Resolution Generative Adversarial Network (ESRGAN) for improving the resolution of micro-CT images****Speaker**

Dr Mohamed Regaieg

10:50

15:10

## Poster: Poster Session 2

### Session

15:10–16:20

#### **Bubble Dynamics on Hierarchical Porous Nickel Phosphide Electrode for Electrocatalytic Water Splitting**

##### **Speaker**

Ms Lin Yuan

15:10–16:20

#### **Novel techniques in X-ray nanotomography, scanning electron microscopy and cryogenic focused ion beam microscopy Linking structure and catalytic properties of heterogeneous and automotive catalysts in three dimensions**

##### **Speaker**

Andy Holwell

15:10–16:20

#### **Capillary sealing efficiency of caprock: Implications for hydrogen and carbon-dioxide geo-storage**

##### **Speaker**

Mr Amer Alanazi

15:10–16:20

#### **The SOPHIE initiative - The first interlaboratory comparison of the wet end of the soil water retention curve**

##### **Speaker**

Benjamin Guillaume

15:10–16:20

#### **Groundwater contamination in the north-east of the UK: Exploring and projecting pollution trends using the Environment Agency data archives**

##### **Speaker**

Mrs Nouha Samlani

15:10–16:20

#### **Permeability estimation in the low-porous rock sample using the Navier-Stokes equation at slip and no-slip conditions**

##### **Speaker**

Dr Paweł Madejski

15:10–16:20

#### **A novel microfluidic PEM water electrolyzer cell for the study of counter-current two-phase flow at the anode side**

##### **Speaker**

Supriya Bhaskaran

15:10–16:20

#### **Design and Fabrication of 4D Fresnel Lenses for Optical and Thermal Sensing Applications**

##### **Speaker**

Haider Butt

15:10–16:20

**Optimization of operational parameters for geological hydrogen storage in a saline aquifer - Sothorn North Sea Case Study****Speaker**

Mr Saeed Harati

15:10–16:20

**3D reactive transport modeling of laboratory-scale CO<sub>2</sub> injection in limestone leading to wormhole formation****Speaker**

Mrs Atefeh Vafaie

15:10–16:20

**Wetting/drying mechanisms associated with nanoconfined salt solutions: an optical reflectance study on vapour phase imbibition and adsorption****Speaker**

Dr Sujeet Dutta

15:10–16:20

**Space-time upscaling of reactive transport in porous media****Speaker**

Dr Nicolae Suci

15:10–16:20

**Adsorption and Transport Behaviors of Shale Oil in Kerogen Slit by Molecular Dynamics Simulation****Speaker**

Mr Liu Jie

15:10–16:20

**A molecular dynamics study on CO<sub>2</sub> enhanced shale gas recovery in kerogen nanopores****Speaker**

Dr Cheng Chen

15:10–16:20

**Experimental Research and Application of Fracture Stress Sensitivity****Speakers**

Junjie Liu, jian xiong

15:10–16:20

**Modeling contrast perfusion and adsorption in the 3D heart****Speaker**

RODRIGO Weber dos SANTOS

15:10–16:20

**Characterisation and Comparison of Algal Biochar at Different Pyrolysis Temperatures****Speaker**

Dr Kamal Elyasi Gomari

15:10–16:20

**Digital Rock Physics as a Tool for Upscaling Cores Petrophysical Properties from Pore to Continuum Scale****Speaker**

Mr Mohamed Mahrous

15:10-16:20

**Use of semi-automatic deep learning algorithms for the segmentation and classification of cavities in carbonate fault rocks**

**Speaker**

Dr Joyce Schmatz

15:10-16:20

**On the CO<sub>2</sub>/caprock interaction based on quantitative image analysis from in-situ x-ray tomography**

**Speaker**

Eleni Stavropoulou

16:20

## Tuesday 31 May

09:20

### Poster: Poster Session 3

#### Session

09:20–10:30

#### Performance evaluation on temporary plugging of magnetic responsive hydrogel in hydraulic fracturing of hydrocarbon reservoirs

##### Speaker

Prof. Mingliang Luo

09:20–10:30

#### Foam plugging performance and flow characteristics in fracture system

##### Speaker

Dr Zhengxiao Xu

09:20–10:30

#### Digital Rock Techniques to Study Physical Properties of Hydrate-Bearing Sediments: Considering Hydrate Distribution Patterns

##### Speaker

Yuqi Wu

09:20–10:30

#### Wave-induced fluid flow in fractal porous media

##### Speaker

Dr Shanshan Jiang

09:20–10:30

#### Study on quantitative identification method for lithology of pyroclastic rock

##### Speaker

Dr Gang Hu

09:20–10:30

#### Physics Informed Neural Networks for Fluid Flow in Porous Media

##### Speaker

Waleed Diab

09:20–10:30

#### Direct comparing the permeability derivation from Images: Empirical Modeling vs Physics-Based Simulation vs Deep Learning

##### Speaker

Prof. Lingyun Kong

09:20–10:30

#### A multi-dimensional parametric study of variability in multi-phase flow dynamics during geologic CO<sub>2</sub> sequestration accelerated with machine learning

##### Speaker

Hao Wu

09:20–10:30

#### An optimization-based method for upscaling carbonate volumetric image data

**Speaker**

Mr Anup Kumar Shahi

09:20–10:30

**Pore-scale imaging of asphaltene deposition with permeability reduction and wettability alteration****Speaker**

Yihuai Zhang

09:20–10:30

**Simulation of turbulent mixing in channels with reactive boundary conditions****Speaker**

Alisdair Soppitt

09:20–10:30

**Pore-Scale Modelling of Hydrogen Transport in Porous Media****Speaker**

Mr Shaobin Cai

09:20–10:30

**Pore structure characterization and seepage law analysis of tight reservoir****Speaker**

Dr Liang Jiao

09:20–10:30

**Pore-scale two-phase flow simulation of volcanic gas reservoir based on Volume of Fluid method****Speaker**

Quan Xu

09:20–10:30

**Characterization of water transport in building porous materials based on an analytical spontaneous imbibition model****Speaker**

Mingliang Qu

09:20–10:30

**Adsorption of methylene blue from solution using pomegranate and orange peels powder****Speaker**

Dr Asma Jedidi

10:30

15:20

**Poster: Poster Session 4****Session**

15:20–16:30

**Wettability Restoration of Reservoir Rocks: A Comparison between Static and Different Dynamic Methods****Speaker**

Mr Amin Rezaei

15:20–16:30

**Print Quality and Particles: pore-scale simulations of particles/liquid interaction with printing substrate**



**Speaker**

Hamed Aslannejad

15:20–16:30

**Numerical study of single droplet drying in an acoustic levitator****Speaker**

Mr Martin Doß

15:20–16:30

**Imaging and chemical analysis of ureteral stent encrustation and incrustation****Speaker**

Brian Berkowitz

15:20–16:30

**Complex Fluids - Thin Porous Materials Interactions revealed via Electrical Impedance Spectroscopy (EIS)****Speaker**

Dr Nicolae Tomozeiu

15:20–16:30

**Chromatographic Effects in Inkjet Printing****Speaker**

Prof. Anton Darhuber

15:20–16:30

**Surrogate models for aquifer management****Speaker**

Dr VANESSA A. GODOY

15:20–16:30

**CO2 storage site characterization using variational autoencoders****Speaker**

Jonghyun Lee

15:20–16:30

**Design of a model for the prediction of petrophysical properties from microstructural image data****Speaker**

Joyce Schmatz

15:20–16:30

**Simplified simulation of two-phase flow in karst conduits in carbonate rocks****Speaker**

Ms Uebert Gonçalves Moreira

15:20–16:30

**2D Particle Tracking Velocimetry in Multiphase Flow in Porous Media****Speaker**

Mingjia Xu

15:20–16:30

**Effects of porous media morphology on two-phase fluid displacement and distribution****Speaker**

Harris Rabbani

15:20–16:30

**Computational and experimental microfluidics for geosciences**

**Speaker**

Sophie Roman

15:20–16:30

**Two-equation macroscopic continuum model for drying capillary porous media: Benchmarking against pore network model simulations**

**Speaker**

Mr Faez Ahmad

15:20–16:30

**A Potential Energy based Lattice Boltzmann Model for Two-Phase Flow in Fractured Porous Media**

**Speaker**

Dr Zhongkun Niu

15:20–16:30

**Experimental study on porosity and permeability characteristics of unconventional reservoir under overburden pressure**

**Speaker**

Xinliang Chen

16:30

# Wednesday 1 June

09:20

## Poster: Poster Session 5

### Session

09:20–10:30

### 3D Microscale Flow Simulation of Newtonian and Shear Thinning Fluids in Sandstone and Carbonate Samples

#### Speaker

Dr Mehdi Amiri

09:20–10:30

### Microporosity-permeability relationship for complex South East Asia carbonate reservoir

#### Speaker

Mr Wen Pin Yong

09:20–10:30

### Experimental Studies on Permeabilities of Thin Fibrous Materials

#### Speaker

Luwen Zhuang

09:20–10:30

### The influence of Wettability and flow rates on two-phase fluid displacement in porous media: Pore scale experimental visualization and numerical simulations

#### Speaker

Peixing Xu

09:20–10:30

### Steady State Two-Phase Flow Relative Permeabilities in Microfluidic Devices

#### Speaker

Mr Ewald Obbens

09:20–10:30

### Challenges for Microfluidic Devices in Representing Flow in Geological Formations

#### Speaker

William Rossen

09:20–10:30

### Cr(III)-entrapped Nanocapsules Obtained via W/O/W Double Miniemulsion Nanoprecipitations of Hydrophobic Polymers for Delaying HPAM Gelation

#### Speaker

Dr Jingyang Pu

09:20–10:30

### Impact of Novel Nano-particle Solutions on Foam Stability, Wettability Reversal and Interfacial Tension Reduction

#### Speaker

Dr Seyed Mojtaba Hosseini-Nasab

09:20–10:30

**Insights into Upscaling of Modeling of Thermal Dispersion in Geothermal Doublets****Speaker**

Dr Jinyu Tang

09:20–10:30

**Heterogeneous nucleation and precipitation on solid surfaces: Experimental observation of calcium carbonate formation on primary and secondary substrates****Speaker**

Dr Mohammad Nooraiepour

09:20–10:30

**Effect of physicochemical properties and structural heterogeneity on reactive transport in saturated porous media****Speaker**

Ms Xueying Li

09:20–10:30

**Micro experimental study on residual oil of marine carbonate rocks during water flooding based on CT scanning****Speaker**

Wenlong Jing

09:20–10:30

**Investigation of coupled processes in fractures and the bordering matrix via a micro-continuum reactive transport model****Speaker**

Qian Zhang

09:20–10:30

**High Precision Saline Intrusion Modelling in Heterogeneous Aquifers using Dynamic Mesh Optimisation****Speaker**

Pablo Salinas

09:20–10:30

**Experimental study on silylated polyacrylamide based relative permeability modifiers in porous carbonate gas cores****Speaker**

Mr Liming Qin

09:20–10:30

**Experimental study on production law of fault-controlled type fractured-cavity reservoir****Speaker**

Mr Wanjiang Guo

09:20–10:30

**Experimental Investigation of Relative Permeability Curves in Oil/water Transition Zone of Tight Sandstone Reservoir****Speaker**

Dr Min Ma

09:20–10:30

**Effect of pore structure characteristics on imbibition recovery of shale with different fabric facies****Speaker**

Dr Qinghao Sun

09:20–10:30

**Characterization of Fluid-Fluid Interactions in Heterogeneous Porous Media****Speaker**

Artur Shapoval

10:30

14:50

**Poster: Poster Session 6****Session**

14:50–16:00

**Evaluation of saturation of tight sandstones using dielectric logs: Ordos Basin, China****Speaker**

Dr Peiqiang Zhao

14:50–16:00

**Application of Lattice Boltzmann Method in Pore-scale Characterisation of Flow Dynamics in Three-Dimensional Porous Medium****Speaker**

Mr Mehrdad Vasheghani Farahani

14:50–16:00

**The Effect of Power Law Index on Shift Factor for Shear Thinning Fluids by 3D Microscale Flow Simulation****Speaker**

Mehdi Amiri

14:50–16:00

**Numerical Investigations on the Dissolution Characteristics of CO<sub>2</sub> in Fractured Porous Media using Density Driven Modelling****Speaker**

Dr Manojkumar Gudala

14:50–16:00

**The influence of gas bubble interfaces on the acoustic properties of partially saturated poroelastic media****Speaker**

Dr Patrick Kurzeja

14:50–16:00

**The Effect of Interfacial Elasticity of a Nanofluid/Surfactant system for EOR through a Visual Micromodel Study****Speaker**

Mr Hector Bonilla

14:50–16:00

**Decontamination-induced contaminant redistribution in porous media**

**Speaker**

Emily Butler

14:50–16:00

**Hydrodynamic instabilities of immiscible fluids in a Hele-Shaw cell****Speaker**

Chekib Ghabi

14:50–16:00

**Particle migration and deposition at the pore scale: Eulerian-Lagrangian approach****Speaker**

Dr Saeid Sadeghnejad

14:50–16:00

**The Influence of Imaging Contrast Agents on Emulsification under Flow Conditions****Speaker**

Ahmad Kharrat

14:50–16:00

**A Novel Analysis Method for Water Breakthrough Mechanism in an Offshore Heavy Oil Reservoir with Bottom Water****Speaker**

Guangming Pan

14:50–16:00

**Microfluidic experiments on constrained oil remobilization induced by water transport in the oil phase****Speaker**

LIFEI YAN

14:50–16:00

**Experimental evaluation of percolation in evolution of flow****Speaker**

Samaneh Vahid Dastjerdi

14:50–16:00

**Evaluation of fluid flow behavior and trapped non-wetting phase saturation with modified pore morphological approach in clastic reservoirs****Speaker**

Mr Gordon Burmester

14:50–16:00

**Montecarlo simulations of gas transportation in multifractal shale reservoirs****Speaker**

Paul Naveen

16:00

## Thursday 2 June

10:10

### Poster: Poster Session 7 Session

10:10–11:20

#### **INFLUENCE OF $\text{SiO}_2$ NANOFLUID ON ENHANCED OIL RECOVERY INSIDE A TRANSPARENT MICROPOROUS MEDIA**

##### **Speaker**

Dr Afshin Goharzadeh

10:10–11:20

#### **Polymeric Membranes' Morphology and Water Flow Simulation**

##### **Speaker**

Dr Meixia Shi

10:10–11:20

#### **Microplastics Effects on Evaporation Dynamics and Cracking Morphology in Drying Porous Media**

##### **Speaker**

Prof. Nima Shokri

10:10–11:20

#### **MODELLING OF FREEZING AND THAWING EXPERIMENTS OF SATURATED SAND COLUMN**

##### **Speaker**

Martina Sobotkova

10:10–11:20

#### **Dynamic pore-network modeling of compositional flow and nanoconfined phase behavior in shale rocks**

##### **Speaker**

Sidian Chen

10:10–11:20

#### **Novel Fabrication of Microfluidic Devices with Mixed Wettability**

##### **Speaker**

Abdullah AlOmier

10:10–11:20

#### **Effect of grain size and distribution on the two-phase flow at pore scale**

##### **Speaker**

Dr Yin Chen

10:10–11:20

#### **Improved micro-continuum approach for pore scale simulation of capillary dominated flow with lower spurious velocities**

##### **Speaker**

Zhiying Liu

10:10–11:20

#### **A fast hybrid method of reconstructing 3D digital rock**

**Speaker**

Mr Ping Feng

10:10–11:20

**Study on the dominant factors of rock permeability****Speaker**

Dr Kai Xu

10:10–11:20

**Investigation of different clay activation techniques to capture and store carbon dioxide (CO<sub>2</sub>)****Speaker**

Ms Cindy Chomba

10:10–11:20

**Geochemical studies of CO<sub>2</sub>-Brine-Rock interaction at surface and subsurface conditions during geological storage of carbon dioxide****Speaker**

Mr Edigwe Jude

10:10–11:20

**Predicting thermal potential of a shallow ground to support design of low-temperature district heating and cooling networks****Speaker**

Shakil Masum

10:10–11:20

**Dependence of hydraulic conductivity on effective confining pressure in rocks and concretes****Speaker**

Kotone Sakemoto

11:20

15:15

**Poster: Poster Session 8****Session**

15:15–16:25

**Pore-scale modelling of polymeric solutions in porous media****Speaker**

Ms Amna Al-Qenae

15:15–16:25

**Three-dimensional fractal model of hydraulically fractured horizontal wells in anisotropic naturally fractured reservoirs****Speaker**

Rosa María Mariscal Romero

15:15–16:25

**Chemotaxis promoted bacterial transport toward residual NAPL in a dual-permeability microfluidic device****Speaker**

Ms Beibei Gao

15:15–16:25

**Modeling digital twins of grain-based reservoir rocks****Speaker**

Dr Arne Jacob



15:15-16:25

**Digitizing and Exploring 16 Years of the Registry of Contaminated Sites in the state of São Paulo, Brazil****Speaker**

Ms Nouha Samlani

15:15-16:25

**Effects of compaction on pore structure and soil hydraulic properties****Speaker**

Mr Soheil Safari Anarkouli

15:15-16:25

**Film-to-pore filling transition during water adsorption in nanoporous media****Speaker**

Abdullah Cihan

15:15-16:25

**Molecular dynamics of a fluid confined in kerogen from memory kernels****Speaker**

Ms Kristina Ariskina

15:15-16:25

**Salt precipitation and its impact on rock porosity - An X-ray micro-tomography study****Speaker**

Pavel Kazakovtsev

15:15-16:25

**Extended Allen-Chan phase-field equation for ternary fluid flows and phase-change process in binary fluid flows****Speaker**

Mrs Reza Haghanihasanabadi

15:15-16:25

**Microfluidic model of micro-haemodynamics in porous media****Speaker**

Qi Chen

15:15-16:25

**Production and characterization of porous sludge-derived biochar as a sustainable solution for the water industry****Speaker**

Andre Frota

15:15-16:25

**Estimating the structure of a spatially layered media from the radial flow experiments with shear-thinning fluids****Speaker**

Martin Lanzendörfer

15:15-16:25

**Numerical modelling of CO<sub>2</sub> sequestration in coal-seams based on a parallel hybrid discrete fracture - dual porosity model****Speaker**

Shakil Masum

15:15–16:25

**Agrochemical Transport in Heterogeneous Agricultural Soils****Speaker**

Veronica Morales

15:15–16:25

**Development of a salt-impregnated SAPO-34 porous matrix with graphene oxide for water sorption applications****Speaker**

Ms Samar Abd Elwadood

15:15–16:25

**Comparison of Pore-network Simulation and Infiltration Experiment Performed on Coarse Sand****Speaker**

Mr Tomas Princ

15:15–16:25

**Local wettability characterization of porous media under two-phase conditions using lattice-Boltzmann simulations****Speaker**

Hamidreza Erfani Gahrooei

16:25