INTERPORE

INTERNATIONAL SOCIETY
FOR POROUS MEDIA

INTERPORE 2020
12th ANNUAL MEETING

Detailed Block Program

First version, 22 August 2020

MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 1

(MS 3) Flow, transport and mechanics in fractured porous media – Part 1

*Q&A 1 Time Block A - **Chairs:** Holger Steeb, Hamid Nick, Benoit Noetinger*

[614] **Study on water injection mechanism of tight reservoir based on large-scale outcrop physical simulation experiment**
Yutian Luo; Xuewei Liu

[286] **Oxidative dissolution during spontaneous imbibition in organic-rich shale: implication for the matrix stimulation**
Qiuyang Cheng; Lijun You; Yili Kang; Yang Zhou; Nan Zhang

[515] **The Influence of Fractures on the Enrichment of Tight Sandstone Gas**
Ping Wang

[84] **Flow Law of Foam in Fractured Vuggy Reservoir**
Zhengxiao Xu

[741] **Analysis of Factors Affecting Fracturing and Absorbing Parameters in Tight Reservoir**
Zhu Jiamin

[756] **Analysis of Hydrate Seafloor Subsidence Induced by Depressurization in Nankai Trough, Japan**
Shuyue Ding; Shuxia Li;Didi Wu; Shaung Li

[363] **The influence of microfractures on hydrocarbon migration**
Wenqing Tang

[252] **A physics based model of gas flow in shales predicts enhanced gas production**
Syed Haider

(MS 3) Flow, transport and mechanics in fractured porous media – Part 2

*Q&A 2 Time Block A - **Chairs:** Holger Steeb, Hamid Nick, Benoit Noetinger*

[360] **Combined effects of network topology, hydraulic conditions and in-situ stress variations on solute propagation in natural fracture networks**
Chuanyin Jiang; Xiaoguang Wang; Delphine Roubinet; Zhixue Sun

[50] **Pipe Network Modelling for Fractured Rock Cores with Micro-computed Tomography Imaging**
YU JING; Ryan Armstrong; Peyman Mostaghimi

[1307] **The hydraulic conductivity of shaped fractures with permeable walls**
Daihui Lu; Federico Municchi; Ivan Christov

[120] **A systematic investigation of the intrinsic flow properties of fractures using a combined 3D printing and micro-computed tomography approach**

MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 1 (cont.)

(MS 3) Flow, transport and mechanics in fractured porous media – Part 2 (cont.)

Q&A 2 Time Block A - Chairs: ***Holger Steeb, Hamid Nick,*** *Benoit Noetinger*

[48] **A Mesh-free Approach to Investigate Flow Behaviors in Fractured Porous Media with Multi-scale Complex Fracture Networks**
Zhiming Chen; Wei Yu; Wendong Wang

[63] **Sensitivity Analysis on Different Parameters Affecting the Gas-Oil Gravity Drainage Mechanism in Naturally Fractured Reservoirs**
Mohammad Madani; Amin Daryasafar

[927] **Capillarity vs. Saturation in Fracture-Matrix Systems**
Qi Liu, Alejandro Cardona

[625] **A multilayer model for reactive flow in fractured porous media**
Alessio Fumagalli; Anna Scotti; Luca Formaggia

(MS 3) Flow, transport and mechanics in fractured porous media – Part 3

Q&A 3 Time Block B - ***Chairs:*** *Holger Steeb, Hamid Nick, Benoit Noetinger*

[326] **Adaptive Virtual Element Method for simulations of flow in fractured media**
Andrea Borio; Stefano Berrone; Alessandro D'Auria

[1323] **Multiscale model reduction of unsaturated flow problem**
Denis Spiridonov

[674] **Implicit multiscale modelling for stress-dependent permeability in a poroelastic dual-continuum setting**
Mark Ashworth

[683] **The impact of fracture surface roughness on stress dependent permeability**
Amanzhol Kubeyev; Christine Maier; Niko Kampman; Kevin Bisdom; Rafael March Castaneda Neto; Florian Doster

[443] **Topological analysis of 3D Discrete Fracture Networks: a graph approach to connectivity and percolation in fractured rocks**
TAWFIK RAJEH; Israel CAÑAMON; Rachid ABABOU; MANUEL MARCOUX

[313] **Measuring the deformation of porous media in response to hydraulic pressure**
Martin Stolar; yaniv edery; Tajudeen M. Iwalewa; James R. Rice

[1149] **Bandwidth re-fracturing technique optimization and design consideration in naturally-fractured tight reservoirs --- Case study on Ansai oil field, Ordos basin**
Xia Du

[420] **Estimating Flow Characteristics of 3D Fracture Network based on Persistent Homology**
Anna Suzuki; Miyuki Miyazawa; Takatoshi Ito; Peter Kang

Question and answer: Parallel sessions 1 (cont.)

(MS 3) Flow, transport and mechanics in fractured porous media – Part 4

*Q&A 4 Time Block B - **Chairs:** Holger Steeb, Hamid Nick, Benoit Noetinger*

[919] **Understanding Hydraulic Fracturing Dynamic Stimulation: Dynamic Characterization and Design Considerations for Tight Porous Media**
Abhijith Suboyin; MD Motiur Rahman

[320] **Fracture pore network model: efficient pore scale modelling of fluid flow in fractured porous media**
Chenhui Wang; Kejian Wu; Gilbert Scott

[461] **A comparative study of Lattice Boltzmann models for complex fractal geometry**
Dong Zhang

[256] **Laser-Induced Fluorescence (LIF) study of solute transport in 3D-printed fractured porous media**
Mehrdad Ahkami

[354] **An investigation into the controls of fracture tortuosity in rock sequences and its impact on fluid flow in the upper crust**
Nathaniel Forbes Inskip; Tomos Phillips; Kevin Bisdom; Georgy Borisochev; Andreas Busch; Sabine den Hartog

[1032] **Experimental study of contaminant transport in coupled fracture-porous medium systems**
Monika S. Walczak

[1274] **Gas-Oil Displacement Mechanisms in Fractured Vuggy Carbonates at Immiscible and Miscible Conditions**
Xiongyu Chen; Kishore Mohanty

[1249] **Effect of Fracture on Reactive-Density-Driven Convection of Injected CO2 in Porous Reservoir**
Paiman Shafabakhsh

(MS 3) Flow, transport and mechanics in fractured porous media – Part 5

*Q&A 5 Time Block C - **Chairs:** Holger Steeb, Hamid Nick, Benoit Noetinger*

[198] **A three-field approach for flow simulations in networks of fractures on non conforming meshes**
Stefano Berrone; Sandra Pieraccini; Stefano Scialò; Denise Grappein

[667] **Extended finite element analysis of a coupled fracture-reservoir model**
Elisa Bergkamp

[90] **Dynamic Multilevel Simulation of Coupled Flow-Heat Transport in Fractured Porous Media**
Mousa HosseiniMehr

[1290] **Recent advances in Mixed Virtual Elements for DFM simulations**
Matias Benedetto; Andrea Borio; Franco Dassi; Alessio Fumagalli; Davide Losapio; Anna Scotti; Stefano Scialò; Giuseppe Vacca

MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 1 (cont.)

(MS 3) Flow, transport and mechanics in fractured porous media – Part 5 (cont.)

Q&A 5 Time Block C - Chairs: ***Holger Steeb, Hamid Nick,*** *Benoit Noetinger*

[232] **Fluid flow through anisotropic and deformable double porosity media with ultra-low matrix permeability: An efficient continuum framework**
Qi Zhang; Ronaldo Borja

[165] **Fracture-matrix interactions implicated by matrix pore connectivity: From waste repository to shale hydrocarbon production**
Qinhong Hu

[278] **Numerical Simulation of Fault Slip in Shale Gas Reservoirs Based on Discrete Fracture Network Model**
Hao Liu; Zhaoqin Huang; Qinghua Lei

[566] **Fracture propagation in porous media during fluid injection**
Srutarshi Pradhan

(MS 3) Flow, transport and mechanics in fractured porous media – Part 6

Q&A 6 Time Block C - ***Chairs:*** *Holger Steeb, Hamid Nick, Benoit Noetinger*

[71] **Investigations of pore connectivities and permeabilities of fractured vuggy carbonates based on digital rock techniques**
Weichao Yan; Sun Jianmeng

[630] **Experimental Study on Two-phase Miscible Displacement Pattern of Porous Media**
Wei Guo; Ran Hu

[238] **Study on Water Quality Sensitivity and Characterization of Permeability in Water Flooding Sandstone Reservoirs**
Xiankun SONG; Jianzhong WANG

[1033] **Experimental investigation of low salinity water flooding efficiency in tight carbonate fractured oil reservoirs; a case study**
Rasoul Mokhtari; Mohammad Sadegh Mousapour; Pourya Malmir; Amin Alinejad ; Shahab Ayatollahi

[196] **Impact of fracture sealing on the percolation state of orthogonal fracture networks**
Weiwei Zhu

[145] **Pore structure characteristics of the Paleogene Shahejie Shale Oil Formation in Dongying Sag, Bohai Bay Basin, China**
Xiuchuan Zhu

[1252] **Role of mineralogy in controlling fracture formation.**
Olivia Brunhoeber; Lauren Beckingham

MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 2

(MS 7) Mathematical and numerical methods for multi-scale multi-physics, nonlinear coupled processes– Part 1

*Q&A 1 Time Block A - **Chairs:** Sorin Pop*

[1306] **A Numerical Study on Multiphysics Fluid Flow in a Shale Gas Reservoir with Non-Uniform Fractures**
Abhishek Kumar; Suresh Kumar Govindarajan

[1207] **Spectral time-dependent solutions for natural convection in porous enclosure**
AMIN FAHS; ALI ZAKERI; ADRIEN WANKO

[30] **Research and Application of Numerical Method of Evaluation of Fracturing Effects in Large Scale Volume Reform of Vertical Wells**
Debin Xia

[658] **An Embedded Discrete Fracture Method Based Well-Test Model for Pressure Transient Analysis in Fractured Wells with Complex Fracture Networks**
Hui Liu; Xinwei Liao; Xiaoliang Zhao; Lijia Yuan; Juan Zhao

[716] **A Discrete Fracture-Matrix Model for Pressure Transient Analysis in Multistage Fractured Horizontal Wells with Arbitrarily Distributed Natural Fractures**
Hui Liu; Xinwei Liao; Xuefeng Tang; Xiaoliang Zhao; Lijia Yuan; Juan Zhao

[1297] **A multi-scale nonlinear finite element modelling of subsurface energy storage under cyclic loading**
Kishan Ramesh Kumar

[918] **A new parallel framework for general purpose reservoir simulation with advanced discretization and linearization schemes**
Longlong Li; Ahmad Abushaikha

[1161] **Simulation of two-phase flow in fractured media with discontinuous capillary pressure**
Luat Khoa Tran

(MS 7) Mathematical and numerical methods for multi-scale multi-physics, nonlinear coupled processes– Part 2

*Q&A 2 Time Block A - **Chairs:** Sorin Pop*

[530] **A feasible method for the construction of fixed-tortuosity capillary medium with self-similarity behavior**
Wei Wei

[241] **A revisited compositional 2-phase flow model for gas transport at various scales in heterogeneous porous structures in a deep geological radioactive waste disposal facility**
Zakaria SAÂDI

[102] **A (real) multi-scale solver for two-phase flow: a micro-continuum approach**
Cyprien Soulaine; Francisco Carrillo; Ian Bourg

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Question and answer: Parallel sessions 2 (cont.)

(MS 7) Mathematical and numerical methods for multi-scale multi-physics, nonlinear coupled processes– Part 2 (cont.)

Q&A 2 Time Block A - Chairs: Sorin Pop

[1291] **Coupling conditions for Stokes-Darcy problems with arbitrary flow directions**
Elissa Eggenweiler; Iryna Rybak

[1192] **Generation of a micro-earthquake clouds induced by the arrival of nonlinear fronts of pressure and temperature**
Arrigo Caserta; Roman Kanivetsky; Ettore Salust

[1268] **Upscaling of a Cahn–Hilliard Navier–Stokes Model with Precipiation in a Thin Strip**
Lars von Wolff; Iuliu Sorin Pop

[641] **Study on the coupling mathematical model of gas-water two-phase seepage and wellbore pipe flow in fractured horizontal Wells in volcanic gas reservoirs**
Cheng Fu

(MS 7) Mathematical and numerical methods for multi-scale multi-physics, nonlinear coupled processes– Part 3

*Q&A 3 Time Block B - **Chairs:** Sorin Pop, Peng Xu*

[1190] **Production Enhanced Potential Evaluation and Integrated Design for Horizontal Wells Energized Fracturing --- Case Study on Chang 7 Tight Reservoir, Ordos Basin**
Guanqun Li

[1333] **Residual-driven online Generalized Multiscale Finite Element Method for the poroelasticity problem in fractured and heterogeneous media**
Aleksei Tyrylgin

[439] **MULTISCALE PORE NETWORK INTEGRATION USING THE POREFLOW SOFTWARE**
Elizabeth May Pontedeiro

[1319] **Nonlocal nonlinear upscaling for problems in heterogeneous and fracture media using machine learning technique**
Maria Vasilyeva

[661] **Coupling Staggered-Grid and vertex-centered Finite Volume Methods for Free Flow/Porous-Medium Flow Problems**
Martin Schneider; Edward Coltman; Kilian Weishaupt; Rainer Helmig

[1280] **Multiphase mixture models with phase change and filtration in OpenFOAM®**
Federico Municchi; Matteo Icardi

[665] **A Bundle of Capillary Tubes (BOCT) Model for Carbonated Water Flooding (CWF); a Promising Technique for Simultaneous CO2 Storage and Enhanced Oil Recovery Purposes**
Puyan Bakhshi; M. Mercedes Maroto-Valer; Mohammad Amani

[287] **Equivalent Conductivity Tensor in 3D Anisotropic Heterogeneous Formations**
Qinzhuo Liao; Gang Lei; Dongxiao Zhang; Shirish Patil

MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 2 (cont.)

(MS 7) Mathematical and numerical methods for multi-scale multi-physics, nonlinear coupled processes– Part 4

*Q&A 4 Time Block B - **Chairs:** Sorin Pop, Peng Xu*

[1316] **A multi-step Dirichlet-Neumann domain decomposition method applied to the polymer injection in porous media**
Renatha Batista dos Santos; Rodrigo Silva Tavares; Sidarta Araújo Lima; Adriano Santos

[908] **Physics-Preserving Algorithms for Flow and Transport in Porous Media**
Shuyu Sun

[1269] **Efficiency and Accuracy of Micro-Macro Models for Dissolution/Precipitation in Two-Mineral Systems**
Stephan Gärttner; Peter Frolkovic; Peter Knabner; Nadja Ray

[324] **Incremental petrophysical characterization of carbonate rocks using μCT box counting fractal analysis for upscaling purposes**
Tatiana Lipovetsky; Luca Moriconi; Behzad Ghanbarian

[1320] **Modeling and design optimization for pleated membrane filter**
Yixuan Sun; Pejman Sanaei; Lou Kondic; Linda Cummings

[1324] **Stochastic Modelling of Adsorption and Sieving in a Pore Network**
Binan Gu; Pejman Sanaei; Linda Cummings; Lou Kondic

[352] **A pore-network model approach for coupling free flow with porous medium flow applied to evaporation**
Kilian Weishaupt; Rainer Helmig

[33] **Multi-scale iterative scheme for a phase-field model for reactive transport problems**
Manuela Bastidas

(MS 7) Mathematical and numerical methods for multi-scale multi-physics, nonlinear coupled processes– Part 5

*Q&A 5 Time Block C - **Chairs:** Sorin Pop, Peng Xu*

[1178] **An accelerated staggered solution scheme to phase-field modeling of brittle fracture**
Erlend Storvik

[1144] **Proactive Optimization of CO2 Sequestration under Geomechanical Constraints**
Mohammad Salehian

[585] **Computational Multiscale Methods for Linear Poroelasticity using CEM-GMsFEM**
Eric Chung; Sai-Mang Pun; Shubin Fu; Robert Altmann; Roland Maier; Daniel Peterseim

MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 2 (cont.)

(MS 7) Mathematical and numerical methods for multi-scale multi-physics, nonlinear coupled processes– Part 5 (cont.)

Q&A 5 Time Block C - Chairs: Sorin Pop, Peng Xu

[695] **Gravity Segregation in Foam Mobility Control in Heterogeneous Reservoir**
Xiaocong Lyu; Denis Voskov; William Rossen

[1180] **Multiscale computation of pore-scale geomechanics**
Yashar Mehmani; Nicola Castelletto; Hamdi Tchelepi

[460] **Stochastic and upscaled analytical modeling of fines migration in porous media induced by low-salinity water injection**
Yulong Yang

[1328] **Integration Pulse Decay Experimental Data into A Novel Continuum-Scale Multi-Physics Model to Study Gas Transport in Shale Formations**
Zihao Li

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 1

*Q&A 6 Time Block C - **Chairs:** Aimy Bazylak, Saman Aryana*

[987] **LBM simulations of graded Gas Diffusion Layer for PEMFC applications**
Graham Danny KOYEERATH; Yann Favennec; Christophe Josset; Bruno Auvity

[1265] **Assessment of end-effects during two-phase flow in micro-fluidic model pore networks – is it possible?**
Marios Valavanides; Nikolaos Karadimitriou; Holger Steeb

[1255] **In-situ Capillary Pressure Measurements for Gaining Insight into Foam Flow in Porous Media**
Eric Vavra; Maura Puerto; George Hirasaki; Sibani Lisa Biswal

[966] **Core flood-on-a-chip: a study of viscoelasticity's effects on oil recovery using a foot-long micromodel**
Yujing Du

[1237] **Quantification of non-linear multiphase flow in porous media**
Yihuai Zhang; Branko Bijeljic; Ying Gao; Qingyang Lin; Martin Blunt

MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 3

(MS 8) Mixing, dispersion and reaction processes across scales in heterogeneous and fractured media – Part 1

*Q&A 1 Time Block A - **Chairs:** Marco Dentz, Branko Bijeljic*

[195] **Permeability of salt crusts from evaporation of sand columns.**
Joseph Piotrowski

[49] **Quantitative Tortuosity Measurements of Carbonate Rocks using Pulsed Field Gradient NMR.**
Kaishuo Yang

[66] **Experimental analysis of plumes transport and dilution processes under highly transient boundary conditions.**
Mónica Basilio Hazas

[647] **Multi-Scale Benchmarking of a Coupled Geochemical Transport Solver.**
Saideep Pavuluri; Christophe Tournassat; Francis Claret; Cyprien Soulaine

[740] **The Peclet number and viscous ratios impact on the fingering evolution during miscible displacement in rough fractures.**
Xusheng Chen

[874] **Experimental assessment of turbulent mixing in the hyporheic zone.**
Elisa Baioni

[1223] **Hydrodynamic Dispersion in Simple Pore Geometries: Combining Experimental and Simulated Results at Individual Pore Scales.**
Matthijs de Winter

[763] **A novel upscaling procedure for characterising heterogeneous shale porosity from nm- to mm-scale in 3D and 4D images.**
Lin Ma; Patrick Dowey; Ernest Rutter; Kevin Taylor; Peter Lee

(MS 8) Mixing, dispersion and reaction processes across scales in heterogeneous and fractured media – Part 2

*Q&A 2 Time Block A - **Chairs:** Branko Bijeljic, Marco Dentz*

[988] **Evolution of reaction rates in natural porous media stemming from coupling of pore-space heterogeneity, multi-species transport and reaction reversibility.**
Branko Bijeljic

[578] **Efficient Simulation of Reactive Flow in Reservoirs Rocks at the Pore Scale.**
Christian Hinz; Jens-Oliver Schwarz; Andreas Weber; Andreas Wiegmann

[123] **Scaling Analysis of Immiscible Two-Phase Flow in Porous Media with Fractal Permeability Fields.**
Saman Aryana; Yuhang Wang; Jesse McKinzie; Frederico Furtado

[718] **Experimental Study on Influence of Peclet number on the Dissolution patterns in rough fractures.**
Ting Wang

[769] **Flow behavior of CO2/ N2/ CH4 huff and puff process for enhanced heavy oil recovery.**
Wu Mingxuan; Zhaomin Li; Songyan Li; Chen Lu; Zhengxiao Xu

MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 3 (cont.)

(MS 8) Mixing, dispersion and reaction processes across scales in heterogeneous and fractured media – Part 2 (cont.)

*Q&A 2 Time Block A - **Chairs:** Branko Bijeljic, Marco Dentz*

[341] **Plume deformation, mixing and reaction kinetics in 3-D heterogeneous anisotropic porous media.**
Yu Ye; Gabriele Chiogna; Chunhui Lu; Massimo Rolle

(MS 8) Mixing, dispersion and reaction processes across scales in heterogeneous and fractured media – Part 3

*Q&A 3 Time Block B - **Chairs:** Hossein Hejazi, Amir Raoof*

[1012] **Numerical simulation of convective mixing in geologic carbon sequestration applications.**
Anna-Maria Eckel

[1304] **Chemical Component Transport in Heterogeneous Porous Medium during Low Salinity Water Flooding.**
Hasan Al-Ibadi; Karl D. Stephen ; Eric Mackay

[521] **Fractal analysis of two phase matrix-fracture transfer function in fractured reservoirs.**
Lan Mei

[930] **Investigation of carbonation and degradation of well cement under geologic carbon sequestration using X-ray imaging and numerical modeling.**
Xiuxiu Miao; Liwei Zhang; Yan Wang; Manguang Gan

[1279] **Multi-rate mass transfer models and reactive transport in heterogeneous porous media.**
Matteo Icardi

[675] **Studying the effects of heterogeneity on karstification and wormholing phenomena using Operator Based Linearization and High-Resolution LiDAR data.**
Stephan de Hoop

[160] **The topological origin of anomalous transport: Persistence of β in the face of varying correlation length.**
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MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 3 (cont.)

(MS 11) Microfluidics in porous systems– Part 1

*Q&A 4 Time Block B - **Chairs:** Hassan Mahani, Afshin Goharzadeh*

[264] **Experimental study of corner flow using 2.5-D microfluidic porous media.**
Guanju Wei; Ran Hu; Zhen Liao; Yifeng Chen

[272] **Foam Trapping and Foam Mobility in a Model Fracture.**
Kai Li

[386] **Visualization of Polymer Retention Mechanisms in Porous Media using Microfluidics.**
Antonia Sugar

[296] **An image recognition method for gas/liquid saturations and investigation of air-liquid threshold displacement pressure with dispersed bubbles in the planar pore network.**
Menggang Wen

[784] **A Microfluidic Investigation of In-Situ Water-in-Oil Emulsion Formation during Waterflooding of Heavy Oil Reservoirs.**
Mohammad Salehpour

[245] **3D printing micro-model and deep learning method application for micro displacement experiment and remaining oil analysis.**
Yimin Zhang

[403] **Fabrication of "sandwich-like" microfluidic chips by ceramic 3D printing for flow visualization experiments.**
Shidong Li

[292] **Effect of Oil Polarity on the Time-Scale of Mixing during Low Salinity Waterflooding: A microfluidic Investigation.**
Saheb Mohammadi; Hassan Mahani; Shahab Ayatollahi; Vahid.J Niasar

[129] **Dynamics of liquid bridge on moving porous substrates.**
Si Suo; Yixiang Gan

(MS 8) Mixing, dispersion and reaction processes across scales in heterogeneous and fractured media – Part 4

*Q&A 5 Time Block C - **Chairs:** Amir Raoof, Hossein Hejazi*

[1148] **Numerical Studies on Reactive Flow in Porous Media: An Example of Carbonate Matrix Acdizing.**
Cunqi Jia; Jun Yao

[1200] **In Operando synchrotron microfluidics experiment and reactive transport modeling of acid erosion of carbonate fractures.**
Hang Deng; Jeff Fitts; Ryan Tappero; Julie Kim; Catherine Peters; Qian Zhang

[1235] **Transport and deposition of suspended particles in the context of permafrost thaw: An experimental and numerical modelling study.**
Madiha Khadhraoui

[1294] **Permeability irregularity/hysteresis from micro-channels opening/closing during dissolution/precipitation cycle.**
Martin Lesueur

[1233] **The effect of buoyant convection on the buoyancy-driven spreading and draining that arises within a layered porous media with a permeability jump.**
Md Imran Khan

MONDAY, 31 AUGUST 2020

Question and answer: Parallel sessions 3 (cont.)

(MS 11) Microfluidics in porous systems– Part 2

*Q&A 6 Time Block C - **Chairs:** Florian Doster, Yves Méheust*

[1275] **Capillary flow mediated drop formation in a yarn-based microfluidic system.**
Bhaskarjyoti Sarma

[1043] **Role of Connate Water in Immiscible Viscous Fingering.**
Lucas Mejia; Matthew Balhoff; Kishore Mohanty

[273] **Ferrofluid-Enhanced Mobilization of Trapped Oil: Microfluidic And Numerical Investigation.**
Ningyu Wang; Yifei Liu; Matthew Balhoff; Masa Prodanovic

[146] **An analytical fractal model for water transport in shale reservoirs.**
Yu Zhang; Fanhui Zeng

[81] **Visualization of CH4 Hydrate Dissociation Under Permafrost Temperature Conditions Using High-Pressure Micromodel**.
Jyoti Shanker Pandey

[41] **How Nanoscale Surface Heterogeneity Impacts Transport of Nano- & Micro-Particles in Granular Media under Environmental Conditions.**
William Johnson

[1321] **Experimental Investigations of Oil Transport in 2D Porous Media.**
Jiwei Wu; Thomas Cochard; Lizhi Xiao; David A. Weitz

[463] **Microfluidic Observations and Pore-Scale Simulations of Fluid Displacement and Capillary Trapping Under Intermediate-Wet Conditions.**
Rumbidzai. A. E Nhunduru

[299] **Conditions Allowing Steady Two-Phase Flow in Microfluidic Devices**.
Afsjin Davarpanah; Holstvoogd Jorijn; Simon Cox; William Rossen

TUESDAY, 1 SEPTEMBER 2020

Question and answer: Parallel sessions 1

(MS1) Porous Media for a Green World: Energy & Climate – Part 1

*Q&A 7 Time Block A - **Chairs:** Sebastian Geiger, Rainer Helmig*

[1273] **Introducing the concept of Paradise Island for quantifying the role of subsurface porous media in the green transition.**
Ali Akbar Eftekhari;

[828] **CO2 Transport and Mineralization in Reactive Magnesium Cement-Based Concrete.**
Anna Herring; Penny King; Fatin Mahdini; Afiq Muzhafar Kemis Yahyah; Mohammad Saadatfar

[432] **Assessment of Conglomerate Reservoir for CO2 Sequestration using X-ray CT image Analysis.**
Gidon Han;

[890] **Carbon Dioxide Sequestration of Fuel Combustion Exhaust Using Metal-Organic Frameworks (MOFs): A Molecular Simulation Study.**
Jie Li; Jiaxiang Liu; Wenquan Tao; Zhuo Li

[246] **Upscaling capillary pressure functions for modeling vertical migration of CO2 in brine aquifers.**
Kan Bun Cheng; Avinoam Rabinovich

[1182] **Multiple-method pore structure characterization of Upper Cretaceous lacustrine shale from Songliao Basin in Northeast China.**
Mianmo Meng;

[92] **Quantitative evaluation of mobile shale oil at different pore sizes.**
Ning Qi; Mingyue Lu; Haitao Xue; Jinxiu Yang; Bojie Zhang; Dongquan Sun; Xueping Liu; Jiafan Tang

[1049] **Integrating geological data and upscaling static and dynamic properties for a CCS project.**
Mark Knackstedt; Mohammad Saadatfar; Robert Sok; Paal Eric Oeren; Lachlan Deakin

(MS1) Porous Media for a Green World: Energy & Climate – Part 2

*Q&A 8 Time Block A - **Chairs:** Sebastian Geiger, Rainer Helmig*

[1199] **valuation criteria of shale gas reservoir classification-- taking Longmaxi formation in Pengshui area as an example.**
Ning Qi; Mingyue Lu

[105] **Experimental Studies on Carbonated Smart Water-flooding Mechanisms in Tight Reservoir.**
Rukuan CHAI; Yuetian LIU; Liang XUE; Jing XIN

[1071] **CO2 Mobility Control by Foam at the Pore Level.**
Tore Føyen;

TUESDAY, 1 SEPTEMBER 2020

Question and answer: Parallel sessions 1 (cont.)

(MS1) Porous Media for a Green World: Energy & Climate – Part 2 (cont.)

*Q&A 8 Time Block A - **Chairs:** Sebastian Geiger, Rainer Helmig*

[1037] **Dynamic Pore-Scale Dissolution by CO2-Saturated Brine in Carbonates: Impact of Homogeneous versus Fractured versus Vuggy Pore Structure.**
Yingwen Li; Yongfei Yang

[1212] **Study on Mechanism of Nitrogen Stimulation Production Aided by Viscosity Reducer in common heavy oil.**
Yunong Zang; Binfei Li

[1193] **Capillary heterogeneity trapping within the Captain Sandstone - a core to field scale study.**
Catrin Harris;

[1143] **Development of multi-physics models accounting for reversible flow at various subsurface energy storage sites.**
Beatrix Becker;

[1165] **Research on geological modeling of porosity and permeability in CO2 gas reservoirs——Taking Surennuor area as an example.**
Ning Qi; Mingyue Lu

(MS1) Porous Media for a Green World: Energy & Climate – Part 3

*Q&A 9 Time Block B - **Chairs:** Rainer Helmig, Sebastian Geiger*

[679] **Modelling of long-term along-fault flow of CO2 from a natural reservoir.**
Jeroen Snippe; Niko Kampman; Kevin Bisdom; Tim Tambach; Rafael March; Tomos Phillips; Nathaniel Forbes Inskip; Florian Doster; Andreas Busch

[990] **Ripening of Residual Bubbles in Porous Media: Thermodynamic Stability and Implications in CO2 Sequestration.**
Ke Xu; Yashar Mehmani

[785] **Implementation of ePc-SAFT Equation of State into MRST Compositional for Modelling of Salt Precipitation during CO2 Storage in Saline Aquifers.**
Mohammad Masoudi; Saeed Parvin; Rohaldin Miri; Helge Hellevang

[770] **Geothermal Simulation Using MRST.**
Øystein Klemetsdal; Marine Collignon; Olav Møyner; Halvor Nilsen; Odd Andersen; Knut-Andreas Lie

[983] **Low Salinity Water-flooding in Chalk Core Samples from a Danish North Sea Reservoir.**
Rasoul Mokhtari; Benaiah Anabaraonye ; Karen Louise Feilberg

[970] **Effect of aging method on wettability and oil recovery from danish north sea carbonate reservoirs.**
Samira Mohammadkhani; Jonas Folke Sundberg; Ming Li; Karen Louise Feilberg

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Question and answer: Parallel sessions 1 (cont.)

(MS1) Porous Media for a Green World: Energy & Climate – Part 3 (cont.)

*Q&A 9 Time Block B - **Chairs:** Rainer Helmig, Sebastian Geiger*

[1164] **Pore and Permeability Modeling Research of the CO2-bearing Strata in Wuerxun Depression.**
mingyue lu; Ning Qi

[1141] **Optimizing carbon dioxide storage in oilfields at the pore-scale.**
Abdulla Alhosani

(MS1) Porous Media for a Green World: Energy & Climate – Part 4

*Q&A 10 Time Block B - **Chairs:** Rainer Helmig, Sebastian Geiger*

[465] **An investigation of caprock-cement integrity for CO2 storage.**
Amir Jahanbakhsh

[447] **A novel approach towards understanding pore attributes of shale.**
Debanjan Chandra; Debanjan Chandra

[1227] **Carbon Dioxide Plume in Bespoke 2D Porous Micromodels.**
Niloy De

[992] **Experimental Investigation on the Effects of Ion Type/Valency and Ionic Strength of Formation Water on Rock-Fluid Interactions during CO2 Geological Storage.**
Shima Ghanaatian; Omid Shahrokhi; Susana Garcia; M. Mercedes Maroto-Valer

[1246] **Numerical Simulation of CO2 enhanced gas recovery (CO2-EGR) for the optimal CO2 injection perforation position and injection rate.**
Liu Shuyang; Sun Baojiang

[315] **Evaluation of CO2 enhanced recovery potential as pre-pad in tight reservoir compared with slickwater.**
Liyao Fan

[946] **CO2 Storage Potential in Naturally Fractured Reservoirs.**
Rafael March; Florian Doster; Sebastian Geiger

[751] **Application of GIS and Remote Sensing in Landuse Land Cover Change Detection: A Study of District Malakand, Pakistan.**
Muhammad Yasir

(MS1) Porous Media for a Green World: Energy & Climate – Part 5

*Q&A 11 Time Block C - **Chairs:** Bo Guo, Sarah Gasda*

[1226] **Assessment of Geochemical Reactions in Porous Formation Compressed Energy Storage Systems.**
Chidera Iloejesi; Lauren Beckingham

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Question and answer: Parallel sessions 1 (cont.)

(MS1) Porous Media for a Green World: Energy & Climate – Part 5 (cont.)

*Q&A 11 Time Block C - **Chairs:** Bo Guo, Sarah Gasda*

[568] **Chemo-Hydro-Poromechanics of Enhanced Cracking in Geo-Energy Engineering.**
ManMan Hu

[1240] **Buoyant convection from a discrete source in closed vs. leaky porous media.**
Morris Flynn; Chunendra K. Sahu; Mark Roes

[1013] **Redistribution of residually trapped CO2 by Ostwald ripening due to capillary heterogeneity.**
Yaxin Li; Charlotte Garing; Sally M Benson

[1019] **Parametric study on the residual CO2 trapping in Deccan Volcanic Basalt.**
Pradeep Reddy Punnam; Shakti Raj Singh Bawal; Himavarsha Pakala; Vikranth Kumar Surasani

[68] **A vertically integrated approach to field-scale modelling of mineral trapping in reactive rocks.**
Tom Postma; Karl Bandilla; Mike Celia

[104] **Pore connectivity of shale oil reservoirs from small angle neutron scattering, mercury intrusion porosimetry and spontaneous imbibition experiments.**
Xiaohui Sun

[39] **The grading evaluation and sweet spot prediction of shale reservoirs based on high-pressure mercury intrusion technology and fractal theory.**
Yu Zhang

(MS1) Porous Media for a Green World: Energy & Climate – Part 6

*Q&A 12 Time Block C - **Chairs:** Bo Guo, Sarah Gasda*

[399] **Flue Gas Hydrate Storage, Self-Preservation and Dissociation in Unconsolidated Porous Medium in the Presence of Environment-Friendly Promoters.**
Jyoti Shanker Pandey

[827] **Use of limited deep formation monitoring data with shallow aquifer observations for leakage monitoring in geologic carbon storage.**
Tissa Illangasekare; Ahmad Askar; Jakub Solovský; Radek Fucik; Ye Zhang; Jiangyin Jiao; Andrew Trautz

[563] **The Seebeck effect in membrane systems of ions abundant in seawater.**
Peder Holmqvist; Signe Kjelstrup; Kim Kristiansen

[776] **Hydrophobicity/Hydrophilicity Driven CO2 Solubility in Kaolinite Nanopores in Relation to Carbon Sequestration.**
Wenhui Li; Zhehui Jin

[696] **Using 2D seismic line data to estimate the possible impact of large-scale and sub-scale structural trapping in the Gassum Formation on the Norwegian Continental Shelf.**
Odd Andersen

Question and answer: Parallel sessions 1 (cont.)

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 3

*Q&A 13 Time Block C - **Chairs:** Saman Aryana, Majid Hassanizadeh*

[972] **Impact of pair interactions on frictional fluid dynamics**
Louison Thorens; Knut Jorgen Maloy; Mickaël Bourgoin; Stéphane Santucci

[1187] **Thin film flow: fluid transport via thin liquid films in slow porous media flows**
Marcel Moura

[1301] **Physical origin of pressure-saturation curves during drainage: modelling based on gravitational and capillary effects, and recipe for upscaling by correcting finite-size effects**
Renaud Toussaint; Monem Ayaz; Gerhard Schäfer; Marcel Moura; Knut Jorgen Maloy

[1107] **Reservoir Parameter Changes of Weakly-Volatile Oil Reservoir Developed by Natural Energy and The Potential Analysis of Water Injection: A Case Study of Offshore X Oilfield**
Jianting Huang; Jintao Wu; Guangming Pan; Hao Li; Zhenpeng Li

[1154] **Bistability in the unstable flow of polymer solutions through porous media**
Christopher Browne; Audrey Shih; Sujit Datta

[1142] **An experimental study on the impacts of gas pressure on carbon isotope fractionation during methane desorption in shale rock**
Yongbo Wei

Question and answer: Parallel sessions 2

(MS 13) Fluids in Nanoporous Media – Part 1

*Q&A 7 Time Block A - **Chairs:** Gennady Gor, Patrick Huber*

[1160] **Molecular Simulation Study of Inorganic and Organic Porous Materials**
Arun Kumar Narayanan Nair; Shuyu Sun

[646] **Nondestructive high-throughput screening of nanopore geometry in porous membranes by imbibition: Laser-Interferometry and Dilatometry Experiments**
Juan Sanchez Calzado; Zhuoqing Li; Luisa G. Cencha; Michael Kappl; Floudas George ; Claudio L.A. Berli; Steinhart Martin; Michael Fröba; Raul Urteaga; Patrick Huber

[334] **Distribution of oil in shale formations and its effects on kerogen nano-structural properties**
QIAN SANG; XINYI ZHAO; MINGZHE DONG

[250] **Adsorption Evaluations of Shale Gas in Nanometer Pores Based on Molecular Simulation Method**
SUN Renyuan; SUN Ying; TANG Guiyun; GONG Dajian; CAO Haipeng

[1132] **The effects of oxidation on the capacity of shale gas desorption and diffusion in nanoscale pores**
Yang Zhou; Lijun You; Yili Kang; Qiuyang Cheng; Yang Chen

[528] **Fractal analysis of real gas transport in 3D shale matrix**
Zhenhua Tian

[297] **Imbibition-Induced Deformation Dynamics in Nanoporous Media: The Interplay of Bangham and Laplace Pressure Effects**
Zhuoqing Li; Juan Sanchez Calzado; Michael Fröba; Patrick Huber

(MS 13) Fluids in Nanoporous Media – Part 2

*Q&A 8 Time Block A - **Chairs:** Gennady Gor, Patrick Huber*

[1157] **Evaporation and condensation of water in nanopores with salt**
Olivier Vincent; Piyush Jain; Marine Poizat; Léo Martin; Abraham Stroock

[779] **Viscosity of hydrocarbons in slit pores by molecular dynamics**
Vasily Pisarev

[596] **Study on the distribution of micro remaining oil in different sedimentary microfacies by using glass etching displacement experiments**
Xianbo Luo

[1325] **The effects of oxidation on the capacity of shale gas desorption and diffusion in nanoscale pores**
Yang Zhou; Lijun You; Yili Kang; Qiuyang Cheng; Yang Chen

[559] **Adsorption and Flow Behaviors of Shale Oil in Organic Slit by Molecular Simulation**
Jle Liu

[1285] **Extension and Limits of Cryoscopy for Nanoconfined Solutions**
Benjamin Malfait; Alban Pouessel; Aicha Jani; Denis Morineau

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Question and answer: Parallel sessions 2 (cont.)

(MS 13) Fluids in Nanoporous Media – Part 2 (cont.)

*Q&A 8 Time Block A - **Chairs:** Gennady Gor, Patrick Huber*

[489] **Giant Piezoelectrolytic Actuation in Nanoporous Silicon-Polypyrrole Membranes**
Manuel Brinker; Guido Dittrich; Thelen Marc; Lakner Pirmin; Claudia Richert; Tobias Krekeler; Thomas F Keller; Norbert Huber; Patrick Huber

[493] **Ionic liquid dynamics in nanoporous carbon: A pore-size- and temperature-dependent neutron spectroscopy study on supercapacitor materials.**
Mark Busch; Tommy Hofmann; Bernhard Frick; Jan Embs; Boris Dyatkin; Patrick Huber

(MS 13) Fluids in Nanoporous Media – Part 3

*Q&A 9 Time Block B - **Chairs:** Gennady Gor, Patrick Huber*

[1267] **Water Dynamics in Nanoporous Confinement: A Quasielastic Neutron Scattering Study**
Aicha Jani; Benedikt MIETNER; Mark Busch; Jacques OLLIVIER; Bernhard Frick; Markus APPEL; Jean-Marc ZANOTTI; Patrick Huber; Michael Fröba; Denis Morineau

[267] **Small Angle Neutron Scattering to determine the Interplay between Fluids and Pores in Mudrocks**
Amirsaman Rezaeyan; Timo Seemann; Pieter Bertier; Vitaliy Pipich; Lester Barnsley; Andreas Busch

[1302] **Dynamic Heterogeneities in Liquid Mixtures Confined in Nanopores**
Aicha Jani; Ramona Mhanna; Benedikt MIETNER; Mark Busch; Jean-Marc ZANOTTI; Bernhard Frick; aziz ghoufi; Patrick Huber; Michael Fröba; Denis Morineau

[117] **A serially-connected pore model (SCPM) for characterising disordered mesoporous materials**
Henry Enninful; Daniel Schneider ; Richard Kohns ; Dirk Enke; Rustem Valiullin

[116] **Characterisation of strongly disordered mesoporous solids with the serially-connected pore model (SCPM)**
Henry R. N. B. Enninful; Daniel Schneider ; Antonia Hoppe; Dirk Enke; Rustem Valiullin

[457] **Physically-based combined model for water retention of cementitious materials**
Walaa Issa; Jean-Philippe Carlier; Nicolas Burlion

[898] **Stochastic apparent permeability model considering pore-throat structures and fluid-solid molecular interactions for shale oil reservoir**
Jilong Xu; Yuliang Su; Wendong Wang; Han Wang

[635] **Permeation and separation of CH4/CO2, N2/O2 mixtures through single-layer nanoporous graphene membranes : theory and molecular simulations**
Juncheng Guo; Romain Vermorel; Guillaume Galliero

Question and answer: Parallel sessions 2 (cont.)

(MS 13) Fluids in Nanoporous Media – Part 4

*Q&A 10 Time Block B - **Chairs:** Gennady Gor, Patrick Huber*

[859] **Mechanism of shale gas occurrence: Insights from comparative study on pore structures of marine and lacustrine shales**
Lei Chen; Keyu Liu

[1166] **Direct pore scale simulation of water in nanoporous shale and prediction of apparent liquid permeability**
Tao Zhang; Ying Yin; Xiangfang Li

[10] **Pore-scale Investigation of Effects of Organic-matter Pores on Shale Properties Based on Multicomponent and Multiscale Digital Rocks**
Yuqi Wu; Pejman Tahmasebi; Chengyan Lin

[308] **A variation free approach for free energy minimization in density functional theory**
Yuriy Kanygin

[511] **Density Functional Theory Model for Adsorption-Induced Deformation of Materials with Convex Pore Walls**
Andrei Kolesnikov; Gennady Gor

[1266] **Experimental Evaluation of the Saturation Vapor Pressure above Supercooled Nanoconfined Liquids**
Klaus Schappert; Rolf Pelster

[1286] **Pore size distribution in nanoporous materials using NMR cryoporometry**
Marc Fleury

(MS 13) Fluids in Nanoporous Media – Part 5

*Q&A 11 Time Block C - **Chairs:** Gennady Gor, Patrick Huber*

[1238] **Pore connectivity characterization of Woodford Shale using liquid imbibition and tracer gas diffusion methods**
Chen Zhao

[328] **A fractal model for shale gas apparent permeability**
Fanhui Zeng; Chao Wen; Jianchun Guo; Qiang Zhang; Jianhua Xiang

[1228] **Permeability and Adsorption of Light Gas Through Mature Shale Kerogen by Molecular Simulations**
Fouad Oulebsir

[164] **Nanopore Connectivity and Fluid Migration in Shales**
Qinhong Hu

[1188] **CO2-Regulated Octane Flow in Calcite Nanopores from Molecular Perspectives**
WEI ZHANG; Zhehui Jin; Qihong Feng

Question and answer: Parallel sessions 2 (cont.)

(MS 13) Fluids in Nanoporous Media – Part 5 (cont.)

*Q&A 11 Time Block C - **Chairs:** Gennady Gor, Patrick Huber*

[332] **Evaluation of Gas Adsorption Behavior in Nanoporous Shale Using Simplified Local-Density Model Integrated With Cylindrical and Slit Pore Structures and Pore Size Distribution**
Yu Pang

[997] **Wetting dynamics of nanoliter water droplets in nanoporous media**
Bin Pan; Christopher Clarkson; Marwa Atwa; Chris DeBuhr; Amin Ghanizadeh; Viola Birss

[103] **Impact of solvent extraction on the petrophysical analysis of lacustrine shale**
Hongguo Qiao

(MS 4) Swelling and shrinking porous media

*Q&A 12 Time Block C - **Chairs:** Jacques Huyghe, Sridhar Ranganathan, Muhammad Sahimi*

[1303] **The coupling between compaction and pressurization in cyclically sheared drained granular layers: implications for soil liquefaction.**
Shahar Ben Zeev; Renaud Toussaint; Liran Goren; Stanislav Parez; Einat Aharonov

[1206] **Swelling properties in reinforced polymeric ion-exchange membranes.**
Íñigo Lara; Sagrario Muñoz; V. María Barragán García

[812] **Volumetric response of crushed dunite during carbonation reaction under controlled σ-P-T conditions.**
Jinfeng Liu

[1062] **Extremely large deformation and fracture of hydrogels.**
Jacques Huyghe; Eanna Fennell

[335] **Deformation of kerogen and its effects on oil flow in shale.**
XINYI ZHAO; QIAN SANG; YAJUN LI; HOUJIAN GONG; MINGZHE DONG

[1327] **Role of Temperature on Threshold Gradient and Permeability of non-Darcian Flow in Sand and Clay Mixtures.**
Yuntian Teng

[323] **Modelling the drying shrinkage of porous materials incorporating capillary and adsorption effects.**
GINGER EL TABBAL; Patrick Dangla; Matthieu Vandamme; Marina Bottoni; Sylvie Granet

[1334] **Modeling wood shrinkage during pyrolysis : a major challenge for second generation biofuels.**
Jean Lachaud; Michael Meyer; Cyrille Metayer; Marin Virey; Wahbi Jomaa; Jérémy Meurisse

[867] **Poroelastic effects of CO2 adsorption capacity in coal seams under subsurface boundary conditions.**
Yuxun Zhu

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Question and answer: Parallel sessions 2 (cont.)

(MS 23) Special Session for Professor Rainer Helmig – Part 1

*Q&A 13 Time Block C - **Chairs:** Bernd Flemisch, Martin Schneider*

[971] **The Geography of CCUS and its Implication for CO2 Emissions.**
Michael Celia

[1158] **Equilibria, kinetics, constraints, and multiple scales.**
Malgorzata Peszynska; Choah Shin

[1074] **Effects of Quasi-Saturation on Water Table Dynamics, Estimated Recharge Rates, and Groundwater Modeling.**
Roger Gonçalves; Hung K. Chang; Martinus van Genuchten

[957] **From open source to open workflows?**
Lars Bilke ; Jörg Buchwald; Thomas Fischer; Thomas Kalbacher; Olaf Kolditz; Thomas Nagel; Dmitri Naumov; Erik Nixdorf; Karsten Rink; Haibing Shao; Wenqing Wang

[680] **Research collaboration Highlights: A tribute to Rainer Helmig.**
Al Cunningham

TUESDAY, 1 SEPTEMBER 2020

Question and answer: Parallel sessions 3

(MS 17) Thermal Processes, Thermal Coupling and Thermal Properties of Porous Media: modeling and experiments at different scales – Part 1

*Q&A 7 Time Block A - **Chairs:** Ruina Xu, Moran Wang*

[456] **Numerical Analysis of Interaction between a Reacting Fluid and a Moving Bed with Spatially and Temporally Fluctuating Porosity**
Alban ROUSSET; Abdoul Wahid MAINASSARA CHEKARAOU; Xavier BESSERON; Bernhard PETERS; Chiara GALLETTI

[1196] **Influence of the porous network on the conductive-radiative behavior of SiC-based cellular ceramics up to very high temperature**
Benoit Rousseau; Jerome Vicente; Afeef Badri; Yann Favennec

[724] **Thermal Conduction Simulation Based on Reconstructed Digital Rocks with Respect to Fractures**
Haiyuan Yang, Yongfei Yang; Jun Yao

[857] **Buoyancy-induced flow and heat transfer through and around a porous cylinder in a cavity**
Shimin Yu; Tingting Tang; Jianhui Li; Peng Yu

[872] **Unsteady mixed convection flow through and around an array of cylinders**
Tingting Tang

[1116] **Analysis of Viscous Fingering for Steam Flooding Heavy Oil Reservoirs**
Xue Liu; Jing Huang; Xiangyun Qu

[959] **Impact of moisture transfer in the context of borehole thermal energy storage application**
Haibing Shao; Boyan Meng; Bo Wang; Sebastian Bauer; Olaf Kolditz

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 2

*Q&A 8 Time Block A - **Chairs:** Ryan Armstrong, Nima Shokri*

[1231] **Pore-Scale Imaging of Controlled-Salinity Waterflooding in a Heterogeneous Carbonate Rock at Reservoir Conditions**
Ahmed Selem

[540] **Insights into Laws of Topology in Wetting**
Chenhao Sun

[1311] **Pore scale observations of wetting alteration during low salinity water flooding**
Edward Andrews

[885] **Quantifying Wettability Alteration Effects on Fluid Flow Properties of Heterogeneous Porous Media**
Omar Al-Farisi

[406] **Upscaling of capillary force in simultaneous infiltration of two immiscible fluids through porous media: pore scale LBM modelling**
Zi Li; Sergio Galindo-Torres; Ling Li

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Question and answer: Parallel sessions 3 (cont.)

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 2 (cont.)

*Q&A 8 Time Block A - **Chairs:** Ryan Armstrong, Nima Shokri*

[1236] **Heterogeneity and mixed wetting states imaged during two-phase flow in carbonate rocks using X-ray tomography at high resolution and large fields of view**
Salome M.S. Shokri-Kuehni

[1335] **Transition from micro-scale to macro-scale modeling of solute transport in drying porous media**
Faeez Ahmad; Rahimi Arman; Evangelos Tsotsas ; Marc Prat; Abdolreza Kharaghani; Amy Spang

[1210] **Pore-by-pore wettability characterization in sandstone and carbonate rocks**
Gaetano Garfi, Sam Krevor

(MS 14) Physics of multi-phase flow in diverse porous media– Part 1

*Q&A 9 Time Block B - **Chairs:** Shuyu Sun, Hui Zhou*

[126] **Optimal Dispatch Techniques for Natural Gas Industry - Reservoir Simulation and Data Simulation.**
Tao Zhang; Yiteng Li; Shuyu Sun; Hua Bai

[901] **Accelerated generalized multi-scale approximation of mixed finite elements method in subsurface porous media.**
Tao Zhang

[279] **The Implementation of Ensemble Kalman Filter in Automatic History Matching for a Marine Reservoir and a Fluvial Reservoir.**
Zelong Wang

[226] **An efficient stochastic simulation of shale gas development based on deep learning algorithm.**
Liang Xue; Junru Zhang

[227] **Numerical well testing of water drive gas reservoir based on the random forest and EnKF method.**
Liang Xue; Lin Zhao

[896] **A multilevel quasi-Monte Carlo method for subsurface compressible single-phase flow with uncertainty in permeability.**
Yahong Xiang; Xianbing Luo

[1145] **Quantifying Uncertainty Reduction in Geologic CO2 Sequestration Risk Assessment.**
Bailian Chen; Dylan Harp; Rajesh Pawar

[900] **Numerical treatment of uncertainty for incompressible single-phase flow in porous media using multi-index Monte Carlo methods.**
Xianbing Luo; Meng Li

[1015] **DoE*-based history matching as a method for uncertainty quantification in THM(C) models of clay.**
Jörg Buchwald; Olaf Kolditz; Sabine Attinger; Thomas Nagel

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Question and answer: Parallel sessions 3 (cont.)

(MS 18) Innovative Methods for Characterization, Monitoring, and In-Situ Remediation of Contaminated Soils and Aquifers– Part 1

*Q&A 10 Time Block B - **Chairs:** Christos Tsakiroglou, Olga Vizika*

[1081] **A True-to-Mechanism Model for Plasma and Transport Phenomena inside a DBD reactor**
Nadia Bali; Christos Aggelopoulos; Eugenios Skouras; Christos Tsakiroglou; Vasilios Burganos

[1295] **Simulating microscale zero-valent iron injection in field-like conditions: large-scale radial laboratory experiments and numerical modeling**
Federico Mondino; Amelia Piscitello; Carlo Bianco; Andrea Gallo; Tiziana Tosco; Rajandrea Sethi

[577] **Remediation of solid wastes by nanosecond pulsed dielectric barrier discharge plasma**
Christos Aggelopoulos

[613] **Wastewater treatment in continuous-flow fixed-bed photoreactors packed with ZnO nanoparticles-coated beads**
Christos Tsakiroglou

[1313] **Numerical predictive modelling for groundwater remediation using nanotechnology**
Daphne Silva Pino; Tannaz Pak; Alexander Wood; Masoud Babaei; Reginaldo Bertolo

(MS 18) Innovative Methods for Characterization, Monitoring, and In-Situ Remediation of Contaminated Soils and Aquifers– Part 2

*Q&A 11 Time Block C - **Chairs:** Marios Valavanides, Qi Li*

[1310] **The first nanoremediation pilot-test in Brazil: site selection criteria and nZVI mobility studies**
Daphne Silva Pino; Reginaldo Bertolo; Petr Kvapil; Carlo Bianco; John Etim; Tannaz Pak

[1283] **Method of Moments to Characterize a Reservoir Using a Single Non-Ideal Tracer Test**
Deepshikha Singh; Jyoti Phirani

[1282] **Quantifying wetted area of sediments during multiphase flow in geological porous media**
Deepshikha Singh; Jyoti Phirani

[1170] **EUTROFICATION CONTROL TREATMENTS AND CARBON GAS EMISSIONS**
DAngelo A. Sandoval; Anne M. Hansen; Armando González-Sánchez; Rodolfo Sosa-Echeverría

[1271] **Mathematical modeling of the fate and transport of per- and polyfluoroalkyl substances (PFAS) in the vadose zone**
Bo Guo

TUESDAY, 1 SEPTEMBER 2020

Question and answer: Parallel sessions 3

(MS 17) Thermal Processes, Thermal Coupling and Thermal Properties of Porous Media: modeling and experiments at different scales – Part 17

*Q&A 12 Time Block C - **Chairs:** Bernhard Krooss, Yingfang Zhou*

[863] **Forced convection with viscous dissipation in a power-law fluid saturated porous medium using a two-equation model**
Xingwang TIAN

[1208] **Experimental Study on the Performance of a Hybrid Evaporator Wick with Bionic Topological Substrate**
Xin Cheng

[310] **Evaporative cooling in fuel cells: Estimating effective conductivity in gas diffusion layers**
Sarah van Rooij

[80] **Numerical and semi-analytical investigation on forced convection in tubes fully/partially filled with metal foams**
Farshid Jamshidi

[202] **Numerical modeling of coupled heat and water transport for the study of permafrost dynamics: High Performance Computing simulations for watershed scale analysis**
Laurent Orgogozo; Oleg S. Pokrovsky; Christophe Grenier; Emmanuel Mouche; Manuel Marcoux; Michel Quintard

[787] **Flow of sub- and supercritical CO2 in nano-porous ceramics: direct comparison of laboratory experiments and numerical simulation**
Steffen Nolte; Yue Wang; Reinhard Fink; Bernhard M. Krooss; Moran Wang; Alexandra Amann-Hildenbrand

[863] **Forced convection with viscous dissipation in a power-law fluid saturated porous medium using a two-equation model**
Xingwang TIAN

(MS 14) Physics of multi-phase flow in diverse porous media– Part 2

*Q&A 13 Time Block C - **Chairs:** Shuyu Sun, Morris Flynn*

[223] **Dealing with Model Uncertainty and Deficiencies in Thermal Breakthrough Models.**
Elvar K. Bjarkason; Anna Suzuki

[1173] **Local and global sensitivity analysis of THM consolidation around a point heat source.**
Aqeel Afzal Chaudhry

[1308] **A novel molecular communication paradigm for porous media applications.**
Matteo Icardi; John Couch

Question and answer: Parallel sessions 3

(MS 14) Physics of multi-phase flow in diverse porous media– Part 2 (cont.)

*Q&A 13 Time Block C - **Chairs:** Shuyu Sun, Morris Flynn*

[1195] **Quality assessment and parameter estimation of post-laminar flow models.**
Mohaddeseh Mousavi Nezhad; Alberto Guadagnini

[1284] **Quantifying uncertainty using Monte Carlo method in methane hydrate reservoir simulations.**
Neelam Choudhary; Jyoti Phirani

[1229] **Application of Discrete Fracture Network Modeling using Sequential Gaussian Simulation.**
Timur Merembayev; Yerlan Amanbek; Sanjay Srinivasan

[739] **Evaluating influence factors on phase equilibria calculation of CO2/H2O mixture using the CPA equation of state.**
Yiteng Li; Tao Zhang; Shuyu Sun

[663] **Reduced-Physics Multilevel Monte Carlo Methods for Uncertainty Quantification in Complex Reservoirs.**
Øystein Klemetsdal; Stein Krogstad; Knut-Andreas Lie

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Question and answer: Parallel sessions 1

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 4

*Q&A 14 Time Block A - **Chairs:** Ryan Armstrong, Majid Hassanizadeh*

[801] **Gas Slippage in Partially Saturated Tight Rocks**
Steffen Nolte; Mohammadebrahim Shabani; Reinhard Fink; Bernhard M. Krooss; Alexandra Amann-Hildenbrand

[766] **Oil Recovery Characteristics of Supercritical CO2 Huff-n-Puff Process in Ultra-Low Permeable Porous Media**
Dongxing Du; Yinjie Shen ; Di Zhao; Weifeng Lv; Ninghong Jia; Tong Li; Yingge Li

[1230] **Study on multi-phase seepage of complex pore network in strongly heterogeneous carbonate reservoir based on various methods：A case study in Upper Cretaceous Khasib of the E Oilfield in the Middle East**
Hao Lu; Hongming Tang; Yijun Wang

[1214] **Mechanism study on water plugging and EOR by nitrogen foam injection in bottom-water reservoirs**
Danqi Chen

[700] **Experimental study on enhanced oil recovery of offshore heavy oil reservoirs by activated water flooding**
Xin Chen

[589] **Measurement and Research of Two-phase Micro-force of Foam Fluid and Heavy Oil**
Zihan Gu

[449] **Synergy of surfactant and nanoparticle on the strength of generated foam flowing through porous medium**
Xuesong Li; Sebastien Vincent Bonnieu; Siavash Kahrobaei; Steffen Berg; Matthias Appel; Sian Jones

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 5

*Q&A 15 Time Block A - **Chairs:** Ryan Armstrong, Holger Ott*

[1250] **Effect of the deformation and variability of biosourced reinforcement mats on their permeability**
Tarek Abdul Ghafour; Chiara Balbinot; Nils Audry; Florian Martoïa; Laurent Orgéas; Pierre J.J. Dumont

[358] **Electrolyte Transport through the Porous Electrode in Vanadium Redox Flow Batteries**
Nico Bevilacqua; László Eifert; Kerstin Köble; Rupak Banerjee; Tomas Farago; Marcus Zuber; Aimy Bazylak; Roswitha Zeis

[1299] **Insights on transition from capillary toward viscous flow in porous media**
Mahdi Mansouri-Boroujeni

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Question and answer: Parallel sessions 1 (cont.)

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 5 (cont.)

*Q&A 15 Time Block A - **Chairs:** Ryan Armstrong, Holger Ott*

[271] **Effect of Pore-Scale Wettability Distribution Patterns on Fluid Connectivity**
Omid Shahrokhi; Amir Jahanbakhsh; Krystian L. Wlodarczyk; Duncan P. Hand ; M. Mercedes Maroto-Valer

[572] **Control of immiscible displacement patterns in disordered porous media**
Xinlei Qi; Zhengyuan Luo; Bofeng Bai

[628] **Pore Scale Mechanisms of Chemical Injection into Heterogeneous Micromodel**
Dongqing Cao; Ming Han; Jinxun Wang; Abdulkareem AlSofi

[300] **Experimental study of CO2/CH4 diffusion coefficient in oil-saturated cores under reservoir conditions**
Zerong Li; Yi Zhang

[1281] **Meter-scale core floods and 3D numerical modelling to study the interplay between immiscible viscous fingering and geological heterogeneity**
Samuel Jackson

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 6

*Q&A 16 Time Block B - **Chairs:** Yaniv Edery, Majid Hassanizadeh*

[1341] **Asymptotic analysis of immiscible two-phase flow with moving contact line in a thin strip**
Carina Bringedal; Stephan Lunowa; Iuliu Sorin Pop

[122] **Pore-scale imaging of multiphase flow in porous media: wettability, minimal surfaces, displacement efficiency**
Qingyang Lin

[214] **Effect of Wetting Transition during Multiphase Displacement in Porous Media**
Zhongzheng Wang; Jean-Michel Pereira; Yixiang Gan

[1159] **Real-time imaging reveals distinct pore scale dynamics during transient and equilibrium subsurface multiphase flow**
Catherine Spurin

[1217] **Characterization and 3D numerical modelling of multiphase flow in Carbonate rocks**
Nele Wenck

[1242] **The Impact of Entrapped Air on Satiated Hydraulic Conductivity of Coarse Sands Interpreted by X-ray Microtomography**
Tomas Princ; Helena M.R. Fideles; Johannes Koestel; Michal Snehota

[520] **Pore-scale study of spontaneous imbibition in digital rock by using a color-gradient lattice Boltzmann model**
Yang Liu

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Question and answer: Parallel sessions 1 (cont.)

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 6 (cont.)

*Q&A 16 Time Block B - **Chairs:** Yaniv Edery, Majid Hassanizadeh*

[876] **Gravity-driven fluid slug splitting at T-junctions: visual experiments and a novel model**
Zhibing Yang; Song Xue; Yi-Feng Chen

(MS 6-A) Physics of multi-phase flow in diverse porous media– Part 7

*Q&A 17 Time Block B - **Chairs:** Yaniv Edery, Saman Aryana*

[565] **Compositional pore network model for gas condensate flow**
Paula Reis; Marcio Carvalho

[1179] **Upscaled equations for two-phase flow in highly heterogeneous porous media**
Tufan Ghosh

[965] **Relative magnitude of capillary over bulk viscosity resistances for NWP blobs flowing within periodic capillary tubes**
Marios Valavanides; Santanu Sinha; Alex Hansen

[355] **Pore-scale wettability characterization in mixed-wet sandstones using dynamic laboratory micro X-ray tomography**
Arjen Mascini; Marijn Boone; Veerle Cnudde; Tom Bultreys

[1288] **The effect of solution gas liberation on oil flow in the porous medium**
Wael Al-Masri; Alexander Shapiro

[1051] **Study on formation water mobility and its determination method in tight sandstone gas reservoirs**
Dongsheng Li

[1341] **Asymptotic analysis of immiscible two-phase flow with moving contact line in a thin strip.**
Carina Bringedal; Stephan Lunowa; Iuliu Sorin Pop

(MS 9) Pore-scale modelling – Part 1

*Q&A 18 Time Block C - **Chairs:** Martin Blunt, James McClure*

[1258] **Improving physics of residual trapping of CO2 in pore-network flow models using direct numerical simulation.**
Amir Kohanpur; Albert Valocchi

[1254] **Pore-network modeling of mineral dissolution and reactive transport in porous media.**
Barbara Esteves; Paulo L.C. Lage; Paulo Couto; Anthony Kovscek

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Question and answer: Parallel sessions 1 (cont.)

(MS 9) Pore-scale modelling – Part 1 (cont.)

*Q&A 18 Time Block C - **Chairs:** Martin Blunt, James McClure*

[1164] **Pore and Permeability Modeling Research of the CO2-bearing Strata in Wuerxun Depression.**
mingyue lu; Ning Qi

[1141] **Optimizing carbon dioxide storage in oilfields at the pore-scale.**
Abdulla Alhosani

[274] **Validating pore-scale modeling of fluid flow and mass transport in multi-scale porous media with microporosity**
Bin Wang; Karsten Thompson; Richard Hughes; Lin Mu

[1234] **Scale-effect in the simulation of two-phase flow in porous media**
Brandon Yokeley

[765] **Lattice Boltzmann Modeling of the Apparent Viscosity of Thinning-Elastic Fluids in Porous Media**
Chiyu Xie; Matthew Balhoff

[413] **An analysis model for hydraulic fracturing liquid imbibition into shale matrix ： coupling molecular interactions and dynamic contact angle**
Han Wang; Yuliang Su; Wendong Wang

[1296] **Unfitted boundary method to improve mesh convergence of high-resolution CT-scan permeability**
Martin Lesueur

[1329] **Pore-scale CFD based estimation of permeability decline in porous media due to fines migration**
Pramod Bhuvankar; Abdullah Cihan; Jens Birkholzer

(MS 9) Pore-scale modelling – Part 2

*Q&A 19 Time Block C - **Chairs:** Martin Blunt, James McClure*

[1251] **A new upscaling method for fluid flow simulation in highly heterogeneous unconventional reservoirs**
Qi Zhang; Huibin Yu; Xiaofeng Li; Tiesheng Liu; Junfeng Hu

[186] **Analysis of capillary imbibition for fluid through confined Nano pores**
Fanhui Zeng; Qiang Zhang; Jianchun Guo; Yu Zhang

[688] **Evaluation of Equivalent Permeability in 3D Vuggy Porous Media using Brinkman Model and Digital Image Analysis**
Rafael Cruz

[975] **Expanding the role of pore-scale models to capture the multi-scale evolution of porous media**
Sergi Molins; Hang Deng; David Trebotich; Carl Steefel

[1239] **Fully-implicit dynamic pore-network modeling of two-phase flow in porous media**
Sidian Chen

WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 1 (cont.)

(MS 9) Pore-scale modelling – Part 2 (cont.)

*Q&A 19 Time Block C - **Chairs:** Martin Blunt, James McClure*

[1312] **A new generation of lattice Boltzmann code for pore-scale simulation of scCO2-brine displacement in complex geometries**
Yu Chen; Qinjun Kang; Albert Valocchi; Hari Viswanathan

[1201] **Numerical Analysis of a Model of Biofilm Growth at the Pore-Scale**
Azhar Alhammali; Malgorzata Peszynska

[1163] **Modeling the droplet occurrence, growth and detachment at the interface between the porous layers in a PEM fuel cell coupling a pore-network model with Stokes flow**
Cynthia Michalkowski

WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 2

(MS 2) Porous Media for a Green World: Water & Agriculture

*Q&A 14 Time Block A - **Chairs:** Joqauin Jimenez-Martinez, Jan Vanderborgh, Jun Yin*

[960] **Structured Mini-Dunes (SMDs) as Self-Irrigation Units: A Lesson from the Sand Dunes of Arid Regions.**
Afrah Al-Shukaili; Ali Al-Maktoumi; Anvar Kacimov

[333] **Smart Capillary Barrier-Wick: A Self Irrigating Technique Inspired by Nature for Home Gardens in Arid Zones.**
Ahmed Al-Mayahi

[1336] **Global scale prediction of long-term variations of soil salinity and sodicity.**
Amirhossein Hassani; Adisa Azapagic; Nima Shokri

[83] **Tracing back the source of contamination.**
J. Jaime Gómez-Hernández; Zi Chen; Andrea Zanini

[1305] **Reducing herbicide spreading in the environment using an eco-compatible nano-formulation.**
Monica Granetto; Lucia Re; Carlo Bianco; Aurora Audino; Luca Serpella; Francesco Vidotto; Silvia Fogliatto; Tiziana Tosco

[964] **Nanoporous carbon scaffolds for membrane filtration and capacitive deionization applications.**
Arlene (Chengying) Ai

[136] **Hydraulic behaviour of sand-biochar mixtures: Particle size effects on permeability.**
Ziheng Wang; Majid Sedighi; Amanda Lea-Langton

[208] **The effect of salinity on fecal bacteria transport through porous media.**
Dong Zhang; Valentina Prigiobbe

[1224] **Performance Evaluation and Mechanism Analysis of Organic Clay Inhibitors with Low Molecular Weight.**
Jingwen Wang

(MS 15) Machine Learning and Big Data in Porous Media – Part 1

*Q&A 15 Time Block A - **Chairs:** Denis Voskov, Kai Zhang*

[236] **Evaluation of machine learning methods for predicting the oil-water relative permeability: a comparison of tuning processes and model performances**
Baosheng Jiang; Zhixue Sun

[668] **Data-driven models based on flow diagnostic and machine learning techniques**
Manuel Borregales; Stein Krogstad; Knut-Andreas Lie

[1098] **Predicting Performance of Offshore Oilfield in High Water Cut Period Based on Big Data and Artificial Intelligence**
Cunliang Chen

WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 2 (cont.)

(MS 15) Machine Learning and Big Data in Porous Media – Part 1 (cont.)

*Q&A 15 Time Block A - **Chairs:** Denis Voskov, Kai Zhang*

[1168] **Optimization of fracturing parameters in shale gas reservoir by a modified variable-length particle swarm optimization algorithm**
Zhihao Li

[298] **Flux Regression Neural Networks for Backbone Identification in Discrete Fracture Networks**
Stefano Berrone; Francesco Della Santa; Antonio Mastropietro; Sandra Pieraccini; Francesco Vaccarino

[764] **Analysis of Neural Networks Performances for Flux Regression in Discrete Fracture Networks**
Stefano Berrone; Francesco Della Santa; Sandra Pieraccini; Francesco Vaccarino

[514] **Predicting the effective thermal conductivities of sands using machine learning and a thermal conductance network model**
Wenbin Fei; Guillermo Narsilio

(MS 5) Biochemical processes and biofilms in porous media

*Q&A 16 Time Block B - **Chairs:** Anozie Ebigbo, Ssecchi Eleonora*

[621] **Experimental Methods and Imaging for Enzymatically Induced Calcite Precipitation in micro-fluidic devices.**
Felix Weinhardt

[967] **Pore-scale simulations of hydraulic properties during biomass accumulation.**
Holger Ott

[620] **A Numerical Model for Enzymatically Induced Calcite Precipitation.**
Johannes Hommel; Arda Akyel; Adrienne Phillips; Robin Gerlach; Al Cunningham; Holger Class

[562] **Numerical simulations of biofilms in core samples: MEOR and MICP.**
David Landa Marbán

[989] **Field trials on Microbially Induced Desaturation and Precipitation for liquefaction mitigation.**
Leon van Paassen

[1152] **Life in a tight spot: Bacterial motility in porous media.**
Tapomoy Bhattacharjee; Daniel Amchin; Jenna Ott; Felix Kratz; Sujit Datta

[835] **Transport of chemotactic bacteria in granular media with randomly distributed NAPL ganglia: Modeling and simulation.**
Beibei Gao; Ehsan Taghizadeh; Brian Wood; Roseanne Ford

[1298] **How does microbial calcite precipitation alter soil water retention characteristics?**
Ehsan Nikooee; Rahim Saffari; Ghassem Habibagahi; Martinus van Genuchten

[1248] **Modelling biofilm formation in porous media flow.**
Christoph Lohrmann

WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 2 (cont.)

(MS 15) Machine Learning and Big Data in Porous Media – Part 2

*Q&A 17 Time Block B - **Chairs:** Bailian Chen, Jianchun Xu*

[730] **A Physics-based Data-driven Model for Waterflooding Profile Control and Water Plugging Performance**
Hui Zhao

[359] **An Efficient Parameterization for History Matching of Reservoir Models by Using Deep Variational Autoencoder with The Intrinsic Dimension Estimation Method**
Xiaopeng Ma; Kai Zhang

[682] **Equivalent Permeability Prediction of Karst Core Samples Using Deep Learning**
Monique Dali; Sergio Ribeiro; Frederico Gomes; Marcio Carvalho

[868] **Properties Quantification of Heterogeneous Media with 3D Vision informed Machine Learning**
Omar Al-Farisi

[916] **The Images Detection of Granular Fibers and Composite Materials through Multi-Windows Object Detection Method**
Qiaonan Li

[611] **Research on Prediction of Remaining Oil Distribution Based on SVM and LSTM**
Gujian Wei; Yanlong Ren

(MS 6-B) Interfacial phenomena in multiphase systems – Part 1

*Q&A 18 Time Block C - **Chairs:** Yashar Mehmani*

[673] **Mathematical analysis of foam flow in porous media.**
Grigori Chapiro; Luis Fernando Lozano; Rosmery Zavala; Pacelli Zitha

[1044] **Uncertainty quantification in a model for foam flooding in porous media.**
Rodrigo Weber dos Santos

[684] **Applications of the electromagnetic heating in EOR.**
Samuel Almeida

[995] **Bubble Deformation by Pore-Throats Modifies Dissolution in Porous Media.**
Yu Qiu; Ke Xu

[690] **Polymer Screening Using Microfluidics.**
Mohammad Zargartalebi

[777] **Effects of Salinity and N-, S-, and O-Bearing Polar Components on Light Oil-Brine Interfacial Properties from Molecular Perspectives.**
Wenhui Li; Zhehui Jin

[44] **Mechanistic Modelling and Laboratory Evaluation of Immiscible Water-Alternating-Gas Injection and Foam-Assisted Chemical Flooding.**
Fabian Torres Mendez; Martijn Janssen

WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 2 (cont.)

(MS 6-B) Interfacial phenomena in multiphase systems – Part 1(cont.)

*Q&A 18 Time Block C - **Chairs:** Yashar Mehmani*

[567] **Probing Chemical Interactions of Asphaltenes with Silica and Calcium Carbonate Surfaces.**
Saleh Hassan

(MS 15) Machine Learning and Big Data in Porous Media – Part 3

*Q&A 19 Time Block C - **Chairs:** Bailian Chen, Bo Guo*

[1189] **A novel approach to identify hydraulic conductivity fields that best approximate geological uncertainties via unsupervised learning techniques and Wellhead Protection Area Analysis**
Abelardo Rodríguez-Pretelín

[1314] **Estimating Oil Recovery Factor from Reservoir Characteristics using the XGBoost Algorithm**
Alireza Roustazadeh

[73] **Estimation of Subsurface Hydraulic Conductivities using Geophysical Signatures**
Debasmita Misra; Peter Calvin

[697] **Physics-informed machine learning of permeability prediction and upscaling of reactive transport in porous media**
Hongkyu Yoon

[1003] **Automation of flow simulation in porous media**
Masa Prodanovic; Javier Santos ; Honggeun Jo; Michael Pyrcz

[1272] **Bayesian inference of poroelastic properties from induced seismicity data using an energy-based poromechanics model**
Mina Karimi

[1221] **A Hybrid-driven method to improve dynamical reservoir characterization**
Vanessa Simoes

WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 3

(MS 12) Advances in modeling and simulation of poromechanics – Part 1

*Q&A 14 Time Block A - **Chairs:** Alessio Fumagalli, Jianchao Cai*

[508] **Multi-scale Extended Finite Element Method For Fractured Geological Formations.**
Fanxiang Xu; Hadi Hajibeygi; Bert Sluys

[282] **Influence of reservoir heterogeneity on fracture propagation of true triaxial hydraulic fracturing.**
Jin Wang

[237] **The influence of porosity and gas hydrate on tortuosity in porous media based on CT scanning - lattice Boltzmann method.**
Lei Liu; Zhixue Sun

[284] **Stress Field Change of Multi well and Multi period Fracturing and its Influence on Reservoir Development.**
Rongtao Jiang

[1209] **A generalized finite volume method for density driven flows in porous media.**
Yueyuan Gao

[550] **The change of reservoir physical properties with formation pressure decreasing and its influence on remaining oil.**
Jintao Wu; Yong Hu; Guangming Pan; Jianting Huang; Hao Li

(MS 10) Advances in imaging porous media: techniques, software and case studies – Part 1

*Q&A 15 Time Block A - **Chairs:** Liwei Zhang, Nima Shokri*

[1292] **Measuring contact angles in a two-phase flow experiment using home-laboratory micro-computed tomography.**
Kim Robert Tekseth

[732] **Research on Multiscale Microscopic Pore Structure of shale.**
Lei Liu

[555] **SEM, Raman and Micro-CT characterization of CO2–Induced Wellbore Cement degradation.**
Yan Wang; Liwei Zhang; Xiuxiu Miao; Manguang Gan

[391] **The influence of confining pressure and flow process on the corrosion of wellbore cement under geological storage environment.**
Manguang Gan

[1260] **Relaxing the Capillary Equilibrium Constraint for Automated Contact Angle Measurement of Time-Resolved X-ray Micro-Tomography Images in Porous Media.**
Omid Shahrokhi; Amir Jahanbakhsh; M. Mercedes Maroto-Valer

[551] **Distribution and Quantitively Evaluation of Micro Residual Oil after Polymer Flooding based on CT Scanning.**
Liu Tao

WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 3 (cont.)

(MS 10) Advances in imaging porous media: techniques, software and case studies – Part 2

*Q&A 16 Time Block B - **Chairs:** Liwei Zhang, Nikolaos K. Karadimitrio*

[759] **Multi-scale 3D/4D imaging of the pore network in shales and its evolution under subsurface conditions.**
Lin Ma; Kevin Taylor; Patrick Dowey; Michael Chandler; Peter Lee

[1293] **Dynamic in situ computed tomography study of strain evolution in Draupne shales under triaxial loading.**
Aldritt Scaria Madathiparambil

[435] **Pore-scale imaging with measurement of relative permeability and capillary pressure on the same reservoir sandstone under water-wet and mixed-wet conditions.**
Ying Gao; Ali Q. Raeini; Ahmed Selem; Igor Bondino; Martin J. Blunt; Branko Bijeljic

[1089] **Porous system characterization of a heterogeneous carbonate rock bed using x-ray microtomography.**
Fernanda Hoerlle; William Godoy; Elizabeth May Pontedeiro; Paulo Couto

[1225] **Contrast enhanced X-ray micro-tomography of tomato fruit tissues for microscale gas transport simulation.**
Hui Xiao; Pieter Verboven; Agnese Piovesan; Bayu Nugraha; Bart Nicolai

[112] **An experimental study of the interplay between viscous, capillary and gravitational forces in two-phase flow in a three-dimensional porous medium.**
Joachim Falck Brodin

[1022] **2D to 3D Transform: Material Properties from 2D Images.**
Juan Pablo Daza; Amos Nur; Tapan Mukerji

[712] **Comparative Study of Pore Structure Parameters for Various Rock Samples.**
Yixin Zhang; Rouzbeh Ghanbarnezhad Moghanloo; Davud Davudov

(MS 23) Special Session for Professor Rainer Helmig – Part 2

*Q&A 17 Time Block B - **Chairs:** Bernd Flemisch, Martin Schneider*

[1300] **Component transport at the soil – atmosphere interface.**
Lisa Bahlmann; Insa Neuweiler

[1184] **Micro-macro Models: The Next Generation Models for Reactive Flow and Transport Problems in Porous Media?**
Peter Knabner

[1174] **Precipitation and dissolution in complex media: modelling, upscaling and simulation.**
Manuela Bastidas; Carina Bringedal; Iuliu Sorin Pop; Florin Adrian Radu; Lars von Wolff

[1181] **Robust and efficient solvers for flow in deformable porous media.**
Florin Adrian Radu

WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 3 (cont.)

(MS 23) Special Session for Professor Rainer Helmig – Part 2 (cont.)

*Q&A 17 Time Block B - **Chairs:** Bernd Flemisch, Martin Schneider*

[719] **3D modelling of subsurface methane leakage through unconsolidated sedimentary aquifers; implications for environmental monitoring.**
Gilian Schout; S. Majid Hassanizadeh; Jasper Griffioen; Niels Hartog; Rainer Helmig

(MS 12) Advances in modeling and simulation of poromechanics – Part 2

*Q&A 18 Time Block C - **Chairs:** Alessio Fumagalli, Florian Doster*

[54] **Dynamic hydraulic fracturing in naturally fractured reservoirs.**
Mohammad Vahab; Mohammadreza Hirmand; Nasser Khalili

[387] **Preliminary Study on Mechanical Model of Reef Limestone Porous Media.**
Ning Zhang; Cijia Wang; Thomas Nagel

[1232] **A deformation-dependent permeability model for polycrystalline rocks.**
Florian Zill

[1332] **Effect of soil saturation on the stability of soil slopes during rainfall infiltration.**
Paiman Shafabakhsh; Marwan Fahs; Renaud Toussaint

[390] **A fully coupled Thermo-Hydro-Chemo-Mechanical model for the evaluation of gas production characteristic in hydrate-bearing sediment.**
Didi Wu

[1101] **Mathematical Model of Thermo-Gel Flooding and Its Application in Thermal Recovery of Offshore Heavy Oil.**
Jintao Wu; Lei Zhang; Jianting Huang; Hao Li; Guangming Pan

(MS 10) Advances in imaging porous media: techniques, software and case studies – Part 3

*Q&A 19 Time Block C - **Chairs:** Nikolaos K. Karadimitrio, Morris Flynn*

[782] **A New Approach to 3D Imaging of Multi-scale Pore Systems in Carbonates using Confocal Microscopy.**
Ahmed Hassan

[1205] **Time-lapse imaging of fines migration within subsurface reservoirs.**
Chenzi Shi

[1218] **A quantitative method to compare Invasion Percolation models to high-resolution gas-injection experiments in sand.**
Ishani Banerjee

[1197] **Impact of image resolution on quantification of mineral properties and simulated mineral reactions and reaction rates.**
Fanqi Qin; Lauren Beckingham

WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 3 (cont.)

(MS 10) Advances in imaging porous media: techniques, software and case studies – Part 3 (cont.)

*Q&A 19 Time Block C - **Chairs:** Nikolaos K. Karadimitrio, Morris Flynn*

[1256] **Study on the effect of pore structure in thermal conductivity and permeability of volcanic rocks.**
Sandra Vega

[212] **Three-dimensional characterization of pore space architecture in granular materials.**
Nimisha Roy

[686] **3D Visualization of Oil Displacement by a Suspension of Microcapsules.**
Raphael Chalhub Oliveira Spinelli Ribeiro

THURSDAY, 3 SEPTEMBER 2020

Question and answer: Parallel sessions 1

(MS 9) Pore-scale modelling – Part 3

*Q&A 20 Time Block A - **Chairs:** Martin Blunt, Stephane Zaleski*

[701] **Ion-Tuned Water - An Image-Based Pore-scale Study of Oil Recovery Improvement**
Artur Shapoval

[85] **Lattice Boltzmann simulation of amphiphilic fluids flow through porous media**
Bei Wei

[458] **Lattice Boltzmann Simulations for micro-macro interactions during isothermal drying of porous media**
Debashis Panda; Supriya B; Vikranth Kumar Surasani

[1039] **An improved empirical model considering viscous coupling effect for hydraulic conductance of three-phase flow in pore network modeling**
Fei Jiang

[1191] **Opalinus Clay experimental dataset with High Pressure Sorption, review and application to Pore Network Modelling**
Georgy Borisochev; Andreas Busch; Jingsheng Ma; Lin Ma

[986] **Minkowski measure fields as basis for rock-typing and upscaling**
Han Jiang; Christoph Arns

[618] **Discrete Multiple Media Geological Modelling Method**
Jiaxin Dong; Qiquan Ran; Wen Shi

[727] **The construction of multi-scale multi-component pore network model with application in shale characterization**
Ke Wang

(MS 9) Pore-scale modelling – Part 4

*Q&A 21 Time Block A - **Chairs:** Martin Blunt, Stephane Zaleski*

[1176] **Effects of pore-size disorder on forced imbibition in porous media**
Lianwei Xiao

[1139] **Using topology and energy balance to determine wettability in two and three-phase flow**
Martin Blunt; Takashi Akai; Alessio Scanziani; Qingyang Lin; Abdulla Alhosani; Branko Bijeljic

[228] **Pore Scale Study of Solid/Liquid Phase Change in a 3D Cubic Lattice Metal Frame**
Moghtada Mobedi; Chunyang Wang

[1080] **Complex interplay between wettability and pore geometry controlling dynamics of two phase flow in heterogeneous porous media**
Sahar Bakhshian; Rabbani Harris ; Seyyed Hosseini; Nima Shokri

[215] **A multi-scale diffuse interface/front tracking model for multi-component two-phase flow**
Guangpu Zhu; Kou Jisheng; Yao Jun; Qianhong Yang

THURSDAY, 3 SEPTEMBER 2020

Question and answer: Parallel sessions 1 (cont.)

(MS 9) Pore-scale modelling – Part 4 (cont.)

*Q&A 21 Time Block A - **Chairs:** Martin Blunt, Stephane Zaleski*

[183] **Thermal coupled reactive transport in porous media based on SPH method**
Qianhong Yang

[1017] **Effective parameter identification via NMR experiment and simulation using multi-task Bayesian optimization**
Rupeng Li; Igor Shikhov; Christoph Arns

[645] **Curvature Correction to Model Capillary Driven Flows at the Pore-Scale Using Volume-of-Fluid**
Saideep Pavuluri; Julien Maes; Florian Doster

(MS 9) Pore-scale modelling – Part 5

*Q&A 22 Time Block A - **Chairs:** Martin Blunt, Stephane Zaleski*

[394] **Numerical Modeling of Wettability Alteration in Porous Media Induced by Low Salinity Water**
Takashi Akai; Martin Blunt; Branko Bijeljic

[851] **Pore scale disorder on tensile fracturing of porous medium using Lattice method simulation**
WenXiang Tian

[1076] **Micro-CT image resolution limitation effects on NMR simulation response**
Yingzhi Cui; Igor Shikhov; Christoph Arns

[407] **Mesoscopic modelling of fluid-solid interaction and its effect on permeability estimation**
Zi Li; Sergio Galindo-Torres; Ling Li

[155] **Pore scale study of multiphase and multicomponent transport in methane hydrate bearing sediment**
Junyu Yang

[468] **Probabilistic Modeling of Halite Nucleation and Growth in Porous Media: Pore Scale Modeling**
Mohammad Masoudi; Hossein Fazeli; Rohaldin Miri; Helge Hellevang

[670] **Investigation of salt-precipitation processes in porous-media systems at the pore scale**
Theresa Kurz

[441] **Pore-scale study of complex transport phenomena in porous media.**
Li Chen

THURSDAY, 3 SEPTEMBER 2020

Question and answer: Parallel sessions 1 (cont.)

(MS 9) Pore-scale modelling – Part 6

*Q&A 23 Time Block B - **Chairs:** Martin Blunt, James McClure*

[1259] **Pore network modeling from micro-CT X-Ray data, methodology using open source software and digital rock printing**
Aarón Sánchez

[466] **Quasi-3D pore-scale simulation of wettability heterogeneity in porous media**
Amir Jahanbakhsh

[873] **Capillary Pressure of Non-Wetting Ganglia in Porous Media: a Sub-Darcy Model**
Chuanxi Wang; Ke Xu

[810] **The optimal wettability for oil recovery by waterflooding: dependence on structural factors**
Fanli Liu; Moran Wang

[1317] **Effect of grain-size distribution on the temporal evolution of interfacial area during multi-phase flow through porous media**
Fizza Zahid

[1024] **Simulating Diagenesis: Computing Temporal Pore Structure and Physical Properties Changes Due to Dissolution/Precipitation Under Stress and Reactive Fluid Flow**
Juan Pablo Daza; Tapan Mukerji; Amos Nur

[1244] **Pore-scale flow with the memory-efficient Lattice Boltzmann formulation**
Maciej Matyka; Michał Dzikowski

[140] **Study of the effect of pore-scale mineral wettability alterations on the relative permeability curves**
Ming Fan; James McClure; Ryan Armstrong; Mehdi Shabaninejad; Li Zhe; Laura Dalton; Dustin Crandall; Cheng Chen

(MS 9) Pore-scale modelling – Part 7

*Q&A 24 Time Block B - **Chairs:** Martin Blunt, James McClure*

[931] **An interface-tracked dynamic network simulator for two-phase flow in porous media: recent developments and results**
Santanu Sinha; Magnus Aa. Gjennestad; Morten Vassvik; Alex Hansen

[1289] **Capillary bundle-Meter model for non-Newtonian fluid flow in porous media**
Takshak Shende

[65] **Capillary instabilities during two-phase flow process in a porous medium**
Tao Zhang; Rui Wu

[1028] **Contact line motion: comparing molecular dynamics, the phase field model and the sharp interface model**
Ugis Lacis; Petter Johansson; Thomas Fullana; Stéphane Zaleski; Berk Hess; Gustav Amberg; Shervin Bagheri

THURSDAY, 3 SEPTEMBER 2020

Question and answer: Parallel sessions 1 (cont.)

(MS 9) Pore-scale modelling – Part 7 (cont.)

*Q&A 24 Time Block B - **Chairs:** Martin Blunt, James McClure*

[419] **Lattice Boltzmann-pore network hybrid modelling of gas transport in nanoporous media**
Wenhui Song; Maša Prodanović; Christopher J. Landry; Jun Yao

[1326] **Pore network modeling of fuel cell catalyst layer performance**
Amin Sadeghi

[304] **Experimental and numerical evidence of a tunable Janssen effect**
Louison Thorens; Knut Jorgen Maloy; Mickaël Bourgoin; Stéphane Santucci

[1041] **Gas separation in bent microchannel at low Reynolds number**
Minh Tuan Ho; Jun Li; Wei Su; Lei Wu; Matthew Borg; Zhihui Li; Yonghao Zhang

(MS 9) Pore-scale modelling – Part 8

*Q&A 25 Time Block B - **Chairs:** Martin Blunt, James McClure*

[913] **Permeability prediction of fibrous porous media by the lattice Boltzmann method with a fluid-solid boundary reconstruction scheme**
Suguru Ando

[979] **Failure mechanism of kerogen by molecular dynamics simulations in relation to hydraulic fracturing in organic-rich shale**
Tianhao Wu

[843] **Pore Structure Characterization and Numerical Simulation of Electrical Conductivity for Tight Sandstone by Digital Rock Physics**
Xuefeng Liu; Hao Ni; Jingxu Yan; XiaoWei Zhang

[147] **A unified multiple transport mechanism model for gas through shale pores**
Fanhui Zeng

[124] **Pore-scale Simulation of Gas Flow in Microscopic Porous Media with Complex Geometries**
Yuhang Wang; Saman Aryana

[1183] **Reconstruction of Porous Media Based On Variational Autoencoders Method Using 2D Slice**
Yurun Li

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Question and answer: Parallel sessions 2

(MS 6-B) Interfacial phenomena in multiphase systems – Part 2

*Q&A 20 Time Block A - **Chairs:** Ke Xu, Holger Ott*

[856] **Effect of Salinity on Water-Alternating-Gas (WAG) Injection in Microporous Media.**
Vishnu Bhadran; Yit-Fatt Yap; Afshin Goharzadeh

[31] **Critical Gas Saturation and Relative Permeability for Pressure Depletion and Gas Injection Processes.**
Steffen Berg; Ying Gao; Apostolos Georgiadis; Niels Brussee; Ab Coorn; Hilbert van der Linde; Jesse Dietderich; Faruk Omer Alpak; Daniel Eriksen; Miranda Mooijer-van den Heuvel; Jeff Southwick; Matthias Appel; Ove Bjorn Wilson

[539] **Study on Film effects during isothermal diffusion dominated evaporative drying of square capillary tube using Lattice Boltzmann model.**
Supriya B; Debashis Panda; Nicole Vorhauer; Vikranth Kumar Surasani

[1220] **Mechanism Study on the Influence of Low Salinity Water on Interface Characteristics of the Fluid and Rock.**
Di Zhu

[337] **Microscopic flow mechanism of shale oil based on digital cores with multi-mineral phases.**
Lian Duan; Hai Sun; Jun Yao; Lei Zhang; Yongfei Yang

[643] **Direct imaging of bubble ripening in two-dimensional porous media micromodels.**
Nerine Joewondo; Valeria Garbin; Ronny Pini

[101] **Influence Mechanism of Potential Determining Ions on Oil-in-water Emulsion Stability in Smart Water-flooding.**
Rukuan Chai; Yuetian Liu; Liang Xue

[535] **Visual Study on Phase Interface Change of CH4 Hydrate Replaced by CO2 Combined with Depressurization.**
Shuyang Liu; Baojiang Sun

(MS 20) Biophysics of living porous media: theory, experiment, modeling and characterization

*Q&A 21 Time Block A - **Chairs:** Dominik Obrist, Rainer Helmig*

[1278] **A scale-independent framework for whole brain simulation of blood flow in the human brain.**
Erlend Hodneland; Jan Martin Nordbotten

[372] **Simulating vertebroplasty: A look into the biomechanics and modelling challenges.**
Zubin Trivedi; Christian Bleiler; Arndt Wagner; Oliver Röhrle

[305] **Diffusion and convection in brain extracellular spaces embedded with perivascular networks.**
Vegard Vinje; Miroslav Kuchta; Marie E. Rognes; Timo Koch; Kent-Andre Mardal

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Question and answer: Parallel sessions 2 (cont.)

(MS 20) Biophysics of living porous media: theory, experiment, modeling and characterization (cont.)

*Q&A 21 Time Block A - **Chairs:** Dominik Obrist, Rainer Helmig*

[767] **A new making method of artificial core through changing epoxy resin form.**
Kun Xie; Kaoping Song; Xiangguo Lu; Bao Cao; Jian Hou; Wei Lin ; Jinxiang Liu; Weijia Cao; Cheng Su

[2] **Various Mathematical Approaches to Mechanical Simulations in Wound Healing Processes.**
Qiyao Peng; Fred Vermolen

[1047] **Modeling perfusion in cardiac tissue.**
Rodrigo Weber dos Santos

(MS 21) Effective elastic, thermal, electrical and optical properties of porous materials, cellular materials, foams and metamaterials

*Q&A 23 Time Block B - **Chairs:** Majid Hassanizadeh, Oleg Iliev*

[251] **How to take into account of clay content in computing elastic moduli of arenites from micro-tomographic images.**
Jiabin Liang; Stanislav Glubokovskikh; Boris Gurevich; Maxim Lebedev; Stephanie Vialle; Alexey Yurikov

[536] **Elastic equivalent numerical modeling of porous media digital core.**
Shi-kai Jian

[70] **Analysis of Low Resistivity of Gravel Sandstone Reservoir in Beibuwan Basin Based on Petrophysical Experiments.**
Weichao Yan; Jianmeng Sun; Likai Cui

(MS 16) Fluid Interactions with Thin Porous Media

*Q&A 23 Time Block B - **Chairs:** Majid Hassanizadeh, Oleg Iliev*

[87] **Water transport in a gas diffusion layer of polymer electrolyte fuel cells in the presence of polytetrafluorethylene.**
Dieter Froning; Uwe Reimer; Werner Lehnert

[349] **Dynamics of capillary rise and finger formation in angular pores.**
Thijs de Goede; Rozeline Wijnhorst; Daniel Bonn; Noushine Shahidzadeh

[169] **Characterization of capillary flow within hybrid woven screens in vertical and horizontal directions.**
Ye Wang

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Question and answer: Parallel sessions 2 (cont.)

(MS 6-B) Interfacial phenomena in multiphase systems – Part 3

*Q&A 24 Time Block B - **Chairs:** Grigori Chapiro, Hai Sun*

[367] **Experimental investigation of contact angle change and oil globule movement in a capillary.**
Lifei Yan

[571] **Interfacial Viscoelasticity in Crude Oil-water Systems.**
Ahmed M. Saad

[163] **Effect of proppant wettability on fines transport and retention in propped fractures during gas–water two-phase flow in coalbed methane reservoirs.**
Fansheng Huang; Changyin Dong; Xiaosen Shang

[261] **An investigation of the Effect of Gravity on Foam in Model Fractures.**
Kai Li

[414] **Multiphase flow in deformable media.**
Dawang Zhang; Bjornar Sandnes

[295] **Micro Perspective of Capillary Force Hysteresis: Theoretical and Experimental Research on the Relationship Between Capillary Pressure and Saturation in Microscale Capillaries.**
Menggang Wen

[317] **Novel Method for Improving Injectivity of Polymer solution in Porous Media.**
Mohsen Mirzaie Yegane

[371] **The Impact of Grid Refinement on Simulated Injectivity in Surfactant-Alternating-Gas Foam Enhanced Oil Recovery.**
Rodrigo Orlando Salazar Castillo; Lily Qian; William R. Rossen

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Question and answer: Parallel sessions 3

(MS 10) Advances in imaging porous media: techniques, software and case studies – Part 3

*Q&A 20 Time Block A - **Chairs:** Adrian Sheppard, Nima Shokri*

[1020] **X-ray CT core flooding study to understand the impact of clay interlayers on supercritical CO2 migration in sandstones.**
Liang Xu; Matthew Myers; Cameron White; Qi Li

[553] **Microstructure characterization and permeability modeling of creeping porous media under various pressures.**
Yuxuan Xia

[1150] **Dynamic synchrotron microtomography and pore-network modelling for direct in-situ capillary flow observation in 3D printed lab-on-chips.**
Agnese Piovesan; Tim Van De Looverbosch; Pieter Verboven; Clement Achille; Cesar Parra Cabrera; Elodie Boller; Yin Cheng; Rob Ameloot; Bart Nicolai

[257] **Quantitative Measurement of Supercritical CO2-Water Immiscible Displacement in the Micromodel under Drainage Conditions.**
Changzhong Zhao; Yi Zhang; Baokun Zhao; Yongchen Song

[45] **Enhanced Gas Recovery evaluated with 1D NMR imaging and relaxometry measurements.**
Ming Li; Sarah J. Vogt; Xiaoxian Yang; Paul Connolly; Eric F. May; Michael L. Johns

[725] **Study on Formation Damage Mechanism of a Sandstone Reservoir based on Micro-Computed Tomography.**
Zhiyu Wang; Yongfei Yang; Jun Yao; Xinze Li; Yingwen Li; Changfu Liu

(MS 19) Electrochemical processes in porous media – Part 1

*Q&A 22 Time Block A - **Chairs:** Pablo García-Salaberri, Ezequiel Medici*

[389] **Pore-network modeling of gas diffusion layers in polymer electrolyte fuel cells using a continuum-based formulation**
Pablo Ángel García-Salaberri; Iryna Zenyuk; Jeff Gostick; Adam Z. Weber

[1219] **Modelling non-isothermal effects in a proton exchange membrane fuel cell (PEMFC)**
Sagrario Muñoz; V. María Barragán

[1247] **Reactive transport in porous media: Modeling electro-diffusion process using Nernst-Planck-Poisson Equation**
Sara Tabrizinejadas; Jerome Carrayrou; maarten saaltink; Marwan Fahs

[144] **On volume averaging modelling of porous electrodes – intrinsic phase average and macroscopic flux definition at solid/electrolyte interface**
Xiaoguang Yin; Zeyong Wang; Thomas Sweijen; S. S. Majid Hassanizadeh; Baohua Li

[924] **Non-isothermal Battery Modelling**
Astrid F. Gunnarshaug; Lena Spitthoff

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Question and answer: Parallel sessions 3 (cont.)

(MS 19) Electrochemical processes in porous media – Part 1 (cont.)

*Q&A 22 Time Block A - **Chairs:** Pablo García-Salaberri, Ezequiel Medici*

[365] **Multiphysics modeling of a vanadium redox flow battery**
Vanesa Muñoz Perales; Santiago Enrique Ibañez-León; Sabrina Berling; Enrique García-Quismondo; Jesús Palma; Pablo Ángel García-Salaberri; Marcos Vera

(MS 19) Electrochemical processes in porous media – Part 2

*Q&A 23 Time Block B - **Chairs:** Jeff Gostick, Iryna Zenyuk*

[1277] **Towards scalable multi-scale open-source solvers for ionic transport and electrochemistry**
Matteo Icardi; Federico Municchi; Robert Barnett

[1204] **Comparing chronopotentiometric behavior in homogeneous cation- and anion- exchange membranes**
Chunyu Tian; Kim Roger Kristiansen; Signe Kjelstrup; V. María Barragán García

[772] **Study on electrokinetic reactive fluid in dielectric porous media with Lattice Boltzmann Method**
Haijing Li; Herman Clercx; Federico Toschi

[249] **PEM fuel cell performance studies of a tree-like pattern milled on graphite flow field plates**
Marco Sauermoser; Signe Kjelstrup; Natalya Kizilova; Bruno G. Pollet

[150] **Visualizing 3D distribution of wet domain in microporous layer in polymer electrolyte fuel cell by X-ray computed tomography under water vapor supply**
Satoru Kato

[442] **Pore-scale study of reactive transport processes in porous electrodes of pemfc**
Ting Min

(MS 22) Catalysis and adsorption/absorption processes in porous media

*Q&A 24 Time Block B - **Chairs:** Huijin Xu, Satoru Kato*

[884] **Thermal stimulation to activate the desorption of shale gas over organic-rich shales.**
Xinlei Li; Lijun You; Yili Kang ; Jiang Liu ; Mingjun Chen

[158] **Experimental study on evolution law of key parameters and characterization of initial gas desorption of coal particles.**
Chaojie Wang

[512] **Sorption characteristics of biomass-based carbonaceous materials for containment of volatile organic compounds (VOC).**
Hamid Rajabi

Question and answer: Parallel sessions 3 (cont.)

(MS 22) Catalysis and adsorption/absorption processes in porous media (cont.)

*Q&A 24 Time Block B - **Chairs:** Huijin Xu, Satoru Kato*

[1016] **Measuring and Modelling Supercritical Adsorption in Shales.**
Humera Ansari

[1309] **Multiple Retention Mechanisms during Transport in Porous Media: Numerical modelling and empirical parameters evaluation.**
Jocenrique Carlo de Oliveira Rios; Adriano dos Santos; Sidarta Araújo de Lima

[961] **3D pore scale simulation of reactive flow in catalytic filter on CT image.**
Oleg Iliev; Torben Prill; Pavel Toktaliev; Robert Greiner; Martin Votsmeier

[289] **Pore Structure Analysis for Exhaust Particle Filter Development.**
Atsushi Tanaka

[7] **Geothermal Brine Reinjection from SaltPower Generation: A Microcalorimetry Study.**
Jacquelin Cobos Mora; Erik Gydesen Søgaard

[1140] **Investigation of adsorption and diffusion behaviors of multi-component gases in kerogen.**
Yu Shi; Xiaona Yang