



InterPore

INTERNATIONAL SOCIETY
FOR POROUS MEDIA

INTERPORE 2020
12th ANNUAL MEETING

Detailed Program
Second version, 25 August 2020

Timing of Q&A sessions on Monday				
Time Block (CET)	Q&A No.	Parallel sessions 1	Parallel sessions 2	Parallel sessions 3
A (09:35 – 10:35)	Q&A 1	MS3, part1	MS7, part1	MS8, part1
A (10:40 – 11:40)	Q&A 2	MS3, part2	MS7, part2	MS8, part2
B (15:00 – 15:55)	Q&A 3	MS3, part3	MS7, part3	MS8, part3
B (16:00 – 16:55)	Q&A 4	MS3, part4	MS7, part4	MS11, part1
C (18:45 – 19:40)	Q&A 5	MS3, part5	MS7, part5	MS8, part4
C (19:45 – 20:40)	Q&A 6	MS3, part6	MS6-A, part1	MS11, part2

Question and answer: Parallel sessions 1

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

Q&A 1 09:35 - 10:35 - 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; Quanyou Song; Baogang Li; Wenqing Tang Jin Wang

[84] Flow Law of Foam in Fractured Vuggy Reservoir

Zhengxiao Xu; Zhaomin Li; Binfei Li; Longkun Chen; Danqi Chen; Zihan Gu

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

Zhu Jiamin; Wu Minglu; Chen Xianchao

[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; Taixun Liu; Xiangying Wang Jin Wang; Ping Wang

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

Syed Haider; Tadeusz Patzek

Question and answer: Parallel sessions 1 (cont.)

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

Q&A 2 10:40 – 11:40 - 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

Tomos Phillips; Tom Bultreys; Arjen Mascini; Nathaniel Forbes Inskip; Sabine den Hartog; Niko Kampman; Kevin Bisdom; Veerle Cnudde; Andreas Busch

[48] Identification of Fracture Properties in Shale Oil Reservoirs by a Well Testing Model with "Fracturing-shutting" : A Case Study

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 15:00 – 15:55 - 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; Maria Vasilyeva; Eric T. Chung; Yalchin Efendiev

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

Mark Ashworth; Florian Doster; Christine Maier

[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 Canamon; 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

Question and answer: Parallel sessions 1 (cont.)

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

Q&A 3 15:00 – 15:55 - Chairs: *Holger Steeb, Hamid Nick, Benoit Noetinger*

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

Xia Du, Mr YuLiang Su; Wendong Wang; Ning Zhao Dongsheng Li

[420] **Estimating Flow Characteristics of 3D Fracture Network based on Persistent Homology**

Anna Suzuki; Miyuki Miyazawa; Takatoshi Ito; Peter Kang

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

Q&A 4 16:00 – 16:55 - 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; Xiaoli Liu; Enzhi Wang

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

Mehrdad Ahkami; Xiang-Zhao Kong; Martin O. Saar

[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 Bisdorn; Georgy Borisochiev; Andreas Busch; Sabine den Hartog

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

Monika S. Walczak; Hamidreza Erfani Gahrooei; Nikolaos Karadimitriou; Ioannis Zarihos; S. Majid Hassanizadeh; Vahid.J Niasar

[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; Behzad Ataie-Ashtiani; Craig T. Simmons; Marwan Fahs

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

Q&A 5 18:45 – 19:40 - 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; Cornelis Vuik; Hadi Hajibeygi

[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

[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 19:45 – 20:40 - 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; Siarhei Khirevich; TADEUSZ PATZEK

Question and answer: Parallel sessions 1 (cont.)

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

Q&A 6 19:45 – 20:40 - Chairs: *Holger Steeb, Hamid Nick, Benoit Noetinger*

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

Xiuchuan Zhu; Qinhong Hu; Mianmo Meng; Na Yin; Binyu Ma; Yushan Du; Jing Chao

[1252] **Role of mineralogy in controlling fracture formation.**

Olivia Brunhoeber; Lauren Beckingham

[379] **A Novel Correction Method of Ergun Equation for Application in a Rectangular Channel Partially Filled with Porous Media.**

Tianwang Lai

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 09:35 – 10:35 - Chairs: *Sorin Pop, Peng Xu*

[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; Zhengming Yang; Xinlin Zhao Wei Lin; Ting Chen; Luo Yapu Zhang; Anshun Zhang

[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 Abushaikh

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

Luat Khoa Tran; Stephan Matthai

Question and answer: Parallel sessions 2 (cont.)

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

Q&A 2 10:40 – 11:40 - Chairs: Sorin Pop

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

Wei Wei; Jianchao Cai; Yuxuan Xia Dr Haitao Tian; Zhenhua Tian

[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; Abdellah AMRI; Rachid ABABOU

[102] **A (real) multi-scale solver for two-phase flow: a micro-continuum approach**

Cyprien Soullaine; Francisco Carrillo; Ian Bourg

[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 Precipitation 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; Abdellah AMRI; Rachid ABABOU

[695] **Gravity Segregation in Foam Mobility Control in Heterogeneous Reservoir**

Xiaocong Lyu; Denis Voskov; William Rossen

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

Q&A 3 15:00 – 15:55 - 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; Yuliang Su; Wendong Wang; Xia Du

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

Aleksei Tyrylgina; Maria Vasilyeva; Eric T. Chung; Yalchin Efendiev

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

Elizabeth May Pontedeiro; William Godoy; Marianna Dantas; Fernanda Hoerlle; Martinus Th. van Genuchten; Amir Raoof; Paulo Couto

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

Maria Vasilyeva; Eric Chung; Yalchin Efendiev; Tat Leung Wing

Question and answer: Parallel sessions 2 (cont.)

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

Q&A 3 15:00 – 15:55 - Chairs: Sorin Pop, Peng Xu

[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

Qinzhao Liao; Gang Lei; Dongxiao Zhang; Shirish Patil

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

Q&A 4 16:00 – 16:55- 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; Huangxin Chen

[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 μ CT 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; Carina Bringedal Iuliu; Sorin Pop

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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 5

Q&A 5 18:45 – 19:40 - Chairs: Sorin Pop, Peng Xu

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

Erlend Storvik; Jakub Both; Juan Michael Sargado; Jan Martin Nordbotten; Florin Adrian Radu

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

Mohammad Salehian; Aliakabar Hassanpouryouzband

[585] **Computational Multiscale Methods for Linear Poroelasticity using CEM-GMsFEM**

Eric Chung; Sai-Mang Pun; Shubin Fu; Robert Altmann; Roland Maier; Daniel Peterseim

[513] **Application of Laplace Equation to Derive Hydraulic Conductivity from Velocity Measurements in Porous Media.**

Michael Mont-Eton

[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; Weifeng Yuan; Jirui Hou; Zhenjiang You; Jun Li

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

Zihao Li; YUNTIAN TENG Ming Fan; Cheng Chen;

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

Q&A 6 19:45 – 20:40 - Chairs: Aimy Bazylak, Saman Aryana

[1331] **Nanoscale contact angle characterization of a water/oil/calcite system using atomic force microscopy.**

George Savulescu

[865] **Pore scale simulations of two-phase flow in porous media with high permeability.**

Maxime Cochenne; Hossein Davarzani; Yohan Davit; Stéfan Colombano; Ioannis Ignatiadis; Michel Quintard

[987] **LBM simulations of graded Gas Diffusion Layer for PEMFC applications**

Graham Danny KOYEERATH; Yann Favenec; 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

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

Q&A 6 19:45 – 20:40 - Chairs: Aimy Bazylak, Saman Aryana

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

Yujing Du; Matthew Balhoff

[1237] **Quantification of non-linear multiphase flow in porous media**

Yihuai Zhang; Branko Bijeljic; Ying Gao; Qingyang Lin; Martin Blunt

[464] **Study of the residual saturation in NAPL in soils polluted by petroleum hydrocarbons in the groundwater runoff zone.**

Elhadji Malick Niang

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

Q&A 1 09:35 – 10:35 - Chairs: Marco Dentz, Branko Bijeljic

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

Joseph Piotrowski; Johan Alexander (Sander) Huisman; Andreas Pohlmeier; Uri Nachshon; Harry Vereecken

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

Kaishuo Yang; Ming Li; Nicholas N. A. Ling; Eric F. May; Paul R. J. Connolly; Lionel Esteban; Michael B. Clennell; Mohamed Mahmoud; Ammar El-Hussein; Abdulrauf R. Adebayo; Mahmoud Mohamed Elsayed; Michael L. Johns

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

Mónica Basilio Hazas; Francesca Ziliotto; Massimo Rolle; Gabriele Chiogna

[647] **Multi-Scale Benchmarking of a Coupled Geochemical Transport Solver.**

Saideep Pavuluri; Christophe Tournassat; Francis Claret; Cyprien Soulaire

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

Xusheng Chen; Ran Hu; Yang Zhibing; Chen Yi-Feng

[874] **Turbulent mixing in the hyporheic zone.**

Elisa Baioni; Giovanni Michele Porta; Mohaddeseh Mousavi Nezhad; Alberto Guadagnini

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

Matthijs de Winter; Kilian Weishaupt; Stefan Scheller; Stefan Frey; Amir Raoof; S. Majid Hassanizadeh; Rainer Helmig

[763] **A novel upscaling procedure for characterising heterogeneous shale porosity from nm- to mm-scale in 3D and 4D images.**

Lin Ma; Patrick Dowe; Ernest Rutter; Kevin Taylor; Peter Lee

Question and answer: Parallel sessions 3 (cont.)

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

Q&A 2 10:40 – 11:40 - 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 Hinze; 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; Ran Hu; Zhibing Yang; Yifeng Chen

[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

[341] Plume deformation, mixing and reaction kinetics in 3-D heterogeneous anisotropic porous media.

Yu Ye; Gabriele Chiogna; Chunhui Lu; Massimo Rolle

[484] Radionuclide transport and retention at the core scale identified by GeoPET analysis and reactive transport modeling.s

Tao Yuan; Johannes Kulenkampff; Till Bollermann; Cornelius Fischer

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

Q&A 3 15:00 – 15:55 - Chairs: Hossein Hejazi, Amir Raoof

[1012] Numerical simulation of convective mixing in geologic carbon sequestration applications.

Anna-Maria Eckel; Ronny Pini

[1304] Chemical Component Transport in Heterogeneous Porous Medium during Low Salinity Water Flooding.

Hasan Al-Idadi; Karl D. Stephen; Eric Mackay

[521] Fractal analysis of shape factor for matrix-fracture transfer function in fractured reservoirs.

Lan Mei; Jianchao Cai; Qingbang Meng; Qiuying Sun; Shuang Li

[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.

Federico Municchi; Matteo Icardi; Federico Municchi

Question and answer: Parallel sessions 3 (cont.)

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

Q&A 3 15:00 – 15:55 - Chairs: Hossein Hejazi, Amir Raoof

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

Stephan de Hoop; Denis Voskov; Giovanni Bertotti

[160] The topological origin of anomalous transport: Persistence of β in the face of varying correlation length.

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(MS 11) Microfluidics in porous systems– Part 1

Q&A 4 16:00 – 16:55 - 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; William Rossen; Karl-Heinz Wolf

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

Antonia Sugar; Serag F. Maged; Victor A. Torrealba; Ulrich Buttner; Satoshi Habuchi; Hussein Hoteit

[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; Yun Li

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

Mohammad Salehpour; Zahra Sakhaei; Hassan Mahani; Masoud Riazi;

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

Yimin Zhang; Chengyan Lin; Lihua Ren; Yuqi Wu

[403] Fabrication of “sandwich-like” microfluidic chips by ceramic 3D printing for flow visualization experiments.

Shidong Li; Sibani Lisa Biswal; Ole Torsæter; Hon Chung Lau; Ludger Paul Stubbs

[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

Question and answer: Parallel sessions 3 (cont.)

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

Q&A 5 18:45 – 19:40 - Chairs: Amir Raoof, Hossein Hejazi

[1148] Numerical Studies on Reactive Flow in Porous Media: An Example of Carbonate Matrix Acidizing.

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; John Molson; Najat Bhiri

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

Martin Lesueur; Thomas Poulet; Manolis Veveakis

[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; K. S. Bharath; M. R. Flynn

[1202] Buoyant convection in porous media: Multiple layers separated by an inclined permeability jump.

K. S. Bharath; Morris Flynn

(MS 11) Microfluidics in porous systems– Part 2

Q&A 6 19:45 – 20:40 - Chairs: Florian Doster, Yves Méheust

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

Bhaskarjyoti Sarma; AMARESH DALAL; DIPANKAR NARAYAN BASU

[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; Stian Almenningen; Nicolas von Solms; Geir Ersland

[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

Question and answer: Parallel sessions 3 (cont.)

(MS 11) Microfluidics in porous systems– Part 2 (cont.)

Q&A 6 19:45 – 20:40 - Chairs: Florian Doster, Yves Méheust

[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

Timing of Q&A sessions on Tuesday				
Time Block (CET)	Q&A No.	Parallel sessions 1	Parallel sessions 2	Parallel sessions 3
A (10:05 – 11:00)	Q&A 7	MS1, part1	MS13, part1	MS17, part1
A (11:05 – 12:00)	Q&A 8	MS1, part2	MS13, part2	MS6-A, part2
B (14:35 – 15:30)	Q&A 9	MS1, part3	MS13, part3	MS14, part1
B (15:35 – 16:30)	Q&A 10	MS1, part4	MS13, part4	MS18, part1
C (18:00 – 18:55)	Q&A 11	MS1, part5	MS13, part5	MS18, part2
C (19:00 – 19:55)	Q&A 12	MS1, part6	MS4	MS17, part2
C (20:00 – 20:55)	Q&A 13	MS6-A, part3	MS23, part1	MS14, part2

Question and answer: Parallel sessions 1

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

Q&A 7 10:05 – 11:00 - *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; Weon Shik Han; Kue-young Kim Kim; Jize Piao

[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; Hongkui Ge; Yinghao Shen; Qinhong Hu

[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

Question and answer: Parallel sessions 1 (cont.)

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

Q&A 8 11:05 – 12:00 - *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; Malin Haugen; Benyamine Benali; Martin A Fernø

[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; Sam Krevor; Samuel Jackson; Ann Muggeridge; Alistair Jones

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

Beatrix Becker; Bernd Flemisch; Rainer Helmig; Bo Guo; Karl Bandilla; Mike Celia

[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 14:35 – 15:30 - *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

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

Q&A 9 14:35 – 15:30 - Chairs: Rainer Helmig, Sebastian Geiger

[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

[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; Qingyang Lin; Alessio Scanziani; Branko Bijeljic; Martin Blunt

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

Q&A 10 15:35 – 16:30 - Chairs: Rainer Helmig, Sebastian Geiger

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

Amir Jahanbakhsh; Jonaid Hasan Bajwa; Nazia Mubeen Farooqui; M. Mercedes Maroto-Valer; Mojgan Hadi Mosleh; Harshit Agrawal; Anna Korre; Sevet Durucan

[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; Patrice Meunier; Yves Méheust; François Nadal;

[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; Yuliang Su; Lei Li; Mingyu Cai; Zheng Chen; Chengwei Wang; Xiaogang Gao

[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; Hui Sheng; Sami Ur Rehman; Atif Zafar; Muhammad Ilyas; Asif Mehmood

Question and answer: Parallel sessions 1 (cont.)

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

Q&A 11 18:00 – 18:55 - Chairs: Bo Guo, Sarah Gasda

[1226] **Assessment of Geochemical Reactions in Porous Formation Compressed Energy Storage Systems.**

Chidera Iloejesi; Lauren Beckingham

[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; QinHong Hu; Binyu Ma; Tao Zhang; Mianmo Meng; Shengyu Yang; Xiugang Pu; Wenzhong Han

[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 19:00 – 19:55 - 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

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

Q&A 12 19:00 – 19:55 - Chairs: Bo Guo, Sarah Gasda

[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

[373] Utilization of microporous materials as multi-functional proppant for enhanced shale gas and recovery and CO₂ sequestration.

Odd Andersen

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

Q&A 13 20:00 – 20:55 - Chairs: Saman Aryana, Majid Hassanizadeh

[972] Impact of pair interactions on frictional fluid dynamics

Louison Thorens; Knut Jorgen Maloy; Mickaël Bourgoïn; 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

[846] Benchmarking root and soil interaction models exemplified with CRootBox and Dumux.

Daniel Leitner; Andrea Schnepf

[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

[602] Study on Fluid Extraction Considering Reservoir Microstructure.

Zhou Fang

[1105] Liquid-gas penetration through the complex three-dimensional porous media.

Yu Shi; Xiao-na Yang

(MS 13) Fluids in Nanoporous Media – Part 1

Q&A 7 10:05 – 11:00 - 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. Cench; 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 11:05 – 12:00 - 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**

Jie Liu

[1285] **Extension and Limits of Cryoscopy for Nanoconfined Solutions**

Benjamin Malfait; Alban Pouessel; Aicha Jani; Denis Morineau

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

Q&A 8 11:05 – 12:00 - 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 14:35 – 15:30 - 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 Enniful; 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. Enniful; Daniel Schneider ; Antonia Hoppe; Dirk Enke; Rustem Valiullin

[457] **Physically-based combined model for water retention of cementitious materials**

Wala 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 15:35 – 16:30 - 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 18:00 – 18:55 - 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 18:00 – 18:55 - 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 19:00 – 19:55 - 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 Perez; 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] **Poroelectric effects of CO₂ adsorption capacity in coal seams under subsurface boundary conditions.**

Yuxun Zhu

Question and answer: Parallel sessions 2 (cont.)

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

Q&A 13 20:00 – 20:55 - 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

Q&A 7 10:05 – 11:00 - 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

Benoît 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

[311] Joint influence of in-situ stress and fracture network geometry on heat transfer in fractured geothermal reservoirs.

Xiaoguang Wang; Chuanyin Jiang; Qinghua Lei; Zhixue Sun

[61] Dynamic of ice lens formation in frozen soil.

Signe Kjelstrup; Seyed Ali Ghoreishian Amiri; Hao Gao; Gustav Grimstad; Benoit Loranger

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

Q&A 8 11:05 – 12:00 - 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

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 11:05 – 12:00 - Chairs: Ryan Armstrong, Nima Shokri

[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

[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

Faez 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 14:35 – 15:30 - 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

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 15:35 – 16:30 - *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; Christos Tsakiroglou

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

Mihalis Karavasilis; Christos Tsakiroglou

[1313] **Numerical predictive modelling for groundwater remediation using nanotechnology**

Daphne Silva Pino; Tannaz Pak; Alexander Wood; Masoud Babaei; Reginaldo Bertolo

[656] **Evaluation and comparison of various numerical porosimetry methods: Yield Stress fluids Method, Mercury Intrusion Porosimetry and pore Network Modelling approaches.**

Antonio Rodríguez de Castro; Mehrez Agnaou; Azita Ahmadi; Abdelaziz Omari

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

Q&A 11 18:00 – 18:55 - *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**

D'Angelo 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

Question and answer: Parallel sessions 3 (cont.)

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

Q&A 12 19:00 – 19:55 - 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

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

Q&A 13 20:00 – 20:55 - 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 (cont.)

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

Q&A 13 20:00 – 20:55 - 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

Timing of Q&A sessions on Wednesday				
Time Block (CET)	Q&A No.	Parallel sessions 1	Parallel sessions 2	Parallel sessions 3
A (09:35 – 10:30)	Q&A 14	MS6-A, part 4	MS2	MS12, part 1
A (10:35 – 11:30)	Q&A 15	MS6-A, part 5	MS15, part 1	MS10, part 1
B (14:35 – 15:30)	Q&A 16	MS6-A, part 6	MS5	MS10, part 2
B (15:35 – 16:30)	Q&A 17	MS6-A, part 7	MS15, part 2	MS23, part 2
C (19:05 – 20:00)	Q&A 18	MS9, part 1	MS6-B, part 1	MS12, part 2
C (20:05 – 21:00)	Q&A 19	MS9, part 2	MS15, part 3	MS10, part 3

Question and answer: Parallel sessions 1

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

Q&A 14 09:35 – 10:30 - Chairs: Ryan Armstrong, Tannaz Pak

[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

[199] **Study on micro seepage model of nanopore in shale gas reservoir considering diffusion and slippage effect.**

Lijuan Jiang; Hongguang Sun

[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 Bonniieu; Siavash Kahrobaei; Steffen Berg; Matthias Appel; Sian Jones

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 10:35 – 11:30 - 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 Martoia; 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

[1245] **Modeling the effect of microscale heterogeneities on soil bacterial dynamics and the impact on soil functions.**

Simon Zech; Alexander Prechtel; Nadja Ray

[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 14:35 – 15:30 - Chairs: Yaniv Edery, Tannaz Pak

[976] **Simulation of relative permeability saturation functions by a modified morphological approach including sub-resolution wetting films.**

Pit Arnold; Holger Ott

[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

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 14:35 – 15:30 - Chairs: Yaniv Edery, Tannaz Pak

[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

[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 15:35 – 16:30 - 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

[1175] Investigating the effect of SiO₂ nano particles on interfacial tension as EOR indicator.

Ali Alsaffar

[1341] Asymptotic analysis of immiscible two-phase flow with moving contact line in a thin strip.

Carina Bringedal; Stephan Lunowa; Iuliu Sorin Pop

Question and answer: Parallel sessions 1 (cont.)

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

Q&A 18 19:05 – 20:00 - **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

[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 20:05 – 21:00 - **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

Question and answer: Parallel sessions 1 (cont.)

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

Q&A 19 20:05 – 21:00 - 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; Qijun 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

Question and answer: Parallel sessions 2

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

Q&A 14 09:35 – 10:30 - Chairs: Joquain Jimenez-Martinez, Jan Vanderborgh, Jun Yin

[960] **Structured Mini-Dunes (SMDs) as Self-Irrigation Units: A Lesson from the Sand Dunes of Arid Regions.**

Afrak 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; Weian Huang; Yu Fan; Bo Zeng; Haoyong Huang

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

Q&A 15 10:35 – 11:30 - 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

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

Q&A 15 10:35 – 11:30 - 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 14:35 – 15:30 - Chairs: Anozie Ebigbo, Secchi 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

Question and answer: Parallel sessions 2 (cont.)

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

Q&A 17 15:35 – 16:30 - 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

[1215] **Shale gas productivity prediction and parameter optimization based on machine learning.**

Lu Qiao; Shuangfang Lu; Huijun Wang; Zheng Fu; Taohua He

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

Q&A 18 19:05 – 20:00 - Chairs: Pacelli Zitha, 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

Question and answer: Parallel sessions 2 (cont.)

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

Q&A 18 19:05 – 20:00 - Chairs: Yashar Mehmani

[44] Mechanistic Modelling and Laboratory Evaluation of Immiscible Water-Alternating-Gas Injection and Foam-Assisted Chemical Flooding.

Fabian Torres Mendez; Martijn Janssen

[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 20:05 – 21:00 - 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

Question and answer: Parallel sessions 3

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

Q&A 14 09:35 – 10:30 - 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 10:35 – 11:30 - 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 Quantitatively Evaluation of Micro Residual Oil after Polymer Flooding based on CT Scanning.

Liu Tao

Question and answer: Parallel sessions 3 (cont.)

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

Q&A 16 14:35 – 15:30 - Chairs: Sadaf Sobhani, Andreas Busch

[759] **Multi-scale 3D/4D imaging of the pore network in shales and its evolution under subsurface conditions.**

Lin Ma; Kevin Taylor; Patrick Dowe; 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 15:35 – 16:30 - 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 15:35 – 16:30 - 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 19:05 – 20:00 - 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; Thomas Nagel and Olaf Kolditz

[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 20:05 – 21:00 - 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

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 20:05 – 21:00 - 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

Timing of Q&A sessions on Thursday				
Time Block (CET)	Q&A No.	Parallel sessions 1	Parallel sessions 2	Parallel sessions 3
A (09:00 – 09:55)	Q&A 20	MS9, part 3	MS6-B, part 2	MS10, part 4
A (10:00 – 10:55)	Q&A 21	MS9, part 4	MS20	
A (11:00 – 11:55)	Q&A 22	MS9, part 5		MS19, part 1
B (14:00 – 14:55)	Q&A 23	MS9, part 6	MS21 & MS16	MS19, part 2
B (15:00 – 15:55)	Q&A 24	MS9, part 7	MS6-B, part 3	MS22
B (16:00 – 16:55)	Q&A 25	MS9, part 8		

Question and answer: Parallel sessions 1

(MS 9) Pore-scale modelling – Part 3

Q&A 20 09:00 – 09:55 - 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 Borisochov; 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 10:00 – 10:55 - 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

[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 11:00 – 11:55- 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

(MS 9) Pore-scale modelling – Part 5 (cont.)

Q&A 22 11:00 – 11:55- Chairs: *Martin Blunt, Stephane Zaleski*

[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

(MS 9) Pore-scale modelling – Part 6

Q&A 23 14:00 – 14:55 - 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

Question and answer: Parallel sessions 1 (cont.)

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

Q&A 24 15:00 – 15:55 - 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

[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 Bourgoïn; 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 16:00 – 16:55 - 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; Masayuki Kaneda; Kazuhiko Suga

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

Tianhao Wu; Abbas Firoozabadi

[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; Yu Zhang; Jianchun Guo; Qiang Zhang; Wenxi Ren; Jianhua Xiang

[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; Qihong Feng; Sen Wang; Jiawei Ren

Question and answer: Parallel sessions 1 (cont.)

(MS 9) Pore-scale modelling – Part 8 (cont.)

Q&A 25 16:00 – 16:55 - Chairs: Martin Blunt, James McClure

[1241] Review and Comparison of Numerical Strategies to Estimate the Full Permeability Tensor of Anisotropic Materials From Micro-Tomography Images.
Hermes Scandelli; Jean Lachaud; Azita Ahmadi

Question and answer: Parallel sessions 2

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

Q&A 20 09:00 – 09:55 - 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; Binfei Li; Zhaomin Li; Haifeng Li

[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

Question and answer: Parallel sessions 2 (cont.)

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

Q&A 21 10:00 – 10:55 - 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

[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; João R. Alves; Evandro D. Gaio; Rafael AB de Queiroz

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

Q&A 23 14:00 – 14:55 - 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; Liyun Fu; Qiang Liu; Lijie Cui

[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 14:00 – 14:55 - 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

Question and answer: Parallel sessions 2 (cont.)

(MS 16) Fluid Interactions with Thin Porous Media (cont.)

Q&A 23 14:00 – 14:55 - Chairs: Majid Hassanizadeh, Oleg Iliev

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

Ye Wang; Yilin Lin; Guang Yang; Jingyi Wu

[23] Occurrence of temperature spikes at a wetting front during spontaneous imbibition.

Hamed Aslannejad; S. S. Majid Hassanizadeh; Alex Terzis; Bernhard Weigand

[821] Multiscale study of natural gas components behavior under nanoconfinement.

Vitor Sermoud; Gabriel Barbosa; Amaro Barreto Jr.; Frederico Tavares; Iuri Segtovich; Jessica Maciel

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

Q&A 24 15:00 – 15:55 - Chairs: Grigori Chapiro, Hai Sun

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

Lifei Yan; Hamed Aslannejad; S. Majid Hassanizadeh; Amir Raoof

[571] Interfacial Viscoelasticity in Crude Oil-water Systems.

Ahmed M. Saad; Stefano Aime; Sharath Mahavadi; Y-Qiao Song; Maxim Yutkin; Tadeusz Patzek; David A. Weitz

[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; William Rossen; Karl-Heinz Wolf

[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; Yun Li

[317] Novel Method for Improving Injectivity of Polymer solution in Porous Media.

Mohsen Mirzaie Yegane; Julia Schmidt; Fatima Dugonjic-Bilic; Benjamin Gerlach; Pacelli Zitha

[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

Question and answer: Parallel sessions 3

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

Q&A 20 09:00 – 09:55 - 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; Jianchao Cai; Sai Xu; Haitao Tian; Yang Liu

[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 11:00 – 11:55- 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

[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

Question and answer: Parallel sessions 3 (cont.)

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

Q&A 23 14:00 – 14:55 - 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; Li Chen; Kang Qinjun; WenQuan Tao

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

Q&A 24 15:00 – 15:55 - 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; Xiaowei Li; Changhang Xu; Yue Niu

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

Hamid Rajabi; Mojgan Hadi Mosleh; Amanda Lea-Langton; Parthasarathi Mandal

[1016] Measuring and Modelling Supercritical Adsorption in Shales.

Humera Ansari; Martin Trusler; Geoffrey Maitland; Claudio Delle Piane; Ronny Pini

[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

Question and answer: Parallel sessions 3 (cont.)

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

Q&A 24 15:00 – 15:55 - Chairs: Huijin Xu, Satoru Kato

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

Atsushi Tanaka; Naoto Miyoshi; Akemi Sato

[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
