Timing of Q&A sessions on Monday

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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; Xuwei 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*
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**Question and answer: Parallel sessions 1 (cont.)**

**Q&A 2 10:40 – 11:40 - Chairs: Holger Steeb, Hamid Nick, Benoit Noetinger**

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<td>Combined effects of network topology, hydraulic conditions and in-situ stress variations on solute propagation in natural fracture networks</td>
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<td>The hydraulic conductivity of shaped fractures with permeable walls</td>
<td>Daihui Lu; Federico Municchi; Ivan Christov</td>
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<td>A systematic investigation of the intrinsic flow properties of fractures using a combined 3D printing and micro-computed tomography approach</td>
<td>Tomos Phillips; Tom Bultreys; Arjen Mascini; Nathaniel Forbes Inskip; Sabine den Hartog; Niko Kampman; Kevin Bisdom; Veerle Cnudde; Andreas Busch</td>
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<td>Identification of Fracture Properties in Shale Oil Reservoirs by a Well Testing Model with “Fracturing-shutting” : A Case Study</td>
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<td>A multilayer model for reactive flow in fractured porous media</td>
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**Q&A 3 15:00 – 15:55 - Chairs: Holger Steeb, Hamid Nick, Benoit Noetinger**

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<td>Adaptive Virtual Element Method for simulations of flow in fractured media</td>
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<td>Denis Spiridonov; Maria Vasilyeva; Eric T. Chung; Yalchin Efendiev</td>
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<td>Implicit multiscale modelling for stress-dependent permeability in a poroelastic dual-continuum setting</td>
<td>Mark Ashworth; Florian Doster; Christine Maier</td>
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<td>683</td>
<td>The impact of fracture surface roughness on stress dependent permeability</td>
<td>Amanzhol Kubeyev; Christine Maier; Niko Kampman; Kevin Bisdom; Rafael March Castaneda Neto; Florian Doster</td>
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<td>Topological analysis of 3D Discrete Fracture Networks: a graph approach to connectivity and percolation in fractured rocks</td>
<td>Tawfik Rajeh; Israel Canamon; Rachid Ababou; Manuel Marcoux</td>
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<td>Measuring the deformation of porous media in response to hydraulic pressure</td>
<td>Martin Stolar; yaniv edery; Tajudeen M. Iwalewa; James R. Rice</td>
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(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

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 Inskipp; Tomos Phillips; Kevin Bisdom; Georgy Borisochev; Andreas Busch; Sabine den Hartog

[1032] Experimental study of contaminant transport in coupled fracture-porous medium systems  
Monika S. Walczak; Hamidreza Erfani Gahrooei; Nikolaos Karadimitriou; Ioannis Zarikos; S. Majid Hassanzadeh; 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
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Question and answer: Parallel sessions 1 (cont.)

(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**

1. [198] A three-field approach for flow simulations in networks of fractures on non conforming meshes
   Stefano Berrone; Sandra Pieraccini; Stefano Scialò; Denise Grappein

2. [667] Extended finite element analysis of a coupled fracture-reservoir model
   Elisa Bergkamp

   Mousa HosseiniMehr; Cornelis Vuik; Hadi Hajibeygi

4. [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

5. [232] Fluid flow through anisotropic and deformable double porosity media with ultra-low matrix permeability: An efficient continuum framework
   Qi Zhang; Ronaldo Borja

6. [165] Fracture-matrix interactions implicated by matrix pore connectivity: From waste repository to shale hydrocarbon production
   Qinhong Hu

7. [278] Numerical Simulation of Fault Slip in Shale Gas Reservoirs Based on Discrete Fracture Network Model
   Hao Liu; Zhaoqin Huang; Qinghua Lei

8. [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**

1. [71] Investigations of pore connectivities and permeabilities of fractured vuggy carbonates based on digital rock techniques
   Weichao Yan; Sun Jianmeng

2. [630] Experimental Study on Two-phase Miscible Displacement Pattern of Porous Media
   Wei Guo; Ran Hu

   Xiankun SONG; Jianzhong WANG

4. [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

5. [196] Impact of fracture sealing on the percolation state of orthogonal fracture networks
   Weiwei Zhu; Siarhei Khirevich; TADEUSZ PATZEK
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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**


**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**


**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 Abushaikha**

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

**Luat Khoa Tran; Stephan Matthai**
(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 Soulaine; 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

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
Alekssei Tyryglin; Maria Vasilyeva; Eric T. Chung; Yalchin Efendiev

[439] MULTISCALE PORE NETWORK INTEGRATION USING THE POREFLOW SOFTWARE
Elizabeth May Pontedeiro; William Godoy; Marianna Dantas; Fernanda Hoerle; 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

Martin Schneider; Edward Coltman; Kilian Weishaupt; Rainer Helmig

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

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

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

(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

Shuyu Sun; Huangxin Chen

Stephan Gärttner; Peter Frolkovic; Peter Knabner; Nadja Ray

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

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

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

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

[33] Multi-scale iterative scheme for a phase-field model for reactive transport problems
Manuela Bastidas; Carina Bringdal Iuliu; Sorin Pop
### (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 |
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| [1144] Proactive Optimization of CO2 Sequestration under Geomechanical Constraints  
Mohammad Salehian; Aliakbar Hassanpouryouzband |
| [585] Computational Multiscale Methods for Linear Poroelasticity using CEM-GMsFEM  
Eric Chung; Sai-Mang Pun; Shubin Fu; Robert Altmann; Roland Maier; Daniel Peterseim |
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 Cochennec; Hossein Davarzani; Yohan Davit; Stéfan Colombano; Ioannis Ignatiadis; Michel Quintard |
| [987] LBM simulations of graded Gas Diffusion Layer for PEMFC applications  
Graham Danny KOYERATH; Yann Favennec; Christophe Josset; Bruno Auvity |
| [1265] Assessment of end-effects during two-phase flow in micro-fluidic model pore networks – is it possible?  
Marios Valavanides; Nikolaos Karadimitriou; Holger Steeb |
| [1255] In-situ Capillary Pressure Measurements for Gaining Insight into Foam Flow in Porous Media  
Eric Vavra; Maura Puerto; George Hirasaki; Sibani Lisa Biswal |
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Question and answer: Parallel sessions 3

(AS 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**

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(AS 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**

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<td><strong>Matthijs de Winter; Kilian Weishaupt; Stefan Scheller; Stefan Frey; Amir Raoof; S. Majid Hassanizadeh; Rainer Helmig</strong></td>
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Question and answer: Parallel sessions 3 (cont.)

(增添8) 混合，弥散和反应过程的尺度 — 第二部分

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

Christian Hinz; Jens-Oliver Schwarz; Andreas Weber; Andreas Wiegmann

Sam Ana Aryana; Yu Hang 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

(增添8) 混合，弥散和反应过程的尺度 — 第三部分

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-Ibadi; Karl D. Stephen; Eric Mackay

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.
Xiaxiu 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
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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 $\beta$ 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

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

  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

  Saheb Mohammadi; Hassan Mahani; Shahab Ayatollah; Vahid J Niasar

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

  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

  Madiha Khadhraoui; John Molson; Najat Bhiry

  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; Amarendra Dalal; Dipankar Narayan Basu

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

  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

  William Johnson

  Jiwei Wu; Thomas Cochard; Lizhi Xiao; David A. Weitz
Microfluidics in porous systems – Part 2 (cont.)

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

Rumbidzai, A. E Nhunduru

Afsjin Davarpanah; Holstvoogd Jorijn; Simon Cox; William Rossen
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### 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*

  *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*

  *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*
### 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*

  *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*

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

  *Jeroen Snippe; Niko Kampman; Kevin Bisdom; Tim Tambach; Rafael March; Tomos Phillips; Nathaniel Forbes Inskip; Florian Doster; Andreas Busch*

  *Ke Xu; Yashar Mehmani*

  *Mohammad Masoudi; Saeed Parvin; Rohaldin Mir; 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.)

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[983] Low Salinity Water-flooding in Chalk Core Samples from a Danish North Sea Reservoir.
Rasoul Mokhtari; Beniaiah 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

mindyue 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

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[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 Shahrkoshi; 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

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<td>Chidera Iloejesi; Lauren Beckingham</td>
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<td>Redistribution of residurally trapped CO2 by Ostwald ripening due to capillary heterogeneity.</td>
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<td>Parametric study on the residual CO2 trapping in Deccan Volcanic Basalt.</td>
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<td>Tissa Illangasekare; Ahmad Askar; Jakub Solovský; Radek Fucik; Ye Zhang; Jiangyin Jiao; Andrew Trautz</td>
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<td>[1142] An experimental study on the impacts of gas pressure on carbon isotope fractionation during methane desorption in shale rock</td>
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<td>[1105] Liquid-gas penetration through the complex three-dimensional porous media.</td>
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### (MS 13) Fluids in Nanoporous Media – Part 1

**Q&A 7** 10:05 – 11:00 - **Chairs:** Gennady Gor, Patrick Huber

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2. [646] Nondestructive high-throughput screening of nanopore geometry in porous membranes by imbibition: Laser-Interferometry and Dilatometry Experiments  
   Juan Sanchez Calzado; Zhuoqing Li; Luisa G. Cencha; Michael Kappl; Floudas George; Claudio L.A. Berli; Steinhart Martin; Michael Fröba; Raul Urteaga; Patrick Huber

3. [334] Distribution of oil in shale formations and its effects on kerogen nano-structural properties  
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4. [250] Adsorption Evaluations of Shale Gas in Nanometer Pores Based on Molecular Simulation Method  
   Sun Renyuan; Sun Ying; Tang Guiyun; Gong Dajian; Cao Haipeng

5. [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

6. [528] Fractal analysis of real gas transport in 3D shale matrix  
   Zhenhua Tian

7. [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

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1. [1157] Evaporation and condensation of water in nanopores with salt  
   Olivier Vincent; Piyush Jain; Marine Poizat; Léo Martin; Abraham Stroock

2. [779] Viscosity of hydrocarbons in slit pores by molecular dynamics  
   Vasily Pisarev

3. [596] Study on the distribution of micro remaining oil in different sedimentary microfacies by using glass etching displacement experiments  
   Xianbo Luo

4. [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

5. [559] Adsorption and Flow Behaviors of Shale Oil in Organic Slit by Molecular Simulation  
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6. [1285] Extension and Limits of Cryoscopy for Nanoconfined Solutions  
   Benjamin Malfait; Alban Pouessel; Aicha Jani; Denis Morineau
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(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

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
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[164] Nanopore Connectivity and Fluid Migration in Shales
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[1188] CO2-Regulated Octane Flow in Calcite Nanopores from Molecular Perspectives
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**Q&A 11 18:00 – 18:55 - Chairs: Gennady Gor, Patrick Huber**

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<th>[997] Wetting dynamics of nanoliter water droplets in nanoporous media</th>
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<th>[103] Impact of solvent extraction on the petrophysical analysis of lacustrine shale</th>
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### (MS 4) Swelling and shrinking porous media

**Q&A 12 19:00 – 19:55 - Chairs: Jacques Huyghe, Sridhar Ranganathan, Muhammad Sahimi**

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<th>[1206] Swelling properties in reinforced polymeric ion-exchange membranes.</th>
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<th>[812] Volumetric response of crushed dunite during carbonation reaction under controlled $\sigma$-P-T conditions.</th>
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<th>[1062] Extremely large deformation and fracture of hydrogels.</th>
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<td><strong>Jacques Huyghe; Eanna Fennell</strong></td>
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<th>[335] Deformation of kerogen and its effects on oil flow in shale.</th>
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<td><strong>Xinyi Zhao; Qian Sang; Yajun Li; Houjian Gong; Mingzhe Dong</strong></td>
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<td><strong>Yuntian Teng</strong></td>
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<th>[323] Modelling the drying shrinkage of porous materials incorporating capillary and adsorption effects.</th>
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<td><strong>GINGER EL TABBAL; Patrick Dangla; Matthieu V Vandamme; Marina Bottoni; Sylvie Granet</strong></td>
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<td><strong>Jean Lachaud; Michael Meyer; Cyrille Metayer; Marin Virey; Wahbi Jomaa; Jérémy Meurisse</strong></td>
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<tr>
<th>[867] Poroelastic effects of CO2 adsorption capacity in coal seams under subsurface boundary conditions.</th>
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<td><strong>Yuxun Zhu</strong></td>
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**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**

| *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* |

| *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
Benoit Rousseau; Jerome Vicente; Afeef Badri; Yann Favennec

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

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

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

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

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

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
Faeez Ahmad; Rahimi Arman; Evangelos Tsotsas; Marc Prat; Abdolreza Kharaghani; Amy Spang

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

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

Q&A 9 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

Tao Zhang

Zelong Wang

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

Yahong Xiang; Xianbing Luo

Bailian Chen; Dylan Harp; Rajesh Pawar

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
(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

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
### Q&A 12 19:00 – 19:55 - Chairs: Bernhard Krooss, Yingfang Zhou

1. Forced convection with viscous dissipation in a power-law fluid saturated porous medium using a two-equation model
   - **Xingwang Tian**

2. Experimental Study on the Performance of a Hybrid Evaporator Wick with Bionic Topological Substrate
   - **Xin Cheng**

   - **Sarah van Rooij**

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

5. 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 Marcou; Michel Quintard**

6. 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**

7. 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

1. Dealing with Model Uncertainty and Deficiencies in Thermal Breakthrough Models.
   - **Elvar K. Bjarkason; Anna Suzuki**

2. Local and global sensitivity analysis of THM consolidation around a point heat source.
   - **Aqeel Afzal Chaudhry**

3. A novel molecular communication paradigm for porous media applications.
   - **Matteo Icardi; John Couch**
**Q&A 13 20:00 – 20:55 - Chairs: Shuyu Sun, Morris Flynn**

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<th>Topic</th>
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<tr>
<td>Quality assessment and parameter estimation of post-laminar flow models.</td>
<td>Mohaddeseh Mousavi Nezhad; Alberto Guadagnini</td>
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<td>Quantifying uncertainty using Monte Carlo method in methane hydrate reservoir simulations.</td>
<td>Neelam Choudhary; Jyoti Phirani</td>
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<td>Application of Discrete Fracture Network Modeling using Sequential Gaussian Simulation.</td>
<td>Timur Merembayev; Yerlan Amanbek; Sanjay Srinivasan</td>
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<td>Evaluating influence factors on phase equilibria calculation of CO2/H2O mixture using the CPA equation of state.</td>
<td>Yiteng Li; Tao Zhang; Shuyu Sun</td>
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<tr>
<td>Reduced-Physics Multilevel Monte Carlo Methods for Uncertainty Quantification in Complex Reservoirs.</td>
<td>Øystein Klemetsdal; Stein Krogstad; Knut-Andreas Lie</td>
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</table>
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*

*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 Bonnieu; Siavash Kahrobaei; Steffen Berg; Matthias Appel; Sian Jones*
### (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**

1. **[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*

2. **[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*

3. **[1299] Insights on transition from capillary toward viscous flow in porous media**  
   *Mahdi Mansouri-Boroujeni*

4. **[1245] Modeling the effect of microscale heterogeneities on soil bacterial dynamics and the impact on soil functions.**  
   *Simon Zech; Alexander Prechtel; Nadja Ray*

5. **[572] Control of immiscible displacement patterns in disordered porous media**  
   *Xinlei Qi; Zhengyuan Luo; Bofeng Bai*

6. **[628] Pore Scale Mechanisms of Chemical Injection into Heterogeneous Micromodel**  
   *Dongqing Cao; Ming Han; Jinxun Wang; Abdulkareem AlSofi*

7. **[300] Experimental study of CO2/CH4 diffusion coefficient in oil-saturated cores under reservoir conditions**  
   *Zerong Li; Yi Zhang*

8. **[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**

1. **[976] Simulation of relative permeability saturation functions by a modified morphological approach including sub-resolution wetting films.**  
   *Pit Arnold; Holger Ott*

2. **[122] Pore-scale imaging of multiphase flow in porous media: wettability, minimal surfaces, displacement efficiency**  
   *Qingyang Lin*

3. **[214] Effect of Wetting Transition during Multiphase Displacement in Porous Media**  
   *Zhongzheng Wang; Jean-Michel Pereira; Yixiang Gan*

4. **[1159] Real-time imaging reveals distinct pore scale dynamics during transient and equilibrium subsurface multiphase flow**  
   *Catherine Spurin*
WEDNESDAY, 2 SEPTEMBER 2020

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
Q&A 18 19:05 – 20:00 - Chairs: Martin Blunt, James McClure

[Q1258] Improving physics of residual trapping of CO2 in pore-network flow models using direct numerical simulation.
Amir Kohanpur; Albert Valocchi

[Q1254] Pore-network modeling of mineral dissolution and reactive transport in porous media.
Barbara Esteves; Paulo L.C. Lage; Paulo Couto; Anthony Kovscek

[Q274] 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

[Q1234] Scale-effect in the simulation of two-phase flow in porous media
Brandon Yokeley

[Q765] Lattice Boltzmann Modeling of the Apparent Viscosity of Thinning-Elastic Fluids in Porous Media
Chiyu Xie; Matthew Balhoff

[Q413] An analysis model for hydraulic fracturing liquid imbibition into shale matrix: coupling molecular interactions and dynamic contact angle
Han Wang; Yuliang Su; Wendong Wang

[Q1296] Unfitted boundary method to improve mesh convergence of high-resolution CT-scan permeability
Martin Lesueur

[Q1329] Pore-scale CFD based estimation of permeability decline in porous media due to fines migration
Pramod Bhuvankar; Abdullah Cihan; Jens Birkholzer

Q&A 19 20:05 – 21:00 - Chairs: Martin Blunt, James McClure

[Q1251] A new upscaling method for fluid flow simulation in highly heterogeneous unconventional reservoirs
Qi Zhang; Huibin Yu; Xiaofeng Li; Tiesheng Liu; Junfeng Hu

[Q186] Analysis of capillary imbibition for fluid through confined Nano pores
Fanhui Zeng; Qiang Zhang; Jianchun Guo; Yu Zhang

[Q688] Evaluation of Equivalent Permeability in 3D Vuggy Porous Media using Brinkman Model and Digital Image Analysis
Rafael Cruz

[Q975] Expanding the role of pore-scale models to capture the multi-scale evolution of porous media
Sergi Molins; Hang Deng; David Trebotich; Carl Steefel

[Q1239] Fully-implicit dynamic pore-network modeling of two-phase flow in porous media
Sidian Chen
WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 1 (cont.)

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

Q&A 19 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; Qinjun Kang; Albert Valocchi; Hari Viswanathan

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

[1163] Modeling the droplet occurrence, growth and detachment at the interface between the porous layers in a PEM fuel cell coupling a pore-network model with Stokes flow
Cynthia Michalkowski
WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 2

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

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

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<th>[960]</th>
<th>Structured Mini-Dunes (SMDs) as Self-Irrigation Units: A Lesson from the Sand Dunes of Arid Regions.</th>
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<td>Afrah Al-Shukaili; Ali Al-Maktoumi; Anvar Kacimov</td>
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<td>Ahmed Al-Mayahi</td>
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<td>Amirhossein Hassani; Adisa Azapagic; Nima Shokri</td>
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<th>[83]</th>
<th>Tracing back the source of contamination.</th>
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<td>J. Jaime Gómez-Hernández; Zi Chen; Andrea Zanini</td>
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<td>Monica Granetto; Lucia Re; Carlo Bianco; Aurora Audino; Luca Serpella; Francesco Vidotto; Silvia Fogliatto; Tiziana Tosco</td>
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<th>[964]</th>
<th>Nanoporous carbon scaffolds for membrane filtration and capacitive deionization applications.</th>
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<th>[136]</th>
<th>Hydraulic behaviour of sand-biochar mixtures: Particle size effects on permeability.</th>
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<td>Ziheng Wang; Majid Sedighi; Amanda Lea-Langton</td>
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<th>[208]</th>
<th>The effect of salinity on fecal bacteria transport through porous media.</th>
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<td>Dong Zhang; Valentina Prigiobbe</td>
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<td>Jingwen Wang; Weian Huang; Yu Fan; Bo Zeng; Haoyong Huang</td>
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(MS 15) Machine Learning and Big Data in Porous Media – Part 1

Q&A 15 10:35 – 11:30 - Chairs: Denis Voskov, Kai Zhang

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<th>[236]</th>
<th>Evaluation of machine learning methods for predicting the oil-water relative permeability: a comparison of tuning processes and model performances</th>
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<td>Baosheng Jiang; Zhixue Sun</td>
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<th>[668]</th>
<th>Data-driven models based on flow diagnostic and machine learning techniques</th>
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<td>Manuel Borregales; Stein Krogstad; Knut-Andreas Lie</td>
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<th>[1098]</th>
<th>Predicting Performance of Offshore Oilfield in High Water Cut Period Based on Big Data and Artificial Intelligence</th>
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<td>Cunliang Chen</td>
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(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*


*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

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-Farsi

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

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

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
WEDNESDAY, 2 SEPTEMBER 2020

Question and answer: Parallel sessions 2 (cont.)

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

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

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

**Q&A 14 09:35 – 10:30 - Chairs: Alessio Fumagalli, Jianchao Cai**

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<td>[508]</td>
<td>Multi-scale Extended Finite Element Method For Fractured Geological Formations.</td>
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<td>A generalized finite volume method for density driven flows in porous media.</td>
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<td>The change of reservoir physical properties with formation pressure decreasing and its influence on remaining oil.</td>
<td>Jintao Wu; Yong Hu; Guangming Pan; Jianting Huang; Hao Li</td>
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### (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**

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<td>[732]</td>
<td>Research on Multiscale Microscopic Pore Structure of shale.</td>
<td>Lei Liu</td>
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<td>Distribution and Quantitively Evaluation of Micro Residual Oil after Polymer Flooding based on CT Scanning.</td>
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   *Lin Ma; Kevin Taylor; Patrick Dowey; Michael Chandler; Peter Lee*  

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

3. **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*  

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

5. **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*  

6. **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*  

7. **2D to 3D Transform: Material Properties from 2D Images.**  
   *Juan Pablo Daza; Amos Nur; Tapan Mukerji*  

8. **Comparative Study of Pore Structure Parameters for Various Rock Samples.**  
   *Yixin Zhang; Rouzbeh Ghanbarnejad Moghanloo; Davud Davudov*  

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1. **Component transport at the soil – atmosphere interface.**  
   *Lisa Bahlmann; Insa Neuwheier*  

   *Peter Knabner*  

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

4. **Robust and efficient solvers for flow in deformable porous media.**  
   *Florin Adrian Radu*
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(MS 23) Special Session for Professor Rainer Helmig – Part 2 (cont.)

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[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*

*Ning Zhang; Cijia Wang; Thomas Nagel*

[1232] A deformation-dependent permeability model for polycrystalline rocks.
*Florian Zill; Thomas Nagel and Olaf Kolditz*

*Paiman Shafabakhsh; Marwan Fahs; Renaud Toussaint*

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(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

*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*
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(AM 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 Borisochev; Andreas Busch; Jingsheng Ma; Lin Ma*

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

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

[727] The construction of multi-scale multi-component pore network model with application in shale characterization
*Ke Wang*
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**Q&A 21 10:00 – 10:55 - Chairs: Martin Blunt, Stephane Zaleski**

1. Effects of pore-size disorder on forced imbibition in porous media  
   **Lianwei Xiao**

2. 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**

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

4. Complex interplay between wettability and pore geometry controlling dynamics of two phase flow in heterogeneous porous media  
   **Sahar Bakhshian; Rabban Harris; Seyyed Hosseini; Nima Shokri**

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

6. Thermal coupled reactive transport in porous media based on SPH method  
   **Qianhong Yang**

7. Effective parameter reactive transport via NMR experiment and simulation using multi-task Bayesian optimization  
   **Rupeng Li; Igor Shikhov; Christoph Arns**

   **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**

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

2. Pore scale disorder on tensile fracturing of porous medium using Lattice method simulation  
   **WenXiang Tian**

3. Micro-CT image resolution limitation effects on NMR simulation response  
   **Yingzhi Cui; Igor Shikhov; Christoph Arns**

4. Mesoscopic modelling of fluid-solid interaction and its effect on permeability estimation  
   **Zi Li; Sergio Galindo-Torres; Ling Li**
### Q&A 22 11:00 – 11:55 - Chairs: Martin Blunt, Stephane Zaleski

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<td>Junyu Yang</td>
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<td>Probabilistic Modeling of Halite Nucleation and Growth in Porous Media: Pore Scale Modeling</td>
<td>Mohammad Masoudi; Hossein Fazeli; Rohaldin Miri; Helge Hellevang</td>
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<td>Capillary Pressure of Non-Wetting Ganglia in Porous Media: a Sub-Darcy Model</td>
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<td>Fanli Liu; Moran Wang</td>
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<td>Simulating Diagenesis: Computing Temporal Pore Structure and Physical Properties Changes Due to Dissolution/Precipitation Under Stress and Reactive Fluid Flow</td>
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<td>Study of the effect of pore-scale mineral wettability alterations on the relative permeability curves</td>
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(OR 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
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[419] Lattice Boltzmann-pore network hybrid modelling of gas transport in nanoporous media
*Wenhui Song; Maša Prodanović; Christopher J. Landry; Jun Yao*

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

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

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

(OR 9) Pore-scale modelling – Part 8

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

**Q&A 20 09:00 – 09:55 - Chairs: Ke Xu, Holger Ott**

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

Di Zhu; Binfei Li; Zhaomin Li; Haifeng Li

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

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

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Zubin Trivedi; Christian Bleiler; Arndt Wagner; Oliver Röhrle

Vegard Vinje; Miroslav Kuchta; Marie E. Rognes; Timo Koch; Kent-Andre Mardal

Kun Xie; Kaoping Song; Xiangguo Lu; Bao Cao; Jian Hou; Wei Lin; Jinxiang Liu; Weijia Cao; Cheng Su

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.
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Weichao Yan; Jianmeng Sun; Likai Cui

(MS 16) Fluid Interactions with Thin Porous Media

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

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

*Ye Wang; Yilin Lin; Guang Yang; Jingyi Wu*

[23] Occurrence of temperature spikes at a wetting front during spontaneous imbibition.
*Hamed Aslannejad; S. Majid Hassanizadeh; Alex Terzis; Bernhard Weigand*

*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*

*Fansheng Huang; Changyin Dong; Xiaosen Shang*

*Kai Li; William Rossen; Karl-Heinz Wolf*

*Dawang Zhang; Bjornar Sandnes*

*Menggang Wen; Yun Li*

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

*Rodrigo Orlando Salazar Castillo; Lily Qian; William R. Rossen*
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<td><strong>Liang Xu; Matthew Myers; Cameron White; Qi Li</strong></td>
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<td><strong>Yuxuan Xia; Jianchao Cai; Sai Xu; Haitao Tian; Yang Liu</strong></td>
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<td><strong>Sagrario Muñoz; V. María Barragán</strong></td>
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<th>[1247]</th>
<th>Reactive transport in porous media: Modeling electro-diffusion process using Nernst-Planck-Poisson Equation</th>
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<td><strong>Sara Tabrizinejad; Jerome Carrayrou; maarten saaltink; Marwan Fahs</strong></td>
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<th>[144]</th>
<th>On volume averaging modelling of porous electrodes – intrinsic phase average and macroscopic flux definition at solid/electrolyte interface</th>
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<td><strong>Xiaoguang Yin; Zeyong Wang; Thomas Sweijen; S. S. Majid Hassanizadeh; Baohua Li</strong></td>
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<th>[924]</th>
<th>Non-isothermal Battery Modelling</th>
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<td><strong>Astrid F. Gunnarshaug; Lena Spitthoff</strong></td>
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<td><strong>Vanessa Muñoz Perales; Santiago Enrique Ibañez-León; Sabrina Berling; Enrique García-Quismondo; Jesús Palma; Pablo Ángel García-Salaberri; Marcos Vera</strong></td>
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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*

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

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

  *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*
THURSDAY, 3 SEPTEMBER 2020

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*

   *Jacquelin Cobos Mora; Erik Gydesen Søgaard*

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