DAY 1: WEDNESDAY, OCTOBER 8, 2025

MORNING SESSIONS 10:30-12:10 AM

10:30-10:55				10:55-11:20				11:20-11:45				11:45-12:10			
Rm 6613: Computational Poromechanics I, Chair: Beatrice Riviere, Conveners: Beatrice Riviere, Ian Bourg,															
32	Simulations of two-phase flows in heterogeneous deformable porous media	Beatrice Riviere	Rice University	60	Probabilistic Modeling of Two-dimensional Consolidation Using the Spectral Feynman-Kac Approach	Naina Deb Arindam Dey Budhaditya Hazra	Indian Institute of Technology Guwahati					110	Modeling Cohesive Sediment Erosion and Transport Using a Darcy-Brinkman-Biot Framework	Mitchell Jans Ian Bourg	Princeton University
Rm 6500: Wave propagation in porous media 1, Chair: Stas Glubokovskikh, Conveners: Stas Glubokovskikh, Yury Podladchikov															
39	Modelling the Pressure Effects on Wave Dispersion and Attenuation in Fluid-Saturated Dual-Porosity Media	Fubin Chen Zhaoyun Zong Xingyao Yin Jiayun Li	China University of Petroleum	91	Effect of viscosity on wave propagation: poroelasticity versus viscoelasticity	Boris Gurevich	Curtin University	114	Numerical Evaluation of Gassmann's and Brown & Korringa (1975) Equations in 3D Settings	Yury Alkhimenkov	University of Lausanne	76	Decompaction Weakening as a Mechanism of Fluid Focusing in Hydrothermal Systems	Ivan Utkin Andrey Afanasyev	Laboratory of Hydraulics, Hydrology and Glaciology VAW, ETH Zurich, Zurich, Switzerland (Institute of Mechanics,
Rm 5610: Soft mater and novel porous media 1, Chair: Hossein Montazerian, Conveners: Hossein Montazerian, Emma Davoodi															
72	Impact of Interstitial Fluid Flow on Cancer Metastasis at the Bone Site	Dinesh Katti Haneesh Jasuja Kalpana Katti Preetham Ravi Sharad Jaswandkar	North Dakota State University	151	Additive Manufacturing of Architected Structures for Healthcare Applications	Emma Davoodi	University of Utah	83	Field-Driven, Bioinspired Design of Porous Orthopedic Implants: Reducing Stress Shielding and Enhancing Osseointegration	Sajjad Raeisi	GenMat LLC, Irvine, CA, USA	43	Tailored Framework Designs for Improved Catalytic Efficiency of Heme-containing Proteins	Raheleh Ravanfar	Texas Tech University

*Changes are noted in RED

DAY 1: WEDNESDAY, OCTOBER 8, 2025

AFTERNOON SESSIONS 3:50-5:30 PM

3:50-4:15				4:15-4:40				4:40-5:05				5:05-5:30			
Rm 6613: Computational poromechanics 2, Chair: Beatrice Riviere, Conveners: Beatrice Riviere, Ian Bourg															
28	Non-intrusive global-local method for the poroelasticity model with localized pressure effects	Hemanta Kumar Sanghyun Lee Son-Young Yi	The University of Texas at El Paso Florida State University The University of Texas at El Paso	117	Mathematics of Sea Ice as a Porous Composite	Kenneth Golden	Department of Mathematics, University of Utah	127	Porous Models of Thrombosis for Applications to Leaflet Thrombosis	Aaron Barrett Boyce Griffith Aaron Fogelson	University of Utah University of North Carolina, Chapel Hill University of Utah				
Rm 6500: Wave propagation in porous media 2, Chair: Kami Mohammadi															
106	Low-frequency lab measurements: what have we learned?	Serhii Lozovyi	SINTEF	56	Physical modeling of elastic wave propagation in fluid saturated porous media	Pinbo Ding Feng Zhang Xiang-yang Li	China Uiversity of Petroleum	124	Wave-Induced Fluid Flow as a Geophysical Probe for Hydrogen Storage	Stanislav Glubokovskikh Seiji Nakagawa Mingfei Chen Romy Chakraborty Harry Lisabeth	Lawrence Berkeley National Laboratory	63	Should seismic wave propagation in high-pressure, high-temperature media be a concern?	Wubing Deng Li-Yun Fu	School of Geosciences
Rm 5614: Geological systems 2, Chair: Shahrzad Roshankhah, Conveners: Shahrzad Roshankhah, Jihoon Kim															
101	A multifamily mechanical framework for non-collocated dissolution and precipitation in porous media	Yifan Yang Giuseppe Buscarnera	Northwestern University	102	Evaluating Matrix–Fracture Interactions in CO_2 Geological Storage Using Dimensional Analyses and Hydro-Mechanical FEM-DEM Simulations	Shahrzad Roshankhah Shivesh Shandilaya	University of Utah	104	Numerical Investigation of Particle Shape Effects on Coupled Hydromechanical Behavior in Unbreakable Particulate Packs	Ayat Alasadi Shahrzad Roshankhah	University of Utah	113	Pore pressure inhibits clustering of induced earthquakes in Western Canada	Bing Q. Li	University of Western Ontario
Rm 5610: Soft mater and novel porous media 2, Chair: Emma Davoodi, Conveners: Hossein Montazerian, Emma Davoodi															
90	Simulation of Biofilm Deformation Under Flow	Ian Bourg Francisco Carrillo Mitchell Jans	Department of Civil and Environmental Engineering, Princeton University Department of Chemical and Biological Engineering, Princeton University Department of Civil and Environmental Engineering, Princeton University	150	Micro- and Nano-Technology Approaches to Design Bioadhesive Hydrogels for Sutureless Wound Closure	Hossein Montazerian	University of Utah	75	Modeling Consolidation of Soft Porous Core-Solid Sheath Rods	Arina Korneva Denis Kucherenko	Virginia Tech	78	Porous Hierarchically Ordered Hydrogels	Shubhra Goel Robert Hickey	The Pennsylvania State University

DAY 2: THURSDAY, OCTOBER 9, 2025

MORNING SESSIONS 10:30 AM-12:10 PM

10:30-10:55				10:55-11:20				11:20-11:45				11:45-12:10			
Rm 6613: Computational poromechanics 3, Chair: Ian Bourg, Conveners: Ian Bourg, Hongkyu Yoon															
92	Multiscale aggregation of smectite nanoparticles: linking microstructure, dynamics, and coupled properties	Xiaojin Zheng Ian Bourg	Princeton University	103	Drying shrinkage of cement-based materials: study of water sorption and surface stresses in C-S-H by molecular simulations	Jingyi LENG Laurent Brochard Matthieu Vandamme Patrick Dangla	ENPC \ Institut Polytechnique de Paris, Université Gustave Eiffel, CNRS	125	Dynamics of electrolytes in nanopores under electric field	Jerry Owusu Kevin Rosso Russ Detwiler Mohammad Javad Abdolhosseini Qomi	UC Irvine PNNL UC Irvine UC Irvine	35	Microscopic Origin of Hysteresis in CH4 Sorption-Induced Deformed Coal Matrix: Insights from Stepwise Hybrid GCMC/MD Simulations	Zhehui Jin Quanlin Yang	University of Alberta
Rm 6500: Pore-Scale Dynamics in Porous Media 1, Conveners: Yashar, Ruby, Bo															
27	Modular Simulation of Coupled Unsaturated Flow and Geomechanics with GReS: A Pore-scale Application	Andrea Franceschini Daniele Moretto Eduardo Castro Massimiliano Ferronato	University of Padova	40	A High-order Preconditioner for Pore-Scale Mechanics	Sabit Mahmood Khan Yashar Mehmani	Penn State University	41	Predicting Pore-Scale Failure: Integrating Experiment with Computation	Tahmid Rakin Siddiqui Yashar Mehmani	Penn State University	93	The effect of gas bubbles on the low-frequency poroelastic response of rocks	Nicola Tisato Isabelle Lambert	The University of Texas at Austin
Rm 5614: Wave propagation in porous media 3, Chair: Boris Gurevich															
55	Elastic wave propagation in fluid saturated porous media with sinusoidally varying pore geometry	Weitao Sun	Tsinghua University									108	Fluid Injection-Induced Seismic Signature of Naturally Fractured Rocks with Permeable and Impermeable Matrix	Kami Mohammadi Shahrzad Roshankhah Shivesh Shandilaya	University of Utah
Rm 5606: Soft mater and novel porous media 3: Chair: Christopher Macminn, Conveners: Christopher Macminn, Jeremy Cho															
85	Poroelastic diffusion and transient wetting of droplets on hydrogels	H. Jeremy Cho Amir Kashani	University of Nevada, Las Vegas	69	Poroelastic diffusion through hydrogel membranes for fast atmospheric water harvesting	Yiwei Gao H. Jeremy Cho Areianna Eason Yihong Zhao	WAVR Technologies, Inc University of Nevada, Las Vegas University of Nevada, Las Vegas WAVR Technologies, Inc					107	Capillary entry pressure of a hydrogel packing	Callum Cuttle Chris MacMinn Hangkai Wei Oliver Paulin	University of Oxford University of Oxford University of Oxford Max Planck Institute for Dynamics and Self-Organization
Rm 5602: Porous materials behavior 1, Convener: Bing Li															
51	Modeling of Entrained Air Dissolution and Long-Term Saturation: Role of Microstructure in Emerging Cementitious Materials	Aiqing Xu Kimberly E Kurtis	Georgia Institute of Technology	67	Modeling the Initial Swelling and Capillary Contraction of Porous Materials During Wetting and Drying	Mohammadali Behboodi Yida Zhang	University of Colorado Boulder	38	The Impact of Dry Snow Metamorphism on Effective Thermal Conductivity of Porous Ice	J. Jackson Baglino Adrian Moure Xiaojing Fu	California Institute of Technology				

*Changes are noted in RED

DAY 2: THURSDAY, OCTOBER 9, 2025

AFTERNOON SESSIONS 3:10-4:50 PM

3:10-3:35				3:35-4:00				4:00-4:25				4:25-4:50			
Rm 6613:Computational poromechanics 4, Convener: Hongkyu Yoon, Chair: Hongkyu Yoon															
25	I-FENN with DeepONets: accelerating simulations in coupled poro-mechanics problems	Mostafa Mobasher	New York University Abu Dhabi	34	Data-Driven Homogenization of Porous Materials: A GPU-Accelerated Neural Network Approach to Predicting Macroscale Fracture Behavior of Porous Materials	ANTON SMOLYANYY	The University of Utah								
Rm 6500: Pore-Scale Dynamics in Porous Media 2, Conveners: Yashar, Ruby, Bo															
42	A cross-scale characterization to bridge the observational gap between wormholes and pore networks in porous rocks	Wei Li Akhil Kolanti David Sprouster Zijie Xu	Stony Brook University	36	A Variational Phase-Field Framework for Modeling Pore-Scale Melting and Refreezing at the Ice–Ocean Interface	Junning Liu Xiaojing Fu	CALIFORNIA INSTITUTE OF TECHNOLOGY	58	Quantifying Drying and Pore Flow in Dual-Porosity Porous Micromodels Using Micro-PIV	Yaofa Li Md Ahsan Habib Bo Guo Diego Armstrong	University of California, Riverside Montana State University University of Arizona Montana State University				
Rm 5614: Wave propagation in porous media 4, Chair: Weitao Sun															
61	Inelastic Poromechanics and Solitary Wave Dynamics in Fluid-Saturated Rocks	Viktoriya Yarushina	Institute for Energy Technology	98	Modelling viscoelastic porosity wave/ focused fluid flow in the subsurface: its controlling factors	Lawrence Hongliang Wang Viktoriya Yarushina	Institute for energy technology	86	From Linear Gassmann's Equations to Nonlinear Solitary Porosity Waves in Deforming Porous Media	Yury Alkhimenkov	University of Lausanne				
Rm 5610: Experimental poromechanics 2, Convener: Eric Hintsala															
59	Damage Monitoring in Porous Concrete Via Deep Learning of Capsule Aggregate's Impedance Signals	Jeong-Tae Kim	Pukyong National University, South Korea	~~119~~	~~CANCELED- Recent Advancements in Electrical Resistivity Tomography for Monitoring High-Stress Processes in Crystalline Rock~~	~~Chuanyao Zhong Glenn Hammond Jeff Burghardt Jumanah Al Kubaisy Kevin Rosso Piyoosh Jaysaval Satish Karra Tim Johnson~~	~~Pacific Northwest National Laboratory~~	100	Hydrate-bearing sediments: visco-plastic behavior	Alejandro Cardona Peter Flemings	University of Texas at Austin				
	Rm 5606: Geological systems 4, Chair: Ahmed Elbana, Conveners: Shahrzad Roshankhah, Jihoon Kim														
26	Phase field modeling of hydraulic fracture in layered rock	Lingfu Liu Zahera Jabeen Chloé Arson	Cornell University	134	Earthquake Cycle Simulation in Poro-Viscoplastic Media: A Coupled Framework for Fault-Fluid-Inelasticity Interactions	Ahmed Elbanna Amr Ibrahim	University of Southern California	45	Molecular-Scale Analysis of Microbial Metabolism Effects on Hydrodynamics in Underground Hydrogen Storage	Aruzhan Tleubek Arvand Vedadi Amin Hamed Mashhadzadeh Salah A. Faroughi	University of Utah	73	Micromechanical Investigation of Granite Under Coupled Thermal and Saturated Conditions	Ozan Altuntas Hongkyu Yoon Pania Newell	The University of Utah Sandia National Laboratories The University of Utah

*Changes are noted in RED

DAY 2: Thursday, October 9, 2025

Event, 6:30 pm – 8:30 pm

The Biot Mixer: Posters, People, and Pours (P^3)

Poster Sessions			
48	Pore-Scale Modeling of Two-Phase Flow in Heterogeneous Wettable Media	Arvand Vedadi Salah Faroughi	University of Utah
79	Seismic Properties of Basal Cambrian Sandstones: Implications for Seismic Monitoring of Geological Storage and Sequestration	Douglas Schmitt Anthony Wendel David Diaz Jason Nycz Randolf Kofman	Purdue University
99	Modeling the Impact of Microplasticity on Nonlinear Attenuation of Compressional and Shear Waves	Maxim Yakovlev Alexander Semykin Viktoriya Yarushina	Lomonosov Moscow State University
130	Quantifying Compaction Viscosity During Compaction of Partially Molten Polycrystalline Ice: Instrument Development and Numerical Modelling	Timothy Xiong Peter Flemings Marc Hesse Richard Ketcham Nicola Tisato Christine McCarthy Maheenuz Zaman	University of Texas at Austin University of Texas at Austin University of Texas at Austin University of Texas at Austin Columbia University Columbia University
135	Numerical Investigation of Particle Shape and Particle Size Distribution Effects on The Mechanical Behavior in Unbreakable Particulate Packs	Shahrzad Roshankhah Ayat Alasadi	University of Utah
136	Matrix–Hydraulic Fracture-Natural Fracture Interactions in EGS Reservoirs and CO2 Disposal Formations: Dimensional Analyses and Hydro-Mechanical FDEM Simulations	Shahrzad Roshankhah Shivesh Shandilaya	University of Utah
137	Investigation of PCM-mortar under complex environment	Mohamed Morsi	University of Utah
140	Nanoindentation Study of Granite Under Elevated Temperatures and Environmental Conditions	Ozan Altuntas	University of Utah
141	Uncovering Structure–Property Relationships in Porous Materials via Data-Driven Methods	Achyut Dhar	University of Utah
142	The Effect of Microscale Pore Morphology on Fracture Behavior	Eric Nielsen	University of Utah
155	Ionic PFAS transport along thin water films in soils	Bo Guo	University of Arizona

DAY 3: FRIDAY, OCTOBER 10, 2025

MORNING SESSIONS 9:00-10:40 AM

9:00-9:25				9:25-9:50				9:50-10:15				10:15-10:40			
Rm 6613: Computational poromechanics 5, Convener/Chair: Hongkyu Yoon															
30	Physics-constrained symbolic water retention model discovery for porous media with multimodal pore size distributions	Yejin Kim Hyoung Suk Suh	Case Western Reserve University	68	A Learning-based Multiscale Model for Underground Fluid Transport Processes	Mina Karimi Kaushik Bhattacharya	California Institute of Technology)	46	Surrogate Modeling of Granular Elasto-Plasticity Using Kolmogorov-Arnold Networks with Chebyshev Polynomial	Farinaz Mostajeran Aruzhan Tleubek Salah A. Faroughi	University of Utah	94	Leveraging stochastic simulations at the pore scale to predict permeability variations during precipitation process	Zi Wang Tapan Mukerji	Stanford University
Rm 6500: Pore-Scale Dynamics in Porous Media 3, Conveners: Yashar, Ruby, Bo															
64	Liquid-Vapor Interfaces in Pore-Scale Evaporation: Insights from Direct Numerical Simulation using Lattice Boltzmann Method	Piyush Pradhan Pierre Gentine Shaina Kelly	Department of Earth & Environmental Engineering, Columbia University	121	Pore network dynamics driving colloid transport in porous media: Interception history and attachment efficiency	William Johnson Diogo Bolster Luis Ullauri Bashar Al-Zghoul	University of Utah	109	Electrochemical flow through charge-patterned wavy nanochannels	Thomas Peteresen Felipe P.J. de Barros Jinwoo Im Pouya Golchin	Sonny Astani Department of Civil and Environmental Engineering, University of Southern California, Los Angeles, CA USA; Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles, CA USA	52	Using PIKAN to Track Fate and Transport of PFAS in the Vadose Zone	Nicholas Baker Farinaz Mostajeran Salah A. Faroughi	University of Utah
Rm 5614: Wave propagation in porous media 5, Chair: Yury Alkhimenkov															
77	Nonlinear porosity waves in elasto-visco-plastic reactive media under gravity	Yury Podladchikov Viktoriya Yarushina	University of Lausanne Institute for Energy Technology	82	Shock- and soliton-like porosity evolution in reacting and deforming saturated rocks	Lyudmila Khakimova	University of Lausanne	70	Shock-Like Propagation of Hydration and Dehydration Reaction Fronts in Poromechanical Systems	Stefan Markus Schmalholz Yury Podladchikov	University of Lausanne, Switzerland	139	Does pre-existing differential pressure have an impact on poroelasticity equations?	Lynn Schreyer	Washington State University
Rm 5610: Fracture in porous media 1															
132	A thermo-flow-mechanics-fracture model coupling a phase-field interface approach and thermo-fluid-structure interaction	Henry von Wahl Sanghyun Lee Thomas Wick	Florida State University Leibniz Universität Hannover					37	Coupled Chemo-Mechanical Crack Propagation using a Phase-Field Approach	Giancarlo Ventura Ronaldo Borja	Stanford University	44	Connecting In Situ Stress to Near-well Hydraulic Fracture Complexity with Phase-field Simulations	Fan Fei Yunxing Lu Andrew P. Bunger Matteo Cusini	Atmospheric, Earth, and Energy Division, Lawrence Livermore National Laboratory, USA

DAY 3: FRIDAY, OCTOBER 10, 2025

AFTERNOON SESSIONS 11:10 AM- 12:50 PM

11:10-11:35				11:35-12:00				12:00-12:25				12:25-12:50			
Rm 6613: Computational poromechanics 6, Convener/Chair: Hongkyu Yoon															
96	3D GPU Simulation of Coupled Poromechanics and Two-Phase Flow	Yury Alkhimenkov Ruben Juanes	University of Lausanne Massachusetts Institute of Technology (MIT)	97	GPU-Accelerated Simulation of Coupled Elastic and Hydraulic Behavior in Fractured and Porous Rocks from Digital Images	Yury Alkhimenkov	University of Lausanne	115	Accelerated Pseudo-Transient Method for Large-Scale Poromechanical Simulations: Unified Framework for Elasticity, Viscoelasticity, and Quasi-Static Biot Poroelasticity	Yury Alkhimenkov	University of Lausanne	122	Image registration of 2D optical thin sections in a 3D porous medium: Application to a Berea sandstone digital rock image	Jaehong Chung Wei Cai Tapan Mukerji	Stanford University
Rm 6500: Pore-Scale Dynamics in Porous Media 4, Conveners: Yashar, Ruby, Bo															
105	Surfactant transport in a thin water film covering a charged surface	Wenqian Zhang Bo Guo	University of Arizona	123	Electrokinetic and Water–Mineral Interaction Effects on Nanocapillary Water Flow	Abdullah Cihan Pramod Bhuvankar	Lawrence Berkeley National Lab	95	Influence of Extraction Method and Pressure on Pore Solution Chemistry in Cement Paste	Aagya Dahal Kay Wille Yifei Wang	University of Connecticut	112	An Integrated Approach to Derive Relative Permeability from Capillary Pressure	Nathan Moodie Brian McPherson	University of Utah
Rm 5614: Fracture in porous media 2, Convener: Frank Fei															
33	Coupling CFD-DEM modeling of thermo-hydro processes in fractured network media	Hoai Thanh Nguyen Pania Newell	The University of Utah	71	Effects of Pore Fluid Pressure in Extension-shear Mixed-mode Fracture in Carrara Marble and Berea Sandstone	Cate Tilley Casey Ruplinger Daniel Worley Hiroko Kitajima Jacob Tristan									