

- [H023-09Pore-scale origin of flow-induced bio-aggregate formation](#) **Sang Hyun Lee**, University of Minnesota Twin Cities, Minneapolis, MN, United States, Eleonora Secchi, ETH Zurich, Environmental Engineering, Zurich, Switzerland and Peter K. Kang, University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States
- [H024-02Three-dimensional Vortex-Induced Reaction Hot Spots at Pore and Fracture Intersections](#) **Peter K. Kang**, University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States, Sang Lee, University of Minnesota Twin Cities, Earth and Environmental Sciences, Minneapolis, MN, United States and Woonghee Lee, University of Minnesota Twin Cities, Minneapolis, MN, United States
- [H067-02Predicting Anomalous Reactive Transport in Rough Fractures: Pore-scale Simulation and Stochastic Upscaling](#) **Seonkyoo Yoon**, University of Minnesota Twin Cities, Minneapolis, MN, United States and Peter K. Kang, University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States
- [H204-03Pore-Scale Flow Effects on Solute Transport Across Free Flow-Porous Media Interface](#) **Jun Song Kim**¹, Sida He^{2,3}, Lian Shen^{2,3}, Santosh Kumar^{2,3}, Jiarong Hong^{2,3} and Peter K. Kang^{3,4}, (1)Seoul National University, Department of Civil and Environmental Engineering, Seoul, Korea, Republic of (South), (2)University of Minnesota, Department of Mechanical Engineering, Minneapolis, MN, United States, (3)St. Anthony Falls Laboratory, Minneapolis, MN, United States, (4)University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States
- [H009-0015Pore structure creates vortex-induced reaction hot spots in low Reynolds number porous media flows: A microfluidic and numerical investigation](#) **Michael Chen**, University of Minnesota Twin Cities, Minneapolis, MN, United States, Sang Lee, University of Minnesota Twin Cities, Earth and Environmental Sciences, Minneapolis, MN, United States and Peter K. Kang, University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States
- [H060-0013Gravity-driven instability in fracture flows with miscible fluids](#) **Hongfan Cao**¹, Seonkyoo Yoon¹, Zhenyu Xu², Laura J Pyrak-Nolte³ and Peter K. Kang⁴, (1)University of Minnesota Twin Cities, Department of Earth and Environmental Sciences, Minneapolis, MN, United States, (2)Purdue University, Department of Physics and Astronomy, West Lafayette, IN, United States, (3)Purdue University, Department of Physics and Astronomy; Department of Earth, Atmospheric and Planetary Sciences; Lyles School of Civil Engineering, West Lafayette, IN, United States, (4)University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States
- [H088-0007Effects of Recirculating Flows on Solute Transport with Solid-Fluid Reactions in Rough Fractures](#) **Woonghee Lee**, University of Minnesota Twin Cities, Minneapolis, MN, United States, Seonkyoo Yoon, University of Minnesota Twin Cities, Department of Earth and Environmental Sciences,

Minneapolis, MN, United States and Peter K. Kang, University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States

- [H090-0002What Is a Groundwater Flow System?](#) **Etienne Bresciani**¹, Peter K. Kang² and Seunghak Lee¹, (1)Korea Institute of Science and Technology (KIST), Water Cycle Research Center, Seoul, South Korea, (2)University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States
- [H090-0013Estimating Well-Based Injection Capacity for Managed Aquifer Recharge Feasibility Mapping: A Case Study in Minnesota, USA](#) **Raghendra Narayan Shandilya**^{1,2}, Etienne Bresciani¹, Anthony Runke³, Seunghak Lee⁴ and Peter K. Kang⁵, (1)Korea Institute of Science and Technology, Seoul, South Korea, (2)Korea University of Science and Technology, Seoul, South Korea, (3)Minnesota Geological Survey, St. Paul, MN, United States, (4)Korea Institute of Science and Technology (KIST), Water Cycle Research Center, Seoul, South Korea, (5)University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States
- [MR013-02Rock-Fluid Interactions: Fracture Formation and Fluid Distributions](#) **Laura J Pyrak-Nolte**¹, Liyang Jiang², Chven A Mitchell³, Zhenyu Xu², Hongfan Cao⁴, Seonkyoo Yoon⁴, Peter K. Kang⁵, Jessica M Rimsza⁶, Jeremy Trageser⁷, Antonio Bobet⁸ and Hongkyu Yoon⁹, (1)Purdue University, Department of Physics and Astronomy; Department of Earth, Atmospheric and Planetary Sciences; Lyles School of Civil Engineering, West Lafayette, IN, United States, (2)Purdue University, Department of Physics and Astronomy, West Lafayette, IN, United States, (3)Stanford University, Stanford, CA, United States, (4)University of Minnesota Twin Cities, Department of Earth and Environmental Sciences, Minneapolis, MN, United States, (5)University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States, (6)Sandia National Laboratories, Geochemistry Department, Albuquerque, NM, United States, (7)Sandia National Laboratories, Computational Multiscale Department, Albuquerque, NM, United States, (8)Purdue University, Lyles School of Civil Engineering, West Lafayette, IN, United States, (9)Sandia National Laboratories, Department of Geomechanics, Albuquerque, NM, United States
- [NG007-0007Gravity-driven Reactive Miscible Fluid Mixing in a Fracture](#) **Zhenyu Xu**¹, Hongfan Cao², Seonkyoo Yoon², Peter K. Kang³ and Laura J Pyrak-Nolte⁴, (1)Purdue University, Department of Physics and Astronomy, West Lafayette, IN, United States, (2)University of Minnesota Twin Cities, Department of Earth and Environmental Sciences, Minneapolis, MN, United States, (3)University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States, (4)Purdue University, Department of Physics and Astronomy; Department of Earth, Atmospheric and Planetary Sciences; Lyles School of Civil Engineering, West Lafayette, IN, United States
- [ED009-05Online Hydrocamp Project on Oil Pipelines, Tribal Lands, and Multiple Perspectives](#) **G. H. Crystal Ng**¹, Kari Hedin², Laura Matson³, Scott C Alexander⁴, Joseph Magner⁵, Jarrod Cicha⁶, Jordan Mayer⁶, Woonghee Lee⁷, Leah Nelson⁸, Jenn McDonald⁶ and Peter K. Kang⁹, (1)University of Minnesota Twin Cities, Earth Sciences, Minneapolis, MN, United States, (2)Fond du Lac Band of Lake

Superior Chippewa, Office of Water Protection, Cloquet, United States, (3)University of Minnesota Twin Cities, Geography, Minneapolis, United States, (4)Univ Minnesota, Minneapolis, MN, United States, (5)University of Minnesota Twin Cities, Bioproducts and Biosystems Engineering, Minneapolis, MN, United States, (6)University of Minnesota Twin Cities, Minnesota Geological Survey, Minneapolis, United States, (7)University of Minnesota Twin Cities, Minneapolis, MN, United States, (8)University of Minnesota Twin Cities, Earth Sciences, Minneapolis, United States, (9)University of Minnesota, Department of Earth and Environmental Sciences, Minneapolis, MN, United States

Sessions Chaired by Peter Kang

- [H067 - Coupled Flow Processes in Fractured Media Across Scales: Recent Advances in Experimental and Modeling Efforts I](#)
- [H070 - Coupled Flow Processes in Fractured Media Across Scales: Recent Advances in Experimental and Modeling Efforts II](#)
- [H060 - Coupled Flow Processes in Fractured Media Across Scales: Recent Advances in Experimental and Modeling Efforts III Posters](#)