

PUBLICATIONS

1. Mingliang Qu, Jinping Yang, **Sajjad Foroughi**, Yifan Zhang, Zi-Tao Yu, Martin J. Blunt, "Pore-to-meter scale modeling of heat and mass transport applied to thermal energy storage: how local thermal and velocity fluctuations affect average thermal dispersivity", *Energy Conversion and Management* (2023), Under review.
2. Lei Zhang, Gloire Imani, Martin Blunt, Dongyan Fan, **Sajjad Foroughi**, Lei Hou, Bilal Shams Memon, Yongfei Yang, Jun Yao. "Pore-scale Study of Mobilization of a Trapped NAPL Ganglion through a Three-dimensional Modified Biconical Pore." *Chemical Engineering Science* (2023), Under review.
3. Sepideh Goodarzi, Yihuai Zhang, **Sajjad Foroughi**, Branko Bijeljic, Martin J. Blunt. "Trapping, Hysteresis and Ostwald Ripening in Hydrogen Storage: A Pore-Scale Imaging Study." *International Journal of Hydrogen Energy* (2023), Under review.
4. Ahmed M. Selem, Nicolas Agenet, **Sajjad Foroughi**, Martin J. Blunt, and Branko Bijeljic. "Pore-Scale Imaging of Emulsification of Oil during Tertiary and Secondary Low Salinity Waterflooding in a Reservoir Carbonate." *Energy & Fuels* (2023), [Link](#).
5. **Sajjad Foroughi**, Branko Bijeljic, Ying Gao, and Martin J. Blunt. "Incorporation of Sub-Resolution Porosity into Two-Phase Flow Models with a Multiscale Pore Network," under review in *Water Resources Research*. DOI: [10.22541/essoar.169747432.29962889/v1](https://doi.org/10.22541/essoar.169747432.29962889/v1).
6. Li, Min, **Sajjad Foroughi**, Jiafei Zhao, Branko Bijeljic, and Martin J Blunt. "Image-Based Pore-Scale Modelling of the Effect of Wettability on Breakthrough Capillary Pressure in Gas Diffusion Layers." *Journal of Power Sources*, [Link](#).
7. Ming-Liang Qu, Martin J. Blunt, Xiaolei Fan, **Sajjad Foroughi**, Zi-Tao Yu, Qingyang Lin. "Pore-to-mesoscale network modelling of heat transfer and fluid flow in packed beds with application to process design", *AIChE Journal* (2023), e18213. [Link](#)
8. Ramin Moghadasi, **Sajjad Foroughi**, Farzad Basirat, Steven McDougall, Branko Bijeljic, Martin J Blunt, Alexandru Tatomir, Auli Niemi, "Pore-scale determination of residual gas remobilization and critical saturation in geological CO₂ storage: A pore-network modelling approach", *Water Resources Research*, (2023), e2022WR033686. [Link](#)
9. Yihuai Zhang, Branko Bijeljic, Ying Gao, Sepideh Goodarzi, **Sajjad Foroughi**, Martin J Blunt, "Pore-scale observations of hydrogen trapping and migration in porous rock: demonstrating the effect of Ostwald ripening", *Geophysical Research Letters* (2023), e2022GL102383. [Link](#)
10. Guanglei Zhang, **Sajjad Foroughi**, Branko Bijeljic, Martin J Blunt. "A Method to Correct Steady-state Relative Permeability Measurements for Inhomogeneous Saturation Profiles in One-dimensional Flow." *Transport in Porous Media* (2023). [Link](#)
11. Abdulla Alhosani, Ahmed Selem, **Sajjad Foroughi**, Branko Bijeljic, and Martin J. Blunt. "Steady-State Three-Phase Flow in a Mixed-Wet Porous Medium: A Pore-Scale X-ray Microtomography Study." *Advances in Water Resources* (2023): 104382, [Link](#).
12. Guanglei Zhang, **Sajjad Foroughi**, Ali Q. Raeini, Martin J. Blunt, and Branko Bijeljic. "The impact of bimodal pore size distribution and wettability on relative permeability and capillary pressure in a microporous limestone with uncertainty quantification." *Advances in Water Resources* (2022): 104352. [Link](#)

13. Gloire Imani, Lei Zhang, Martin J. Blunt, **Sajjad Foroughi**, Munezero Ntibahanana, Hai Sun, and Jun Yao. "Three-Dimensional Simulation of Droplet Dynamics in a Fractionally-Wet Constricted Channel." *Advances in Water Resources* (2022): 104341. [Link](#)
14. Sanchay Mukherjee, Russell T. Johns, **Sajjad Foroughi**, and Martin J. Blunt. "Fluid–Fluid Interfacial Area and Its Impact on Relative Permeability-A Pore Network Modeling Study." In *SPE Journal* (2022): 1-11(SPE-209445-PA). [Link](#)
15. **Sajjad Foroughi**, Branko Bijeljic, and Martin J. Blunt. "A closed-form equation for capillary pressure in porous media for all wettabilities." *Transport in Porous Media* 145.3 (2022): 683-696, [Link](#).
16. Qu, Ming-Liang, Sheng-Yue Lu, Qingyang Lin, **Sajjad Foroughi**, Zi-Tao Yu, and Martin J. Blunt. "Characterization of Water Transport in Porous Building Materials Based on an Analytical Spontaneous Imbibition Model." *Transport in Porous Media* (2022): 1-16, [Link](#).
17. **Sajjad Foroughi**, Branko Bijeljic, and Martin J. Blunt. "Pore-by-Pore Modelling, Validation and Prediction of Waterflooding in Oil-Wet Rocks Using Dynamic Synchrotron Data." *Transport in Porous Media* 138, no. 2 (2021): 285-308, [Link](#).
18. Lin, Qingyang, Branko Bijeljic, **Sajjad Foroughi**, Steffen Berg, and Martin J. Blunt. "Pore-scale imaging of displacement patterns in an altered-wettability carbonate." *Chemical Engineering Science* 235 (2021): 116464, [Link](#).
19. Alhosani, Abdulla, Alessio Scanziani, Qingyang Lin, **Sajjad Foroughi**, Amer M. Alhammadi, Martin J. Blunt, and Branko Bijeljic. "Dynamics of water injection in an oil-wet reservoir rock at subsurface conditions: Invasion patterns and pore-filling events." *Physical Review E* 102, no. 2 (2020): 023110, [Link](#).
20. **Sajjad Foroughi**, Branko Bijeljic, Qingyang Lin, Ali Q. Raeini, and Martin J. Blunt. "Pore-by-pore modeling, analysis, and prediction of two-phase flow in mixed-wet rocks." *Physical Review E* 102, no. 2 (2020): 023302, [Link](#).
21. Mehrdad Vasheghani Farahani, **Sajjad Foroughi**, Sevda Norouzi, and Saeid Jamshidi. "Mechanistic study of fines migration in porous media using lattice Boltzmann method coupled with rigid body physics engine." *Journal of Energy Resources Technology* 141, no. 12 (2019), [Link](#).
22. **Sajjad Foroughi**, Davood Khoozan, and Saeid Jamshidi. "Optimal distribution function determination for plus fraction splitting." *The Canadian Journal of Chemical Engineering* 97, no. 10 (2019): 2752-2764, [Link](#).
23. **Sajjad Foroughi**, Saeid Jamshidi, and Mahmoud Reza Pishvaie. "New Correlative models to improve prediction of fracture permeability and inertial resistance coefficient." *Transport in Porous Media* 121, no. 3 (2018): 557-584, [Link](#).
24. **Sajjad Foroughi**, Mohsen Masihi, Saeid Jamshidi, and Mahmoud Reza Pishvaie. "Investigating the permeability–porosity relation of percolation-based porous media using the lattice Boltzmann method." *Journal of Porous Media* 20, no. 10 (2017), [Link](#).
25. Morshedi, S., **Sajjad Foroughi**, and M. S. Beiranvand. "Numerical simulation of surfactant flooding in Darcy scale flow." *Petroleum science and technology* 32, no. 11 (2014): 1365-1374, [Link](#).
26. **Sajjad Foroughi**, Saeid Jamshidi, and Mohsen Masihi. "Lattice Boltzmann method on quadtree grids for simulating fluid flow through porous media: a new automatic algorithm." *Physica A: Statistical Mechanics and its Applications* 392, no. 20 (2013): 4772-4786, [Link](#).

- Morshedi, S., **Sajjad Foroughi**, S., Tokaman, M., and Ghazanfari, M.H., “Core Scale Numerical Modelling of Surfactant Flooding for Enhanced Oil Recovery from Oil Reservoirs”, The 7th International Chemical Engineering Congress Exhibition, Kish, Iran, 21-24 November, 2011.
- **Sajjad Foroughi**, Jamshidi, S., and Pishvaie, M.R. “Pore Scale Simulation of Fluid Flow in an Synthetic Porous Medium using Lattice Boltzmann Method”, the 5th National Conference on CFD Applications in the Chemical and Petroleum Industries, Iran University of Science & Technology, Tehran, Iran, 2014.
- **Sajjad Foroughi**, Jamshidi, S., and Pishvaie, M.R. “Simulation of the Interaction between Two Fluids in the Presence of Solid and Controlling Wettability using Multi-component Multiphase Lattice Boltzmann Method”, the 5th National Conference on CFD Applications in the Chemical and Petroleum Industries, Iran University of Science & Technology, Tehran, Iran, 2014.
- Rahimi, M. A., Farahani, M. V., **Sajjad Foroughi**, and Jamshidi, S., “Modeling the effect of inter-particle forces and surface adhesion force on phase separation of wet phase from nonwet phases in a porous medium using the SC LBM”, the 6th National Conference on CFD Applications in the Chemical and Petroleum Industries, University of Kashan, Kashan, Iran, 2015.
- **Sajjad Foroughi**, Jamshidi, S., and Pishvaie, M.R. “Simulation of Fluid Flow through Rock Fractures using Lattice Boltzmann Method”, the Second National Conference of Oil and Gas Fields’ Development, Sharif University of Technology, Tehran, Iran, 2017.
- **Sajjad Foroughi**, Bijeljic, B., and Martin J Blunt, ”Pore-by-pore modeling, calibration, and prediction of two-phase flow in mixed-wet rocks.”, IterPore, 13th Annual meeting (Online), 31 May - 04 June 2021.
- Sanchay Mukherjee, Russell T Johns, **Sajjad Foroughi**, Martin J Blunt, ”Fluid–Fluid Interfacial Area and Its Impact on Relative Permeability-A Pore Network Modeling Study.” SPE Improved Oil Recovery Conference. OnePetro, 2022.
- **Sajjad Foroughi**, Bijeljic, B., and Martin J Blunt. ”Predictive multi-scale network models with micro-porosity.”, IterPore, 2022, 14th Annual meeting (Hybrid), 30 May - 02 June 2022.
- **Sajjad Foroughi**, Bijeljic, B., and Martin J Blunt. ”Incorporating sub-resolution porosity using multi-scale network models for multi-phase flow modelling.”, The XXIV International Conference on Computational Methods in Water Resources (CMWR), 2022, 19-23 June 2022, Gdańsk, Poland.
- **Sajjad Foroughi**, Gao, Y., Bijeljic, B., and Martin J Blunt. ”Multi-scale pore network model for simulation of multi-phase flow in heterogeneous porous media.”, IterPore, 2023, 15th Annual meeting (Hybrid), 22 May - 27 May 2023.