

Doctor Moran Wang

Professor

Department of Engineering Mechanics, Tsinghua University

Beijing, 100084 China

Tel.: +86-10-62787498

Fax: ++86-10-62787498

Email: mrwang@tsinghua.edu.cn

Education and Professional Career

1995-1999 Bachelor's study at Tsinghua University, Beijing, China
1999-2004 PhD studies in Fluid Mechanics at Tsinghua University, Beijing China
2004-2006 Postdoctoral Fellow at Johns Hopkins University, USA
2006-2008 Postdoctoral Research Associate at University of California, USA
2008-2011 Oppenheimer Fellow, Los Alamos National Laboratory, USA
2007-2012 Visiting Scientist, Johns Hopkins University, USA
2018-2019 Visiting Professor, Princeton University, USA
2019 Visiting Professor, RWTH Aachen University, Germany
2011- Professor, Tsinghua University, China

Commitment, Appointments and Scientific Volunteer Jobs

2020- Associate Editor, International Journal of Mechanical Sciences
2014-2021 Associate Editor, AGU-Journal of Geophysical Research-Solid Earth
2014-2021 Associate Editor, ASME-Journal of Fluids Engineering
2012-2017 Associate Editor, Energy
2010- Associate Editor, **Journal of Porous Media**
2012- Editorial Board Member, **Transport in Porous Media**
2015- Editorial Board Member, Journal of Colloid and Interface Science
2023- Chair of InterPore China Chapter
2022- InterPore Council Member
2019- Interpore Honor and Award Committee; Interpore Chapter Committee
2008-2011 J.R. Oppenheimer Fellowship
2012- Lifetime memberships in InterPore
2003- memberships in ASME(2003), AGU(2009), APS(2005)

Professional Awards, Offers and Recognitions

2026 Lifetime Fellow of IAAM
2019 InterPore P&G Award for Porous Media Research, Interpore
2019 Leading Talent of National Special Supporting Program of China
2016 Best Keynote Award in 3RD Int. Symposium on Unconventional Geomechanics
2015 Best Paper Award in Annual Conference of China Geoscience
2010 LAAP Publication Award of LANL, USA
2008 J. Robert Oppenheimer Distinguished Postdoctoral Fellowship, LANL, USA
2004 Dissertation with distinction

Most important Publications (maximum 10)

(200+ articles on international journals, 17000+ citations based on Google Scholar)

- [1] X.K. Lu, M. Zhang, T. Jiang, H.A. Stone and **M. Wang***. Ultrasensitive detection of macromolecules in water via flowing nanoparticles on a microchip. *Nano Letters* 26: 8712–8720, 2026.
- [2] Y. Liu, Y.D. Wang, M. Wang*. Mechanism transition of superlinear scaling in hydrodynamic dispersion. *Journal of Fluid Mechanics* 1031: A32, 2026.
- [3] Y.F. Huang and **M. Wang***. Electrokinetic multiphase hydrodynamics. *Applied Physics Reviews* 12: 031322, 2025
- [4] W. Lei, Y. Yang, S. Yang, G. Zhang, J. Poonosamy, A. Juel, Y. Meheust, S. Bagheri, **M. Wang***. Advancing sustainable energy solutions with microfluidic porous media. *Lab on a Chip* 25: 3374-3410, 2025.
- [5] W.H. Lei, X. Lu, G. Yang, S. Bagheri, **M. Wang***. Reverse capillary trapping and self-removal

of non-aqueous fluid from dead-end structures by nanoparticle suspension. *Journal of Fluid Mechanics* 1009: A14, 2025.

- [6] Y. Liu, H. Xiao, T. Aquino, M. Dentz*, **M. Wang***. Scaling Laws and Mechanisms of Hydrodynamic Dispersion in Porous Media. *Journal of Fluid Mechanics-Rapids* 1001: R2, 2024.
- [7] W. Zhu, X. He, T. W. Patzek, Z. Chen, H. Hoteit, D. Elsworth, S. Qi*, **M. Wang***. A Novel Connectivity Metric of Identified Multi-cluster Fracture Networks in Permeable Formations. *Geophysical Research Letters* 51: e2024GL109569, 2024
- [8] W.H. Lei, X. Lu, W. Gong, **M. Wang***. Triggering interfacial instabilities during forced imbibition by adjusting the aspect ratio in depth-variable microfluidic porous media. *Proceedings of the National Academy of Sciences* 120(50): e2310584120, 2023.
- [9] Z.G. Tian, D. Zhang, Y. Wang, G. Zhou, S. Zhang, **M. Wang***. Inertial solution for high-pressure-difference pulse decay measurement through microporous media. *Journal of Fluid Mechanics –Rapids*, 971: R1, 2023.
- [10] W. Lei, X.K. Lu and **M. Wang***. Multiphase displacement mechanism by micro/nanoparticle suspension in porous media via microfluidic experiments: From interface science to multiphase flow patterns. *Advances in Colloid and Interface Science* 311: 102826, 2023