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RESEARCH INTEREST

Unsaturated soils, Poromechanics, Adsorption, Freezing in porous media.

EDUCATION

Ph.D., Geotechnical Engineering Sep. 2020 – Present
Hunan University, Changsha, China
Supervisor: Prof. Chao Zhang

B.S., Civil Engineering Sep. 2016 – Jun. 2020
Hunan University, Changsha, China

PUBLICATIONS

Journal Articles (* Corresponding author; † Co-first author)

- [1] Lin, X., Zhang, C.*, **Hu, S.**, & Chen, R. (2024). Heterogeneous ice nucleation of salt solution in porous media. *The Journal of Chemical Physics*, 160(9), 094501. DOI: 10.1063/5.0190862
- [2] Zhang, C., Li, L., **Hu, S.***, Gou, L., & Chen, R. (2024). Physical origin of adsorption heat and its significance in the isotherm equation. *International Journal of Heat and Mass Transfer*, 220, 124914. DOI: 10.1016/j.ijheatmasstransfer.2023.124914
- [3] Zhao, N.†, **Hu, S.†**, Zhang, C.*, Li, F., & Chen, R. (2023). Physical Origins of Freezing and Melting Temperature Depressions of Water in Millimeter-sized Pores. *Colloids and Surfaces A: Physico-chemical and Engineering Aspects*, 674, 131851. DOI: 10.1016/j.colsurfa.2023.131851
- [4] Gou, L., Zhang, C.*, Lu, N., & **Hu, S.** (2023). A Soil Hydraulic Conductivity Equation Incorporating Adsorption and Capillarity. *Journal of Geotechnical and Geoenvironmental Engineering*, 149(8), 04023056. DOI: 10.1061/JGGEFK.GTENG-11388
- [5] **Hu, S.**, Zhang, C.*, & Lu, N. (2023). Quantifying Coupling Effects Between Soil Matric Potential and Osmotic Potential. *Water Resources Research*, 59(2), e2022WR033779. DOI: 10.1029/2022WR033779
- [6] Gou, L., Zhang, C.*, **Hu, S.**, Chen, R., & Dong, Y. (2023). Semi-analytical Solutions for Soil Consolidation Induced by Drying. *Acta Geotechnica*, 18(2), 739–755. DOI: 10.1007/s11440-022-01623-4
- [7] **Hu, S.**, & Zhang, C.* (2023). A Sorption Isotherm Model for Soil Incorporating External and Internal Surface Adsorption, and Capillarity. *Canadian Geotechnical Journal*, cgj-2022-0386. DOI: 10.1139/cgj-2022-0386
- [8] Zhang, C., **Hu, S.**, Qiu, Z., & Lu, N.* (2022). A Poroelasticity Theory for Soil Incorporating Adsorption and Capillarity. *Géotechnique*, 1–18. DOI: 10.1680/jgeot.22.00097
- [9] Zhang, C., Gou, L., **Hu, S.***, & Lu, N. (2022). A Thermodynamic Formulation of Water Potential in Soil. *Water Resources Research*, 58(9). DOI: 10.1029/2022WR032369
- [10] Zhang, C.*, **Hu, S.**, & Lu, N. (2022). Unified Elastic Modulus Characteristic Curve Equation for Variably Saturated Soils. *Journal of Geotechnical and Geoenvironmental Engineering*, 148(1), 04021171. DOI: 10.1061/(ASCE)GT.1943-5606.0002718

PRESENTATIONS

InterPore2024 , Qingdao, China Oral: Adsorption-induced Effective Stress in Porous Media (On behalf of Prof. Zhang)	May 2024
The 4th International Soil Modeling Consortium (ISMC) Conference , Tianjin, China Poster: Coupling Between Soil Matric Potential and Osmotic Potential	May 2024
InterPore2023 , Edinburgh, Scotland Poster: A Poroelasticity Theory for Soil Incorporating Adsorption and Capillarity	May 2023
The 9th Young Experts Forum on Geotechnical Engineering , Changsha, China Oral: Unified Elastic Modulus Function for Variably Saturated Soils	Jun. 2021

ACADEMIC SERVICE

Journal Reviewer

Bulletin of Engineering Geology and the Environment
Geoscientific Model Development
Vadose Zone Journal
Water Resources Research