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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] 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: Physicochemical and Engineering Aspects***, *674*, 131851. DOI: 10.1016/j.colsurfa.2023.131851

[2] 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

[3] **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

[4] 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

[5] **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

[6] 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

[7] 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

[8] 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

InterPore2023, Edinburgh, Scotland, Online May 2023
Poster: A Poroelasticity Theory for Soil Incorporating Adsorption and Capillarity

The 9th Young Experts Forum on Geotechnical Engineering, Changsha, China Jun. 2021
Oral: Unified Elastic Modulus Function for Variably Saturated Soils