Haoyu Wang

D. O. B: 12/09/1998

Ph.D. candidate, School of Earth Sciences and Engineering

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Research Interests

- Application of Distributed Fiber Optic Sensing (DFOS) on Energy Geostructure
- Application of enhanced Phase Change Materials (PCM) on Energy Piles
- Estimation of the seepage field around an energy pile using its temperature profile measured by DFOS

Education

- **Nanjing University** | Earth Sciences and Engineering 2021/09-Present
  Ph.D. candidate in Engineering Geology, supervised by Prof. Dan Zhang
- **China University of Mining and Technology** | School of Civil Engineering
  Bachelor in Civil Engineering (GPA: 4.38/5.0) 2017/09-2021/06

Research Publications

- **Haoyu Wang,** Dan Zhang*, Zhengyu Qian, Hasanjan Yimit, et al. A novel paraffin/graphite PCM backfill for PHC energy pile: Numerical and experimental analysis on thermal performance. *Applied Thermal Engineering*, 2024, 124656. (SCI, IF=6.1, JCR=Q1)
- **Haoyu Wang,** Dan Zhang*, Kang Ren, et al. The sensing performance of a novel optical cable for tunnel water leakage monitoring based on distributed strain Sensing. *IEEE Sensors Journal*, 22496 - 22506. (SCI, IF=4.3, JCR=Q1)
- **Haoyu Wang,** Dan Zhang*, Zhengyu Qian. Influence of graphite volume fraction in phase change backfills on heat transfer performance of PHC energy piles. *Journal of Tsinghua University (Science and Technology)*, 2024, 64(05). (EI)
- **Haoyu Wang,** Dan Zhang*, Kang Ren, et al. Experimental Study of the Distributed Tunnel Leakage Sensing Method Based on DTS. *Geological Journal of China Universities*, 2023, 29(06): 886-893. (In Chinese)
- **Haoyu Wang**, Fenglei Du, Dan Zhang*, et al. Thermo-Mechanical Performance and Bearing Characteristics of a Large-Diameter, Extra-Long Energy Pile: An Inter-Calibrated DFOS Analysis. *Journal of Geotechnical and Geoenvironmental Engineering*, Under review (SCI, IF=3.9, JCR=Q2)
- **Haoyu Wang**, Dan Zhang*, Zhuoqun Xu, et al. Estimation of seepage field using DFOS temperature profiles of energy piles. *Water Resources Research*, Under review (SCI, IF=5.4, JCR=Q1)

Research Experiences

Research on the application of DFOS on the thermo-mechanical performance and bearing characteristics of energy piles 2023/07-present

- The National Natural Science Foundation of China (No. 41572271), Main participants
- Proposed an inter-calibrated DFOS method to enhance the accuracy of temperature and strain monitoring of energy piles using DFOS
- Researched the novel thermo-mechanical response of a large-diameter, extra-long energy pile

Research on the estimation of seepage field using DFOS temperature profiles of Energy Piles 2024/04-present

- Developed distributed temperature sensors based on Optical Frequency Domain Reflectometer (OFDR)
- Evaluation of seepage fields using energy pile temperature variations during cooling/heating operations

Research on the thermal performance of PHC energy piles backfilled with phase change composites 2023/03-2023/12

- Proposed a theoretical model to calculate the thermal properties of the phase change composites (paraffin and graphite)
- Researched the dynamic competitive relationship between paraffin and graphite

International exchange program 2019/07-2019/09, 2018/07-2018/09

- Cooperation scientific project between China University of Mining and Technology and the University of Manchester, UK; Griffith University, Australia

Conferences Attended

- ***Thermal Performance Analysis of Energy Piles backfilled with novel paraffin/graphite phase change composites,*** presented at the 2023 National Annual Conference of Engineering Geology, Nanjing, China, awarded as **Outstanding Graduate Student Report** 2023/04
- ***Application of Distributed Fiber Optic Sensing (DFOS) on the Thermo-Mechanical Performance and Bearing Characteristics of a Large-Diameter, Extra-Long Energy Pile,*** presented at the 4th National Symposium on Energy Geostructures and Engineering, Beijing, China, awarded as **Outstanding Graduate Student Report** 2023/09
- The 14th National Conference on Soil Mechanics and Geotechnical Engineering, Wuhan, China 2023/12
- The 12th China Optical Fiber Sensing Conference (OFS-China) Academic Conference, Chongqing, China 2024/09

Awards & Honors

- Excellence Scholarship of Nanjing University (First-class) 2022/09
- Academic Scholarship of Nanjing University (First-class) 2022/09

- Outstanding Postgraduate of Nanjing University 2023/09
- Outstanding Postgraduate of Nanjing University 2022/09
- Outstanding Graduates of China University of Mining and Technology 2021/06
- Outstanding cadres of the Student Association of China University of Mining and Technology 2020/06