Meng Wu
Ph.D. Candidate, Graduate Research Assistant.
Dow 825, Civil, Environmental, and Geospatial Engineering
Michigan Technological University
Houghton, MI 49931, U.S.A.
Email: mewu@mtu.edu
Telephone: +1 9062814039
Personal website: https://mengwus.github.io/

Objective and Intended Area of Research:

My research direction is the multi-scale analysis of polymer-modified asphalt's aging and rejuvenation mechanism. Become an engineer who works to improve the design and evaluation of asphalt pavement materials.

Education Background:

Michigan Technological University Since August 2022
Major: Civil Engineering Supervisor: Zhanping You
GPA: 3.94/4.0
Research interests**:** Asphalt binder performance; Polymer-modified asphalt; Superpave volumetric mix design and balanced mix design; Molecular simulation of asphalt material

Southeast University September 2019 - July 2022
Major: Road and Railway Engineering Supervisor: Tao Ma, Weiguang Zhang
GPA: 90.3/100
Master's Thesis: Multi-scale Research on Strength Formation Mechanism of Emulsified Cold Recycled Mixture based on molecular dynamics simulation

RWTH Aachen University October.2018-April.2019
Grade: Very good
Research project: EDEM Academic- Simulating Granular Materials Behaviors

Chang'an University August.2015- July.2019
GPA: 90/100 Rank: 2/155

Publication:

Wu, M., K. A. Boateng, L. Yin, Z. Liu, Z. You, and D. Jin (2025), High-content crumb rubber modified asphalt mixture via wet process: Laboratory evaluation and field application. Construction and Building Materials, 494: p. 143438. DOI: 10.1016/j.conbuildmat.2025.143438

Wu, M., L. Yin, M. Li, Z. You, D. Jin, and K. Xin (2025), A state-of-the-art review of asphalt aging behavior at macro, micro, and molecular scales. Construction and Building Materials, 2025. 460: p. 139738 DOI: 10.1016/j.conbuildmat.2024.139738

Wu, M., Li, M., & You, Z. (2024). Asphalt property prediction through high-throughput molecular dynamics simulation. Computer-Aided Civil and Infrastructure Engineering, 1–15. DOI: 10.1111/mice.13325

Wu, M., You, Z., Jin, D., Yin, L., & Xin, K. (2024). Aging effects on asphalt adhesive properties: molecular dynamics simulation of chemical composition and structural changes. Molecular Simulation, 1–19. DOI:10.1080/08927022.2024.2359568

Wu, M. and Z. You. (2023). Molecular dynamics models to investigate the diffusion behavior of emulsified asphalt. Construction and Building Materials, 2023. 409: p. 134061. DOI:10.1016/j.conbuildmat.2023.134061.

Wu, M., You, Z., & Jin, D. (2023). Adhesion Performance of Rubber Modified Asphalt in Chip Seal: A Molecular Dynamic Study. Materials, 16(18), 6324. DOI:10.3390/ma16186324

Wu, M., Xu, G., Luan, Y., Zhu, Y., Ma, T., & Zhang, W. (2022). Molecular dynamics simulation on cohesion and adhesion properties of the emulsified cold recycled mixtures. Construction and Building Materials, 333, 127403. DOI:10.1016/j.conbuildmat.2022.127403

Xu, G., Yao, Y., **Wu, M.**, & Zhao, Y. (2023). Molecular simulation and experimental analysis on co-aging behaviors of SBS modifier and asphalt in SBS-modified asphalt. Molecular Simulation, 49(7), 629-642. DOI:10.1080/08927022.2023.2182134 (Corresponding author)

Zhang, W., Ahmad, K. N., Tong, Z., Hu, Z., Wang, H., **Wu, M.**, ... & Mohammad, L. N. (2023). In-Time Density Monitoring of In-Place Asphalt Layer Construction via Intelligent Compaction Technology. Journal of Materials in Civil Engineering, 35(1), 04022386. DOI:10.1061/(ASCE)MT.1943-5533.0004558 (Corresponding author)

Yin, L., Jin, D., **Wu, M.**, Liu, Z., & You, Z. (2025). Performance of high-rubber-content modified asphalt chip seal in wet-freezing environments. Journal of Cleaner Production, 519, 145993. DOI:10.1016/j.jclepro.2025.145993

Xin, K.; **Wu, M.**; Jin, D.; You, Z. A Case Study of Pavement Construction Materials for Wet-Freeze Regions: The Application of Waste Glass Aggregate and High-Content Rubber Modified Asphalt. Buildings 2025, 15, 1637.DOI:10.3390/buildings15101637

Yao, Y., G. Xu, M. Wu, and M. Zhao. (2023). Exploring the influence of cement and cement hydration products on strength and interfacial adhesion in emulsified cold recycled mixture: A molecular dynamics and experimental investigation. Construction and Building Materials, 409: p. 134050. DOI:10.1016/j.conbuildmat.2023.134050

Zhu, Y., Ma, T., Xu, G., Fan, J., Zhang, Y., & **Wu, M.** (2023). Study of the Mixing between Asphalt and Rejuvenator in Hot In-Place Recycled Layer. Journal of Transportation Engineering, Part B: Pavements, 149(2), 04023005. DOI:10.1061/JPEODX.PVENG-1033

Luan, Y., Ma, T., Wang, S., Ma, Y., Xu, G., & **Wu, M.** (2022). Investigating mechanical performance and interface characteristics of cold recycled mixture: Promoting sustainable utilization of reclaimed asphalt pavement. Journal of Cleaner Production, 369, 133366. DOI:10.1016/j.jclepro.2022.133366

Fu, Y., **Wu, M.**, Hei, T., Dong, Z., Hu, J., & Zhang, W. (2022). Research on the Adhesion and Self-healing Properties of Bio-asphalt Based on Molecular Simulation. Advance Researches in Civil Engineering, 4(2), 24-43. DOI:10.30469/arce.2022.157270

Zhang, W., Luan, Y., Ma, T., Wang, S., Chen, J., Li, J., & **Wu, M.** (2021). Multilevel analysis of the aging mechanisms and performance evolution of rubber-modified asphalt. Journal of Materials in Civil Engineering, 33(12), 04021365. DOI:10.1061/(ASCE)MT.1943-5533.0004000

Zhang, W., Lee, J., Ahn, H. J., Le, Q., **Wu, M.**, Zhu, H., & Zhang, J. (2019). Field Investigation of Clay Balls in Full-Depth Asphalt Pavement. Materials, 12(18), 2879. DOI:10.3390/ma12182879

Academic Conference Activity:

Poster: 104th TRB Annual Meeting, Washington, DC, January 5–9, 2025. Poster Title: Laboratory Evaluation of Mixture Performance of High-Content Rubber Asphalt Using Wet Process.

Poster: 104th TRB Annual Meeting, Washington, DC, January 5–9, 2025. Poster Title: Laboratory Evaluation of Mixture Performance of High-Content Rubber Asphalt Using Wet Process.

Poster: 104th TRB Annual Meeting, Washington, DC, January 5–9, 2025. Poster Title: Laboratory Evaluation of Mixture Performance of High-Content Rubber Asphalt Using Wet Process.

Poster: 104th TRB Annual Meeting, Washington, DC, January 5–9, 2025. Poster Title: Laboratory Evaluation of Mixture Performance of High-Content Rubber Asphalt Using Wet Process.

Poster: 104th TRB Annual Meeting, Washington, DC, January 5–9, 2025. Poster Title: Laboratory Evaluation of Mixture Performance of High-Content Rubber Asphalt Using Wet Process.

Poster: 2024 AAPT Annual Meeting, Chicago, Illinois, September 9–12. Poster Title: Asphalt Property Prediction through High-Throughput Molecular Dynamics Simulation.

Peer Review Service:

Construction & Building Materials
Journal of Building Engineering
Journal of Materials in Civil Engineering
Journal of Molecular Liquids
Case Studies in Construction Materials
Results in Engineering
Colloids and surfaces
Cleaner Materials
Journal of Cleaner Production
Colloids and Surfaces A: Physicochemical and Engineering Aspects
Journal of Traffic and Transportation Engineering (English Edition)
Applied Surface Science

Total review records: 59 times

Google scholar citation:

https://scholar.google.de/citations?user=67O3Z3YAAAAJ&hl=en

Citations	248
h-index	10
i10-index	10