吴孟 博士

交通基础设施材料与路面工程

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研究废胎胶粉等再生材料在耐久路面中的应用，结合分子模拟、室内性能测试和现场试验开展道路材料服役性能预测。

教育背景

密歇根理工大学（美国）

土木工程博士、硕士，2022.08–2026.08。导师：尤占平教授。GPA：3.94/4.00。

东南大学（中国）

道路与铁道工程硕士，2019.09–2022.07。导师：张伟光副教授。绩点：90.3/100。

亚琛工业大学（德国）

国家留学基金委公派学习，2018.10–2019.04。

长安大学（中国）

道路桥梁与渡河工程工学学士，2015.08–2019.07。绩点：90/100，年级排名：2/155。

科研项目与现场试验

Dixie Highway 22% 湿法橡胶沥青现场试验

2024.09–2026.09。结合室内性能测试和现场施工验证，评估高掺量橡胶沥青混合料的工程适用性与耐久性。

提高沥青膜厚与一年后实施碎石封层的效益成本研究

2025.08–2026.08。比较开裂、车辙、松散、老化、水损害表现及全寿命成本。

高含量废胎胶粉改性沥青系列研究（Phase I–VI）

2023.11–2026.04。比较胶粉来源、掺量、粒径和制备强度对结合料与混合料性能的影响。

荣誉与奖励

密歇根理工大学研究生院院长杰出学术奖

土木与环境工程系研究生科研卓越奖

密歇根理工大学研究生院毕业论文完成奖学金

学术服务

担任 36 种国际期刊审稿人，累计完成同行评审 200 余次。

学会会员：美国土木工程师学会（ASCE）、交通工程师协会（ITE）、国际华人基础设施专业人士协会（IACIP）。

研究方法

路面材料设计与耐久性评价、分子动力学与高通量模拟、现场验证、数据驱动的服役性能预测。

第一作者或通讯作者论文

1	Wu, M., M. Li, L. Yin, and Z. You, Asphalt-rubber interaction in crumb rubber modified asphalt: a review. Journal of Cleaner Production, 2026. 546: p. 147766.
2	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.
3	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.
4	Wu, M., Li, M., & You, Z. (2024). Asphalt property prediction through high-throughput molecular dynamics simulation. Computer-Aided Civil and Infrastructure Engineering, 1–15.
5	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.
6	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.
7	Wu, M., You, Z., & Jin, D. (2023). Adhesion Performance of Rubber Modified Asphalt in Chip Seal: A Molecular Dynamic Study. Materials, 16(18), 6324.
8	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.
9	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.
10	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.

代表性学术会议

1	吴孟、尹磊、尤占平。2026 年 ASCE T&DI 交通会议（ASCE T&DI Transportation Conferences），美国密歇根州底特律，2026 年 6 月。海报接收：高含量橡胶粉改性沥青在可持续路面建设中的性能评价。
2	吴孟、辛凯、刘钟达、尤占平。2026 年美国国家道路研究联盟路面会议（NRRA Pavement Conference），美国明尼苏达州 Shoreview，2026 年 4 月。海报题目：提高沥青膜厚与一年后实施碎石封层的效益成本分析。
3	吴孟、尹磊、刘钟达、尤占平。第 105 届美国运输研究委员会（TRB）年会，美国华盛顿特区，2026 年 1 月。海报题目：高含量橡胶改性沥青的热养护效应：结合料性能评估与现场混合料表现。
4	吴孟、Kwadwo Ampadu Boateng、尹磊、靳东兆、辛凯、尤占平。第 104 届美国运输研究委员会（TRB）年会，美国华盛顿特区，2025 年 1 月。海报题目：湿法高含量橡胶沥青混合料性能的实验室评估。
5	吴孟、李苗苗、尤占平。美国沥青铺筑技术协会（AAPT）年会与技术会议，美国伊利诺伊州芝加哥，2024 年 9 月。海报题目：基于高通量分子动力学模拟的沥青性能预测。

合作发表论文

1	Liu, Z., Jin, D., Yin, L., Wu, M., Fan, Z., & You, Z. (2026). Laboratory and Field Evaluation of Soybean-Oil-Based Dust Suppressants for Unpaved Roads: Performance and Durability. Transportation Research Record, 03611981261437046.
2	Jin, D., Mohammadi, S., Yin, L., Liu, Z., Wu, M., Techtmann, S., & You, Z. (2026). Cold-in-Place Recycling with 100% Recycled Asphalt Pavement Rejuvenated by Soybean Oil: Laboratory and Field Evaluation. Transportation Research Record, 03611981261435883.
3	Mohammadi, S., Jin, D., Wu, M., Liu, Z., & You, Z. (2026). Sustainable Surface Treatments Using Dry-Process Rubber-Modified Asphalt in Cold Regions: A Laboratory, Field, and LCA Study. Infrastructures, 11(6), 199.
4	Xin, K., Jin, D., Wu, M., & You, Z. Performance Evaluation of High Content Rubber Asphalt Mixtures Using Superpave and Balanced Mix Design via Dry and Semi-wet Process. Journal of Materials in Civil Engineering.
5	Boateng, K.A.; Wu, M.; Jin, D.; Olatunde, D.S.; You, Z. Performance Evaluation of Recycled Aged Rubber Modified Asphalt Mixtures with Soybean Oil Rejuvenator. Materials 2026, 19, 1893.
6	Boateng, K.A., M. Wu, D. Jin, and Z. You, Recycling aged crumb rubber-modified asphalt pavements: A review. Journal of Road Engineering, 2026.
7	Yin, L., Wu, M., Liu, Z., Xin, K., Jin, D., & You, Z. (2026). Impact of extended storage and transportation on the performance and workability of high-content rubber-modified asphalt. International Journal of Pavement Engineering, 27(1), 2627429.
8	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.
9	Xin, K., Wu, M., Jin, D., & You, Z. (2025). A Case Study of Pavement Construction Materials for Wet-Freeze Regions: The Application of Waste Glass Aggregate and High-Content Rubber Modified Asphalt. Buildings, 15(10), 1637.
10	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.
11	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.
12	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.
13	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.
14	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.