

刘杨元琛

5837 Western Run, Baltimore, MD 21209 | yliu664@jh.edu | (+1) 984-377-9517 | 谷歌学术 | 个人主页

教育背景

博士 (PhD) —2020.09 —2024.09

杜克大学 (Duke University), 达勒姆, 美国

- 专业: 机械工程, 导师: John Dolbow

硕士 (MS) —2017.09 —2020.03

上海交通大学, 上海, 中国

- 专业: 机械工程, 导师: 沈泳星

学士 (BE) —2013.09 —2017.07

吉林大学, 长春, 中国

- 专业: 材料科学与工程

工作经历

博士后研究员—2024.10 —2026.10

约翰霍普金斯大学 (Johns Hopkins University), 巴尔的摩, 美国

- 导师: Somnath Ghosh

研究助理—2023.05 —2023.08

阿贡国家实验室 (Argonne National Lab), 莱蒙特, 美国

助教—2020.08 —2021.05

昆山杜克大学, 昆山, 中国

发表论文与预印本

Liu, Y., & Ghosh, S. (2026). Damage sensing digital twin for piezocomposites integrating neural operator with parametrically upscaled constitutive damage model. *Submitted*.

Kumar, A., **Liu, Y.**, Dolbow, J. E., & Lopez-Pamies, O. (2024). The strength of the brazilian fracture test. *Journal of the Mechanics and Physics of Solids*, 182, 105473. <https://doi.org/10.1016/j.jmps.2023.105473>

Liu, Y. (2024). A computational framework for simulating crack nucleation and growth in materials subjected to dynamic loads [PhD thesis]. In *Duke University* (p. 153).

Liu, Y., Lopez-Pamies, O., & Dolbow, J. E. (2024). On the effects of material strength in dynamic fracture: A phase-field study. *arXiv Preprint*. <https://doi.org/10.48550/arXiv.2411.16393>

Liu, Y., Zhong, P., Lopez-Pamies, O., & Dolbow, J. E. (2024). A model-based simulation framework for coupled acoustics, elastodynamics, and damage with application to nano-pulse lithotripsy. *International Journal of Solids and Structures*, 289, 112626. <https://doi.org/10.1016/j.ijsolstr.2023.112626>

Liu, Y., Claus, S., Kerfriden, P., Chen, J., Zhong, P., & Dolbow, J. E. (2023). Model-based simulations of pulsed laser ablation using an embedded finite element method. *International Journal of Heat and Mass Transfer*, 204, 123843. <https://doi.org/10.1016/j.ijheatmasstransfer.2022.123843>

- Xiang, G., Chen, J., Ho, D., Sankin, G., Zhao, X., **Liu, Y.**, Wang, K., Dolbow, J., Yao, J., & Zhong, P. (2023). Shock waves generated by toroidal bubble collapse are imperative for kidney stone dusting during holmium:YAG laser lithotripsy. *Ultrasonics Sonochemistry*, 101, 106649. <https://doi.org/10.1016/j.ulsts.2023.106649>
- Chen, C., **Liu, Y.**, He, X., Li, H., Chen, Y., Wei, Y., Zhao, Y., Ma, Y., Chen, Z., Zheng, X., & Liu, H. (2021). Multiresponse shape-memory nanocomposite with a reversible cycle for powerful artificial muscles. *Chem. Mater.*, 33(3), 987–997. <https://doi.org/10.1021/acs.chemmater.0c04170>
- Liu, Y.**, Cheng, C., Ziae-Rad, V., & Shen, Y. (2020). A micromechanics-informed phase field model for brittle fracture accounting for unilateral constraint. *Engineering Fracture Mechanics*, 107358. <https://doi.org/10.1016/j.engfracmech.2020.107358>
- Liu, Y.**, Weng, K., & Shen, Y. (2020). A manifold learning approach to accelerate phase field fracture simulations in the representative volume element. *SN Applied Sciences*, 2(10), 1682. <https://doi.org/10.1007/s42452-020-03468-6>

学术会议报告

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- Liu, Y.**, & Ghosh, S. (2026). *Virtual damage sensing digital twin for piezocomposites integrating neural operator with parametrically upscaled constitutive damage model*. HEMI Day 2026. <https://hemi.jhu.edu/event/hemi-day/>
- Kumar, A., Liu, C., **Liu, Y.**, Dolbow, J., & Lopez-Pamies, O. (2024). *The revisited phase-field approach to brittle fracture: Application to the diametral compression and wing-crack problems*. The 16th world congress on computational mechanics (WCCM16).
- Liu, Y.**, Lopez-Pamies, O., & Dolbow, J. E. (2024). *A phase-field approach for the nucleation and propagation of dynamic cracks*. The 16th world congress on computational mechanics (WCCM16).
- Liu, Y.**, Zhong, P., Lopez-Pamies, O., & Dolbow, J. E. (2023). *A model-based simulation framework for coupled acoustics, elastodynamics, and damage with application to nano-pulse lithotripsy*. The 17th united states national congress on computational mechanics (USNCCM17).
- Liu, Y.**, Claus, S., Kerfriden, P., Chen, J., Zhong, P., & Dolbow, J. E. (2022). *Model-based simulations of pulsed laser ablation using a CutFEM method*. The 15th world congress on computational mechanics (WCCM15).
- Liu, Y.**, Cheng, C., & Shen, Y. (2019). *A homogenization-based phase field approach to fracture*. The 15th united states national congress on computational mechanics (USNCCM15).
- Liu, Y.**, Cheng, C., & Shen, Y. (2019). *A micromechanics-based phase field approach to fracture*. The 2nd international conference of mechanics of advanced materials and structures.
- Liu, Y.**, Weng, K., & Shen, Y. (2019). *A manifold learning approach for multiscale phase field evolution for fracture*. The international conference on data driven computing and machine learning in engineering.