Yangyuanchen Liu

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Education

Doctor of Philosophy (PhD) — Sep 2020 — Sep 2024 *Duke University*, Durham, US

- Major: Mechanical Engineering, Advisor: John Dolbow

Master of Science (MS) — Sep 2017 — March 2020 *Shanghai Jiao Tong University*, Shanghai, China

- Major: Mechanical Engineering, Advisor: Yongxing Shen

Bachelor of Engineering (BE) — Sep 2013 — July 2017 *Jilin University*, Changchun, China

- Materials Science and Engineering

Employment

Postdoctoral Fellow — Oct 2024 — Oct 2025 *Johns Hopkins University*, Baltimore, MD

Research Aide Technical — May 2023 — Aug 2023 *Argonne National Lab*, Lemont, IL

Teaching Assistant — Aug 2020 — May 2021 *Duke Kunshan University*, Kunshan, China

Publications

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.ultsonch.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., Ziaei-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

Conference Presentations

Kumar, A., Liu, C., **Liu, Y.**, Dolbow, J., & Lopez-Pamies, O. (2023). *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. (2023). *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.