



Liming Xiong

Assistant Professor

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Education

Ph.D. Mechanical and Aerospace Engineering, University of Florida, 2011

M.S. Solid Mechanics and Materials Science, The George Washington University, 2006

B. S. Engineering Mechanics, Dalian University of Technology (China), 2001

Academic Appointments

Iowa State University (2014-present)

Department of Aerospace Engineering

- Assistant Professor, August 2014 - present

Teaching

UNDERGRAD: AerE321 Flight Structure Analysis; AerE421 Advanced Flight Structure Analysis

GRADUATE: AerE515X Atomistic and Multiscale Computational Mechanics of Materials; EM516 Applied Elasticity; EM525 Finite Element Analysis

Research

Interest Areas:

- Atomistic and Multiscale Computational Mechanics of Materials: plasticity, phase transition, fracture, thermal transport

Sponsors: National Science Foundation, Presidential Interdisciplinary Research Seed Grant Program at Iowa State

Selected Publications

1. Chen, H., Xu, S., Li, W., Ji, R., Phan, T., and **Xiong, L.**, "A spatial decomposition parallel algorithm for a concurrent atomistic-continuum simulator and its preliminary applications," *Computational Materials Science*, 144, 1-10, 2018.
2. Rigelesaiyin, J., Diaz, A., Li, W., **Xiong, L.**, and Chen, Y., "Asymmetry of the atomic-level stress tensor in homogeneous and inhomogeneous materials," *Proceedings of the Royal Society A*, 474, 20180155, 2018.
3. Levitas, V., Chen, H., and **Xiong, L.**, "Triaxial-stress-induced homogeneous hysteresis-free first-order phase transformations with stable intermediate phase," *Phys. Rev. Lett.*, 118, 052701, 2017.
4. Chen, X., **Xiong, L.**, McDowell, D.L., and Chen, Y., "Effects of phonons on mobility of dislocations and dislocation arrays," *Scripta Materialia*, 137, 22-26, 2017.
5. **Xiong, L.**, Rigelesaiyin, J., Chen, X., Xu, S., McDowell, D.L., and Chen, Y., "Coarse-grained elastodynamics of fast-moving dislocations," *Acta Materialia*, 104, 143-155 2016.
6. Xu, S., **Xiong, L.**, Deng, Q., and McDowell, D.L., "Mesh refinement schemes for the concurrent atomistic-continuum method," *International Journal of Solids and Structures*, 90, 144-152, 2016.
7. **Xiong, L.**, Chen, X., Zhang, N., McDowell, D.L., and Chen, Y., "Prediction of phonon properties of 1D polyatomic systems using concurrent atomistic-continuum simulation," *Archive of Applied Mechanics*, 84, 1665, 2014.
8. **Xiong, L.**, Deng, Q., Tucker, G., McDowell, D.L., and Chen, Y., "A concurrent scheme for passing dislocations from atomistic to continuum domains", *Acta Materialia*, 60, 3, 899-913, 2012.
9. **Xiong, L.**, Tucker, G., McDowell, D.L., and Chen, Y., "Coarse-grained atomistic simulation of dislocations", *Journal of the Mechanics and Physics of Solids*, 59, 2, 160-177, 2011.

Thesis Advisor/Co-advisor and Postgraduate-Scholar Sponsor

Doctoral (5): H. Chen (2018); J. Rigelesaiyin; T. Phan; Y. Peng; H. Li

Professional and Outreach Activities

- Members of ASME, MRS, TMS, SES;
- Organized symposiums at the PLASTICITY 2016, 2017, 2018, 2019, 2020, ASME 2012, 2016, WCCM2018;
- Reviewer: (Nature Communications, Nano Letters, International Journal of Plasticity, Journal of the Mechanics and Physics of Solids, Scripta Materialia, Computer Methods in Applied Mechanics and Engineering, Computational Materials Science, Materials Research Letters, Journal of Materials; Engineering Fracture Mechanics, NSF, NASA, etc.);
- Advisor of Sigma Gamma Tau at Iowa State University, 2015-present.