

XIAOKANG WANG

Assistant Professor, Department of Mechanical and Aerospace Engineering

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ACADEMIC APPOINTMENTS

07/26–present: Assistant Professor, Mechanical and Aerospace Engineering. University of Alabama in Huntsville.

PROFESSIONAL PREPARATION

2023–2026: Postdoctoral Associate, University of Illinois Urbana Champaign

Advisor: Qian Chen

Funding: DOE-BES-MSE-ESPM SC0024064

2018–2023: Ph. D., Mechanical Engineering, Purdue University

Advisor: Kejie Zhao

Funding: NSF-ENG-CMMI-MOMS 2210158

2013–2017: Bachelor of Engineering, Engineering Mechanics, Xi'an Jiaotong University, China

Awards

Inaugural Future Faculty Symposium Travel Award, Society of Engineering Science, 2023

Kohr Graduate Student Fellowship, School of Mechanical Engineering, Purdue University, 2022

Outstanding Graduate Research Award, College of Engineering, Purdue University, 2022

SELECTED JOURNAL PUBLICATIONS/PATENTS

Mechanics and multiphysics modeling

1. **Xiaokang Wang**[†], Xixian Yang[†], Jianguo Mei, Kejie Zhao*. Mechanics and dynamics of organic mixed ionic-electronic conductors. *Applied Mechanics Reviews*. 77, 3 (2025): 030801.
2. **Xiaokang Wang**, Kejie Zhao*. A continuum theory of organic mixed ionic-electronic conductors of phase separation. *Journal of the Mechanics and Physics of Solids* 172 (2023): 105178.
3. **Xiaokang Wang**, Xuefei Li, Jianguo Mei, Kejie Zhao*. Doping Kinetics in Organic Mixed Ionic-Electronic Conductors: Moving Front Experiments and Theoretical Modeling. *Extreme Mechanics Letters* 54 (2022): 101739.
4. **Xiaokang Wang**, Ke Chen, Luize Scalco de Vasconcelos, Jiazhi He, Yung C. Shin, Jianguo Mei*, and Kejie Zhao*. Mechanical breathing in organic electrochromics. *Nature communications* 11, (2020): 211.
♦ Story: <https://engineering.purdue.edu/ME/News/2020/mechanical-breathing-in-smart-windows>
5. **Xiaokang Wang**, Luize Scalco de Vasconcelos, Ke Chen, Kuluni Perera, Jianguo Mei, and Kejie Zhao*. In Situ Measurement of Breathing Strain and Mechanical Degradation in Organic Electrochromic Polymers. *ACS Applied Materials & Interfaces* 12, 45 (2020): 50889-50895.
6. **Xiaokang Wang**, Xueling Fan*, Yongle Sun, Rong Xu, and Peng Jiang. Modelling and analysis of the oxide growth coupling behaviour of thermal barrier coatings. *Journal of Materials Science* 54, 14 (2019): 10270-10283.

7. Jianguo Mei, Kejie Zhao, Ke Chen, and **Xiaokang Wang**. "Electrochromic devices with increased lifetime." *U.S. Patent Application*. 17/126,926, filed July 29, 2021.

Mechanical characterization

1. Zitang Wei, **Xiaokang Wang**, Bumjoon Seo, Xuyi Luo, Qixuan Hu, Jack Jones, Matthias Zeller, Kang Wang, Brett M. Savoie, Kejie Zhao, and Letian Dou*. Side-Chain Control of Topochemical Polymer Single Crystals with Tunable Elastic Modulus. *Angewandte Chemie International Edition*, 2022: e202213840.
2. Xuefei Li, **Xiaokang Wang**, Liyan You, Kejie Zhao, Jianguo Mei*. Maximizing the redox stability of yellow-to-transmissive electrochromic polymers by minimizing effective overpotentials. *ACS Materials Letters* 4 (2022): 336-342.
3. Xiong Yue, Shan Hu, **Xiaokang Wang**, Yanxiong Liu, Fei Yin*, and Lin Hua*. Understanding the nanostructure evolution and the mechanical strengthening of the M50 bearing steel during ultrasonic shot peening. *Materials Science and Engineering: A* (2022): 142721.

Electron Microscopy and Nanomaterials

1. **Xiaokang Wang**[†], Chu-Yun Hwang[†], Robert Busch, Zhiheng Lyu, Sohini Mandal, Hsu-Chih Ni, Jian-Min Zuo*, Qian Chen*. Electron diffraction tomography of 3D nanoscopic strain in lattice mismatched systems. *In preparation*.
2. Oliver Lin, Zhiheng Lyu, Hsu-Chih Ni, **Xiaokang Wang**, Yetong Jia, Chu-Yun Hwang, Lehan Yao, Jian-Min Zuo, Qian Chen*. Each Grain Different in Its Own Way: Size-Dependent Pseudosymmetry in Fivefold Twinned Nanoparticles Mapped by 4D-STEM. *Advanced Materials*: e21658 (2026).
3. **Xiaokang Wang**, Jiahui Li, Qian Chen*. Synthesis and emergent properties of structurally complex materials with nonrandom disorder. *Matter* 6, 8 (2023): 2555-2558.

TEACHING

2026 Fall: UAH MAE 466 Mechanics and Design of Machine Elements (Senior course with ~40 students)

SERVICE

1. University of Alabama in Huntsville
Graduate Committee member, Department of Mechanical and Aerospace Engineering, UAH
2. Academic community
Journal reviewer:
Nature Communications, Experimental Mechanics, Mechanics of Materials, Journal of Applied Mechanics, Organic Electronics, iScience, ACS Omega
Symposium chair/co-chairs:
SES 2026 Track 4.9, Mechanics and Dynamics of Soft Electrochemically Active Materials