



## Laisuo Su

Department of Materials Science and Engineering

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### Current Position

- 2023 – Present: Assistant Professor, UT Dallas, Department of Materials Science and Engineering

### Education & Employment History

Research Associate, UT Austin Advisor: Prof. Arumugam Manthiram	2022-2023
Postdoctoral Fellow, UT Austin Advisor: Prof. Arumugam Manthiram	2021-2022
PhD, Mechanical Engineering Carnegie Mellon University Advisor: Prof. B. Reeja-Jayan	2016-2021
MS, Automotive Engineering Tsinghua University, Beijing, China Advisor: Prof. Jianbo Zhang	2013-2016
BEng, Vehicle Engineering Hefei University of Technology, Hefei, China	2009-2013

### Honors & Activities

#### Activities:

- MRS Early Careers Subcommittee – The service term will be from Oct. 23, 2023 - Dec. 31, 2026.
- Guest Editor – *Sustainability* special issue on the topic of “Lithium Batteries and Fuel Cells for a Sustainable Future”
- Guest Editor – *Frontiers in Energy Research* special issue on the topic of “Electrolyte Design for Advanced Batteries”

- Reviewer for the following Journals: *Nature Communications*, *Science Advances*, *ACS Applied Materials & Interface*, *Materials Today Chemistry*, *Journal of The Electrochemical Society*, *Metals*, *Energies*, *Materials*, *Batteries*, *Frontiers in Energy Research*.

### Selected honors:

Presidential Fellowship, CMU, USA	2021
Phillips and Huang Family Fellowship in Energy, CMU, USA	2019
Milton Shaw Ph.D. Student Travel Award, CMU, USA	2017
Outstanding Thesis Award, Tsinghua University, China	2016
Weichai Power Scholarship, Tsinghua University, China	2015
Outstanding Graduate Award, Hefei University of Technology, China	2013
National Encouragement Scholarship, China (3%)	2012
National Scholarship (The Highest-level undergrad scholarship), China (1%)	2011
National Scholarship (The Highest-level undergrad scholarship), China (1%)	2010

### Interests

- Rechargeable battery
- Solid electrolyte
- Liquid electrolyte
- Surface and interface engineering
- Advanced materials characterization

### Ideas for Advocacy for the User Community

I was a student of the 21<sup>st</sup> National School on Neutron and X-ray Scattering (NXS) held at Argonne National Laboratory and Oak Ridge National Laboratory. In the past a few years, I used lots of APS beamlines in my research, as listed below, which helped me gain a good understanding of the power of synchrotron facilities that can facilitate research in many areas.

In 2023, I started my career at UT Dallas as an assistant professor. Students, researchers, and professors here are doing great research. I am interested in helping them get a better understanding of the capability of synchrotrons, which could potentially make a big impact in their research. I am also interested in discussing potential development of APS to better help researchers in higher education institutions.

1. 6BM-A: He, J., Bhargav, A., **Su, Laisuo**, Lamb, J., Okasinski, J., Shin, W. and Manthiram, A., 2024. Tuning the solvation structure with salts for stable sodium-metal batteries. *Nature Energy*, pp.1-11.
2. 11-ID-C: He, J., Bhargav, A., **Su, Laisuo**, Charalambous, H. and Manthiram, A., 2023. Intercalation-type catalyst for non-aqueous room temperature sodium-sulfur batteries. *Nature Communications*, 14(1), p.6568.
3. 11ID-C, 11ID-B: **Su, Laisuo**, Jarvis, K., Charalambous, H., Dolocan, A., & Manthiram, A. (2023). Stabilizing High-Nickel Cathodes with High-Voltage Electrolytes. *Advanced Functional Materials*, 33(12), 2213675.

4. 11ID-B, 12ID-C: **Su, Laisuo**, Zhao, X., Yi, M., Charalambous, H., Celio, H., Liu, Y., & Manthiram, A. (2022). Uncovering the Solvation Structure of LiPF<sub>6</sub>-Based Localized Saturated Electrolytes and Their Effect on LiNiO<sub>2</sub>-Based Lithium-Metal Batteries. *Advanced Energy Materials*, 12(36), 2201911.
5. 11-ID-B: **Su, Laisuo**, Charalambous, H., Cui, Z., & Manthiram, A. (2022). High-efficiency, anode-free lithium–metal batteries with a close-packed homogeneous lithium morphology. *Energy & Environmental Science*, 15(2), 843-854.
6. 6ID-D: **Su, Laisuo**, et al. "Engineering lithium-ion battery cathodes for high-voltage applications using electromagnetic excitation." *Journal of Materials Science* (2020).
7. 6BM-A: **Su, Laisuo**, et al. "Tailoring Electrode–Electrolyte Interfaces in Lithium-Ion Batteries Using Molecularly Engineered Functional Polymers." *ACS Applied Materials & Interfaces* 13.8 (2021): 9919-9931.
8. 9ID-C: **Su, Laisuo**, Choi, P., Nakamura, N., Charalambous, H., Litster, S., Ilavsky, J., & Reeja-Jayan, B. (2021). Multiscale operando X-ray investigations provide insights into electro-chemo-mechanical behavior of lithium intercalation cathodes. *Applied Energy*, 299, 117315.
9. 10ID-B: Nakamura, N., **Su, Laisuo**, et al. (2021). Linking far-from-equilibrium defect structures in ceramics to electromagnetic driving forces. *Journal of Materials Chemistry A*, 9(13), 8425-8434.
10. 6ID-D: Jha, S. K., Nakamura, N., Zhang, S., **Su, Laisuo**, Smith, P. M., Phuah, X. L., ... & Reeja-Jayan, B. (2019). Defect-Mediated Anisotropic Lattice Expansion in Ceramics as Evidence for Nonthermal Coupling between Electromagnetic Fields and Matter. *Advanced Engineering Materials*, 21(12), 1900762.