Amy E. Louks

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Education

Colorado School of Mines - Golden, CO

- Doctorate of Philosophy in Materials Science — 2022 – Current
- Bachelors of Science in Chemical Engineering — 2015 – 2019

Research Experience

National Renewable Energy Laboratory – Golden, Colorado — December 2017 – Present

Perovskite Research Technician — May 2019 – Present

Mentors: Joe Berry, Axel Palmstrom

- Makes perovskite thin film devices via spin coating, blade coating, and slot die coating
- Manages a stability parameter analyzer and organizes and communicates the data collected
- Analyzes devices pre and post degradation and looks for solutions to improve stability
- Develops processes for highly efficient and stable perovskite solar cells

Undergraduate researcher — December 2017 – May 2019

Mentors: Joe Berry, Matthew Reese

- Performed various stability studies on perovskite thin film solar cells
- Developed a stability parameter analyzer tool that allows for various mechanisms of degradation to be tested
- Analyzed spectral data of various perovskite photovoltaic cells

Publications

3. E. Ashley Gaulding, **Amy E. Louks**, Mengjin Yang, Robert Tirawat, Mickey J. Wilson, Liam K. Shaw, Timothy J Silverman, Joseph M. Luther, Axel F. Palmstrom, Joseph J. Berry, and Matthew O. Reese; "Package Development for Reliability Testing of Perovskites" *ACS Energy Lett.* **2022**, 7, 8, 2641–2645 [https://doi.org/10.1021/acsenergylett.2c01168]
2. Tong, Jinhui, Jiang, Qi, Ferguson, Andrew, Palmstrom, Axel, Wang, Xiaoming, Hao, Ji, Dunfield, Sean, **Louks, Amy**, Harvey, Steven, Li, Chongwen, Lu, Haipeng, France, Ryan, Johnson, Samuel, Zhang, Fei, Yang, Mengjin, Geisz, John, Mcgehee, Michael, Beard, Matthew, Yan, Yanfa, Zhu, Kai; 'Carrier control in Sn–Pb perovskites via 2D cation engineering for all-perovskite tandem solar cells with improved efficiency and stability" *Nature Energy*. **2022.** 7, 642-651. [https://doi.org/10.1038/s41560-022-01046-1]
1. Tracy H. Schloemer, James A. Raiford, Timothy S. Gehan, Taylor Moot, Sanjini Nanayakkara, Steven P. Harvey, Rosemary C. Bramante, Sean Dunfield, **Amy E. Louks**, Annalise E. Maughan, Lyle Bliss, Michael D. McGehee, Maikel F. A. M. van Hest, Matthew O. Reese, Stacey F. Bent, Joseph J. Berry, Joseph M. Luther, and Alan Sellinger; "The Molybdenum Oxide Interface Limits the High-Temperature Operational Stability of Unencapsulated Perovskite Solar Cells" *ACS Energy Letters* **2020** 5, 7, 2349-2360 [https://doi.org/10.1021/acsenergylett.0c01023]

Undergraduate Projects

Field Session — 2018

- Performed nine experiments over the course of five weeks, each project consisted of three members
- Analyzed data collected, then prepared oral presentations and written reports

Epics II: Biochemical processes and design — 2016

- Researched methods to create biofuels from algae, then designed a large-scale fabrication plant to make biofuels from algae. Analyzed the economic feasibility of said plant that was created.
- Researched and presented improvements being made when creating polymers
- Researched the process of producing printed circuit boards via wet etching.

Senior Design — 2019

- Designed an industrial process to produce lactic acid by using food waste from large companies, then to create a polymer from the lactic acid to ultimately make biodegradable plastic bags

Relevant Lab Skills

- **Computer:** Microsoft Office, ASPEN PLUS V10, python
- **Communication:** Technical writing, presentations, workable knowledge of American Sign Language
- **Lab Skills**: UV-Vis spectroscopy, mass spectrometry, organic separation and extraction, purification techniques, solar simulator usage, spin coating, blade coating, slot die coating, RF sputtering

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Teaching and Leadership Experience

Treasure Valley Family YMCA – Boise, Idaho September 2012- July 2018

Head Lifeguard

- Led and maintained a safe and family-oriented pool deck
- Trained lifeguards weekly by administering tests and encouraging them to take lead in real incidents

STEMbus USA - Boise, Idaho Summer 2016

Intern

- Worked with K-12 on their understanding of STEM subjects

Y Camp Junior Counselor – Boise, Idaho Summer 2014, 2015

- Worked with kids to develop new personal and social skills while having fun

Micron Technology Foundation Chip Camp – Boise, Idaho Summer 2012, 2013

- Worked with kids to further their understanding of semiconductor manufacturing

Kappa Kappa Psi at Colorado School of Mines 2015 – 2019

Vice President of Service

- Organized regular community service events for members of the band
- Organized food/managed budget for all marching band events, such as football games and other performances
- Managed outreach, fundraising, and individual service projects proposed by other band members