Lane E. **Schultz**

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Education

University of Wisconsin - Madison (UW-Madison)

Madison, WI

PhD Material Science and Engineering — *Sep. 2021 - Ongoing*

- Distributed Minor: Machine Learning Courses
- Cumulative GPA: 3.638

UW-Madison

Madison, WI

Masters of Science Material Science and Engineering — *Sep. 2018 - 2021*

- Cumulative GPA: 3.638

Fort Lewis College (FLC)

Durango, CO

Bachelors of Science in Engineering — *Aug. 2013 - Dec. 2017*

- Student Marshal
- Concentration: Electro/Mechanical
- Minor: Mathematics
- Cumulative GPA: 3.99
- Fundamentals of Engineering (FE) Other Disciplines Exam: PASSED

Experience

Quantifying Metallic Glass Forming Ability, PhD at UW-Madison

Madison, WI

Gathered physical properties of metallic glasses to understand glass forming ability. — *Jun. 2018 - Ongoing*

- **Published Computational Material Science:** "Microalloying effect in ternary Al-Sm-X (X = Ag, Au, Cu) metallic glasses studied by ab initio molecular dynamics"
- Wrote python scripts to gather data on metallic alloys generated through molecular dynamic simulation
- Used machine learning techniques to learn glass forming ability of several metals

Summer Undergraduate Research Experience (SURE) 2017, UW-Madison

Madison, WI

Wrote an image generation tool with Python and Bash scripts — *May. 2017 - Aug. 2017*

- **Presented**: "Tools for Standard Visualization of DAGMC Radiation Transport Results"
- Implemented command line tool for standard, automated image views of data sets

Capstone Design Project - Exotic Propulsion Test Stand, FLC

Durango, CO

Designed and developed a 10 μN torsional test stand — *Sep. 2016 - Apr. 2017*

- **Published AIAA:** "Design of Torsional Test Stand for Micro-Newton Force Detection"
- Implemented electrostatic displacement mechanism and modeled system response

Summer Undergraduate Research Fellowship (SURF) 2016, Purdue University

West Lafayette, IN

Operated an X-ray imaging system for two dimensional analysis of sprays — *May. 2016 - Aug. 2016*

- **Presented**: "Optimization of a High-Speed X-Ray Imaging System for Studying Sprays"
- Operated pressure vessels, X-ray tube sources, and high-speed cameras

Design Project - Water Quality Survey Device, FLC

Durango, CO

Designed and developed a water quality measuring device — *Dec. 2016 - Apr. 2016*

- **Published OCEANS 16**: "Development of a Portable Water Quality Sensor for River Monitoring from Small Rafts"
- Measured temperature, ORP, pH, time, and GPS location through an interchangeable sensor package

Mudualistic ATV/FV Park Volunteer

Brady, TX

Participated in general maintenance and construction work — *May. 2012 - Aug. 2012*

- Trash clean up at at Brady Lake and surrounding environs
- Assembled steel buildings
- Assembled basic PVC waterlines

Computer Software

- Coding: C++, Python, Verilog, and MATLAB
- Documentation: LaTeX, GitHub
- Drawing: AutoCAD, SolidWorks
- Cluster Administration: CentOS, OpenHPC

Grader or Teaching Assistant (TA) Positions

- Graduate Grader: Thermodynamics of Solids
- Undergraduate TA: Thermal and Fluid Systems Laboratory
- Undergraduate TA: Engineering Fundamentals II (MATLAB)

Publications

- L. E. Schultz, B. Afflerbach, D. Morgan, I. Szlufarska, *Molecular Dynamics Characteristic Temperatures for Predicting Metallic Glass Forming Ability*, In Preparation 2021
- L. E. Schultz, B. Afflerbach, C. Francis, D. Morgan, I. Szlufarska, P. Voyles, *Exploration of Characteristic Temperature Contributions to Metallic Glass Forming Ability*, In Preparation 2021
- J. Xi et al., *Microalloying effect in ternary Al-Sm-X (X = Ag, Au, Cu) metallic glasses studied by ab initio molecular dynamics.* Comput. Mater. Sci., vol. 185, no. July, pp. 1–6, 2020. DOI: 10.1016/j.commatsci.2020.109958
- L. E. Schultz, T. J. Cogger, J. Schneider, R. Good, R. Rothschild, and W. Nollet, *Design of torsional test stand for micro-newton force detection.* in 2018 Aerodynamic Measurement Technology and Ground Testing Conference, 2018. DOI: 10.2514/6.2018-3737
- J. Schneider, L. E. Schultz, S. Mancha, E. Hicks, and R. N. Smith, *Development of a portable water quality sensor for river monitoring from small rafts.* in OCEANS 2016 MTS/IEEE Monterey, OCE 2016, 2016. DOI: 10.1109/OCEANS.2016.7761392

Societies, Conferences, and Awards

University of Wisconsin-Madison	2020 Virtual MRS Spring/Fall Meeting & Exhibit	*Virtual*
Fort Lewis College	AIAA 2018 Conference	*Atlanta, GA*
Fort Lewis College	OCEANS 2016 MTS/IEEE Conference	*Monterey, CA*
Fort Lewis College	Opportunities in Engineering Conference (OPPS)	*Madison, WI*
Fort Lewis College	Sigma Pi Sigma (Physics Honor Society)	*Durango, CO*
Fort Lewis College	Order of the Engineer	*Durango, CO*
Fort Lewis College	Deans' Council Freshman 4.0 Award and Certificate	*Durango, CO*
Fort Lewis College	Freshman Chemistry Recognition Award	*Durango, CO*
Manzano High School	Renaissance Plaque	*Albuquerque, NM*
Menard High School	Chickasaw Honor Club Outstatnding Academic Achivement Award	*Menard, TX*
Menard High School	Patrick S. Gilmore Band Award	*Menard, TX*

Languages

Bilingual	Fluent in Spanish and English