

Troy R. Munro

Associate Professor

Brigham Young University, Department of Mechanical Engineering

350E EB, Provo, UT 84602

E-mail: troy.munro@byu.edu

Phone: 801-422-6541

Lab website: temp.byu.edu

Education

Katholieke Universiteit (KU) Leuven, Leuven, Belgium 2016

Utah State University (USU), Logan, UT, USA

Dual PhD, Mechanical Engineering and Physics

Thesis: "Thermal Property Measurement of Thin Fibers by Complementary Methods"

Co-Advisor (KU Leuven): Christ Glorieux, Co-Advisor (USU): Heng Ban

Utah State University 2012

MS, Mechanical Engineering

Thesis: "Heater Geometry and Heat Flux Effects on Subcooled, Thin Wire, Nucleate Pool

Boiling in Microgravity." Advisor: Heng Ban

Utah State University 2012

BS, Mechanical Engineering (Mathematics minor)

Capstone: "Collection of CO₂ from the Martian Atmosphere for use as a Propellant for a

Radioisotope Powered Mars Research Vehicle" Advisor: Byard Wood

Professional Experience

Brigham Young University, Provo, UT 2016-present

Fulbright Scholar to KU Leuven, Belgium 2023-2024

Associate Professor, Mechanical Engineering 2022-present

Assistant Professor, Mechanical Engineering 2016-2022

Idaho National Laboratory, Idaho Falls, ID 2017-present

Joint Appointee 2025-present

Academic Visitor 2017-2023

Utah State University, Logan, UT 2012-2016

Graduate Researcher, Multiscale Thermophysics Laboratory

Katholieke Universiteit (KU) Leuven, Leuven, Belgium 2013-2016

Doctoral Researcher, Laboratory for Soft Matter and Biophysics

Utah State University, Logan, UT 2011-2013

GAS Undergraduate Research Team Director, Physics

Research Interests

- Instrumentation for thermal measurements
- Heat transfer in nuclear reactors
- Developing methods for microscale sensing of materials
- Thermal characterization of molten salts
- Thermal control in biological systems
- Heat transfer in manufacturing systems

Honors and Awards

Awards

- Springer-Nature Author Service Award, International Journal of Thermophysics, 2025.
- Past Chair Award, ANS Materials Science and Technology Division, 2024.
- Fulbright U.S. Scholar Program in Belgium, 2023-2024.
- BYU Mech. Eng. Department Outstanding Faculty Scholar, 2022.
- C.F. Lucks Award, 33rd International Thermal Conductivity Conference (ITCC), 2017.
- College Graduate Researcher of the Year, USU, 2016.
- Department Graduate Researcher of the Year, USU, 2016.
- Outstanding Engineering Graduate Scholar, USU College of Engineering, 2015.
- Utah State University Presidential Doctoral Research Fellowship, USU, 2012-2016.
 - Member of inaugural nine students
- AIAA Region VI Student Conference, 2nd place March 2011 and 3rd place March 2012.
- Best in Engineering Paper, Utah Academy of Sciences, Arts, and Letters, 2012.
- Rocky Mountain NASA Space Grant Consortium Fellowship, 2011-2012.
- Nuclear Regulatory Commission Scholarship, 2009-2011.
- Get Away Special Undergraduate Research Team Summer Fellowship, 2008.
- Utah State University Presidential Scholarship, 2007-2011.

Teaching Experience

BYU

- ME Capstone Coach, ME EN 475/476 (Senior Required Course)
 - Fall 2017/Winter 2018: 6 students
 - Fall 2021/Winter 2022: 5 students
 - Fall 2024/Winter 2025: 7 students
- Materials Science, ME EN 250 (Sophomore Required Course)
 - Winter 2017: 82 students
 - Fall 2017: 55 students
 - Spring 2018: 32 students
 - Fall 2018: 40 students
 - Winter 2019: 47 students
 - Spring 2019: 16 students
 - Fall 2019 (two sections): 84 students
 - Fall 2021: 74 students
 - Winter 2022: 52 students
 - Fall 2022: 74 students
 - Spring 2023: 14 students
 - Fall 2023 (two sections): 99 students
 - Fall 2024: 80 students
 - Fall 2025 (two sections): 132 students
- Engineering Measurements, ME EN 362 (Junior Required Course)
 - Fall 2016: 29 students
 - Winter 2018: 58 students
 - Winter 2019: 46 students
 - Winter 2020: 51 students

- Winter 2021 (two sections): 96 students
- Heat Transfer, ME EN 340 (Senior Required Course)
 - Winter 2026: 27 students
- Materials in Extreme Environments, ME EN 557 (Graduate Course)
 - Fall 2020: 16 students
 - Winter 2023: 16 students
 - Winter 2025: 23 students

USU

- Thermal Fluid Design, MAE 5410 (Senior Elective Course)
 - Spring 2015: 15 students

Past and Current Support

External Support

Awarded – Total at BYU - \$4,098,973 (PI - \$3,161,957; Co-PI - \$937,016)

As Associate Professor - \$2,293,876 (PI - \$1,595,488; Co-PI \$698,388)

1. Co-PI for “Anisotropic Thermal Properties of SiC-SiC Cladding: Method Development & Characterization,” DOE NEUP, **\$1M** (as Co-PI **\$321k**) for 3 years, 8/2024-7/2027, (H. Ban, T. Munro, O. Johnson, F. Mohammadi-Koumleh), DE-NE0009490.
2. Co-PI for “Development and Validation of a Dual-Purpose Instrument for On-line Monitoring of Molten Salt Composition and Thermal Behavior,” DOE NEUP, **\$1.09M** (as Co-PI **\$378k**) for 3 years, 8/2024-7/2027, (M. Memmott, T. Munro, Y. Hovanski, L. Gardner, M. Rose, J. Pearson), DE-NE0009502.
3. PI for “BYU and KU Leuven Collaboration to Improve the Thermodynamic Study of Biomolecules,” **\$21k**, for 6 months, 12/2023-6-2024, Fulbright Commission (T. Munro).
4. PI for “Administrative Supplement for Equipment: 6-axis Positioner to Improve 3D Print Quality and Print Size,” NIH NIGMS (R15) supplement, **\$100k**, for 1 year, 8/2023-7/2024, (T. Munro, G. Nordin, A. Woolley), R15GM132868-02S1.
5. PI for “Improving Reliability of Novel TRISO Fuel Forms for Advanced Reactors via Multiscale, High-Throughput Characterization and Modeling,” DOE Nuclear Energy University Program (NEUP), **\$1M**, for 3 years, 10/2023-9/2026, (T. Munro, O. Johnson, H. Ban, T. Gerczak), DE-NE0009393.
6. PI for “3D printed, multi-material microfluidic calorimetry: Critical tools to study protein stability,” NIH NIGMS (R15) renewal, **\$405k**, for 3 years, 9/2022-8/2025, (T. Munro, G. Nordin, A. Woolley), R15GM132868-02.

As Assistant Professor - \$1,805,097 (PI - \$1,566,469; Co-PI \$238,628)

7. PI for “Center for Advanced Energy Studies (CAES) Collaboration Fund Proposal Program Development Activities,” INL, **\$45k** for 17 months, 4/2022-9/2023, (T. Munro).
8. PI for “Implementation of Diamond/Tungsten-based Transient Hot Wire Sensor,” INL, **\$72k** for 1 year, 10/2021-9/2022, (T. Munro).
9. PI for “EAGER: Parallelized Measurements of Kapitza Resistance,” NSF CBET, **\$150k** for 1 year, 8/2021-7/2022, (T. Munro), NSF # 2137301.
10. PI for “Local thermal properties of fast reactor MOX fuels,” Nuclear Science User Facility – Rapid Turn-around Experiment, access to user-facility for 9 months (valued at no more than **\$50k**), 7/2021-4/2022, (T. Munro, T. Pavlov).
11. PI for “Development of a Diamond Substrate-based Hot-Wire Sensor for Irradiated Molten Salt Thermal Conductivity Measurements,” INL, **\$60k** for 1 year, 7/2020-7/2021, (T. Munro).

12. PI for “Improvement of Modeling Predictions in Friction Stir Welding by More Accurate Measurement of Heat Transfer Between Tooling and Workpiece,” NSF CMMI, **\$348k** for 3 years, 1/2020-12/2022, (T. Munro, M. Miles), with 4 REU supplements (**\$64k**), NSF #1935767.
13. Co-PI for “Validated, Multi-Scale Molecular Dynamics Simulations to Predict the Thermophysical Properties of Molten Salts Containing Fuel, Fission, and Corrosion Products,” DOE Nuclear Energy University Program (NEUP), **\$800k total** (as Co-PI **\$239k**) for 3 years, 10/2019-9/2022, (S. Nickerson, M. Memmott, T. Munro), DE-NE0008870.
14. PI for “Faculty Development Program to Integrate New Faculty in Nuclear Engineering Research at Brigham Young University,” Nuclear Regulatory Commission Faculty Development Grant, **\$450k** for 3 years, 7/2019-6/2022, (D. Maynes, T. Munro), M31310019M0006.
15. PI for “3D temperature control to study biological processes,” NIH NIGMS (R15), **\$439k** for 3 years, 4/2019-3/2022, (T. Munro, G. Nordin, A. Woolley), R15GM132868-01.
16. PI for “Improved Temperature Control for Accurate DNA Analysis with 3D Printed Microfluidic Devices” Utah NASA Space Grant Consortium, **\$8k** for 1 year, 3/2018-4/2019, (T. Munro, G. Nordin).

At Utah State University

17. Co-PI for “GASPACS: Get Away Special Passive Attitude Control Satellite, A 1U CubeSat with an Inflatable Structure for Two Axis Aero-controlled Stabilization,” NASA CubeSat Launch Initiative Selection Decision (CSLI), **Flight aboard rocket, ~\$40,000**, Awarded Feb 2014 (PI: Jan Sojka, At USU).
18. Co-PI for “Follow-Up Nucleate Boiling on Flight Experiment (FUNBOE) 2.5,” NASA RGSFOP, **Flight aboard airplane, ~\$31,000**, Mar 2012-Jul 2013. (PI: Ryan Martineau, At USU).
19. PI for “Follow-Up Nucleate Boiling on Flight Experiment (FUNBOE) 2.0,” NASA RGSFOP, **Flight aboard airplane, ~\$28,000**, Dec 2010-June 2011. (At USU).
20. PI for “Follow-Up Nucleate Boiling on Flight Experiment (FUNBOE),” NASA Reduced Gravity Student Flight Opportunity Program (RGSFOP), **Flight aboard airplane, ~\$28,000**, Dec 2009-June 2010. (At USU).

Internal Support

Awarded

1. PI for “A Joint MeEn-ChEn Mentoring Environment to Measure the Thermal Properties of Molten Salt with a High Temperature Probe for Use in Energy Production,” Mentored Research Grant, **\$25k** for 2 years, 5/24-12/2025, (T. Munro, M. Memmott).
2. PI for “Development of a New Class of Neutron Detectors,” Ira A. Fulton College of Engineering SEED funding award, **\$12.5k** for 1 year, 11/2020-10/2021, (T. Munro).
3. PI for “A Novel Fiber Optic Probe to Improve Friction Stir Welding Process Modeling by Characterizing Thermal Interface Resistances,” Mentored Research Grant, **\$25k** for 2 years, 7/2018-6/2020, (T. Munro, M. Miles).
4. PI for “Making the Abstract Concrete: Mentoring Students by Hacking a Blu-ray Player into a Fluorescent Microscope,” Graduate Mentoring Award, **\$13k** for 1.5 years, 4/2018-8/2019, (T. Munro).

5. PI for "Blu-ray Based Scanning Thermal Microscope to Measure Spatial Distribution of Thermal Properties," Undergraduate Mentoring Grant, **\$3.9k** for 1 year, May 2017, (T. Munro).
6. PI for "Idaho National Lab Research Initiation" College Research Initiation Travel Support, **\$1.4k** for summer 2017, (T. Munro).
7. PI for "Making the Abstract Concrete: Mentoring Students by Hacking a Blu-ray Player into a Fluorescent Microscope," Office of Graduate Studies Graduate Mentoring Award, **\$13k** for 1 year, Feb 2017, (T. Munro).
8. Co-PI for "Get Away Special (GAS) Undergraduate Research Team," Utah State University Research and Graduate Studies Office, **\$60k**, 02/01/13-01/31/18. (PI: J. Sojka).

Publications

All BYU students are designated with ‡ (BYU undergraduate, 36 total) and † (BYU graduate, 27 total)

Links to citation metrics: [Google Scholar Profile](#), [ResearchGate](#), [ORCID](#)

	Impact Factor	SJR Quartile	H-index	# of Articles
ACS Applied Nano Materials	5.10	Q1	44	1
Annals of Nuclear Energy	1.78	Q1	72	1
Applied Thermal Engineering	6.47	Q1	173	3
Fibers and Polymers	2.36	Q2	58	1
International Journal of Heat and Fluid Flow	2.79	Q1	116	1
International Journal of Heat and Mass Transfer	5.58	Q1	224	3
International Journal of Thermophysics	2.50	Q2	70	9
Journal of Applied Physics	2.55	Q2	331	2
Journal of Applied Polymer Science	3.13	Q2	175	1
Journal of Chemical & Engineering Data	2.10	Q2	162	1
Journal of Heat Transfer	1.8	Q2	147	1
Journal of Manufacturing and Materials Processing	3.61	Q1	21	1
Journal of Nuclear Materials	3.1	Q1	166	1
Journal of Physical and Chemical Reference Data	5.05	Q2	94	1
Journal of the Utah Academy of Sciences Arts and Letters	N/A	N/A	N/A	2
Lab-on-a-chip	7.52	Q1	221	1
Macromolecular Materials and Engineering	4.4	Q1	104	1
Materials	3.4	Q2	148	1
Materials and Design	9.42	Q1	187	1
Measurement Science & Technology	2.05	Q2	145	2
Metrology	1.5	Q2	8	1
Microfluidics and Nanofluidics	2.5	Q2	105	1

Microgravity Science and Technology	1.98	Q2	34	1
Micromachines	3.52	Q2	64	1
Polymer	4.43	Q1	268	1
Review of Scientific Instruments	1.52	Q2	167	1
Total				41

Journals – Published

As Associate Professor

1. Seo, J., Numbers, J.[†], **Munro, T.**, and Zhang, R.Z., “Thermal Properties of SiO₂ Nanoparticle-Enhanced NaNO₃-KNO₃ Eutectic Molten Salt,” ASME Journal of Heat Transfer, **148**(2), HT-25-1262, p. 023501, 2025. [Link](#).
2. Sanchez, D.[†], MacDonald, R.[‡], Mitchell, B.[‡], Rawlins, M.[‡], Engelbrecht, J.[‡], Woolley, A., Nordin, G., and **Munro, T.**, “3D Printed Device for Thermally Sensitive Bioanalysis,” Microfluidics and Nanofluidics, **29**, p. 79, 2025. [Link](#).
3. Sanchez, D.[†], MacDonald, R.[‡], Mitchell, B.[‡], Wade, J.[‡], Wilkerson, M.[‡], Hinnen, H.[‡], Rawlins, M.[‡], Nordin, G., Woolley, A., and **Munro, T.**, “Advancing the Applications of 3D Printed Microfluidics: Utilizing Quantum Dots to Measure Internal Temperature,” International Journal of Heat and Mass Transfer, **252**, p. 127395, 2025. [Link](#).
4. Goodson, M.[†], Noble, G., Lan, L., Cai, L., Pavlov, T., and **Munro, T.**, “Review of Gap Conductance Measurement Approaches Towards an Understanding Beyond UO₂ and Zirconium-alloy Interfaces,” International Journal of Thermophysics, **46**(112), 2025. [Link](#).
5. Loose, J.[†], Hales, S.H.[‡], Kendell, J.[‡], Cutler, I.[‡], Ruth, R.[‡], Redd, J.[‡], Lino, S.[‡], and **Munro, T.**, “An Inexpensive, 3D Printable, Arduino and Blu-Ray-based, Confocal Laser and Fluorescent Scanning Microscope,” Metrology, **5**(1), p. 2, 2025. [Link](#).
6. Ruth, R.[†], Merritt, B.[†], and **Munro, T.**, “Use of a Needle Probe to Measure the Thermal Conductivity of Electrically Conductive Liquids at High Temperatures,” International Journal of Thermophysics, **45**(158), 2024. [Link](#).
7. Ferrigno, J., Pavlov, T., Poudel, N., Salvato, D., Tsai, C., Merritt, B.[†], Hansen, A.[†], **Munro, T.**, Cappia, F., and Khafizov, M., “Analysis of radially resolved thermal conductivity in high burnup mixed oxide fuel and comparison to thermal conductivity correlations implemented in fuel performance codes,” Journal of Nuclear Materials, **596**, p. 155090, 2024. [Link](#).
8. Goodman, M.[†], Melander, R.[†], Miles, M., and **Munro, T.**, “Effect of workpiece/tool heat transfer and friction coefficients on accuracy of simulated temperatures and torques in a friction stir welding plunge,” Materials, **17**(1), p. 198, 2024. [Link](#).
9. Kullberg, J.[†], Sanchez, D.[†], Mitchell, B.[‡], **Munro, T.**, and Egbert, P., “Using Recurrent Neural Networks to Reconstruct Temperatures from Simulated Fluorescent Data for use in Bio-Microfluidics,” International Journal of Thermophysics, **44**(164), 2023. [Link](#).
10. Hinnen, H.[‡], Viglione, M.[†], **Munro, T.**, Woolley, A., Nordin, G., “3D Printed Microfluidic One-Way Valves and Pumps,” Micromachines, **14**(7), 1286, 2023. [Link](#).
11. Thorum, A.[†], Allred, D., Pitt, W., and **Munro, T.**, “Tuning the index of refraction of a polyvinyl toluene and polystyrene copolymer towards a heterogeneous, index-matched neutron detector,” Journal of Applied Polymer Science, **140**(2), e53305, 2022. [Link](#).
12. Sanchez, D.[†], Hawkins, G.[‡], Hinnen, H.[‡], Day, A.[‡], Woolley, A., Nordin, G., and **Munro, T.**, “3D Printing-Enabled Uniform Temperature Distributions in Microfluidic Devices,” Lab-on-a-Chip, **22**, pp. 4393-4408, 2022. [Link](#).

13. Kulberg, J.[†], Colton, J.[‡], Gregory, C.[‡], Bay, A. [‡], and **Munro, T.**, “Demonstration of Neural Networks to Reconstruct Temperatures from Simulated Fluorescent Data towards use in Bio-Microfluidics,” *International Journal of Thermophysics*, **43**(172), 2022. [Link](#)
14. Merritt, B.[†], Seneca, M.[‡], Wright, B.[‡], Cahill, N.[‡], Petersen, N.[‡], Fleming, A., and **Munro, T.** “Thermal Conductivity Characterization of Fluoride and Chloride Molten Salts Using a Modified Transient Hot-wire Needle Probe,” *International Journal of Thermophysics*, **43**(149), 2022. [Link](#)
15. Merritt, B.[†], Seneca, M.[‡], Larson, S.[‡], and **Munro, T.** “Measurements of the Thermal Conductivity of Reference Liquids Using a Modified Transient Hot-wire Needle Probe,” *International Journal of Heat and Mass Transfer*, **189**, pp. 122674, 2022. [Link](#).

As Assistant Professor

16. Wright, A.[†], **Munro, T.R.**, and Hovanski, Y., “Evaluating Temperature Control in Friction Stir Welding for Industrial Applications,” *Journal of Manufacturing and Materials Processing*, **5**(4), p, 124, 2021. [Link](#).
17. Hartvigsen, P.[†], Merritt, B.[‡], Fleming, A., Ban, H., and **Munro, T.**, “Assessment of Uncertainties in Using Raman Thermometry Techniques to Determine the Local Thermal Conductivity of Uranium Dioxide (UO₂),” *International Journal of Thermophysics*, **84**(129), 2021. [Link](#).
18. Ellis, D.[‡], Goodson, M.[†], Miles, M., and **Munro, T.**, “Optimized Design for A Device to Measure Thermal Contact Conductance During Friction Stir Welding,” *International Journal of Thermophysics*, **42**(6), 2021. [Link](#)
19. **Munro, T.**, “Reviewing Thermophysical Properties of Silk Fibers: A Case Study for the Need for Complementary Measurement Techniques,” *International Journal of Thermophysics*, **41**(133), pp 1-18, 2020. [Link](#).
20. Magnusson, J.[‡], Memmott, M., and **Munro, T.**, “Review of Thermophysical Property Methods Applied to Fueled and Un-Fueled Molten Salts”, *Annals of Nuclear Energy*, **146**, pp. 107608, 2020. [Link](#).
21. Lewis, C.[‡], Erikson, J.W.[‡], Sanchez, D.A.[†], McClure, C.E.[‡], Nordin, G.P, **Munro, T.R.**, Colton, J.S., “Use of Machine Learning with Temporal Photoluminescence Signals from CdTe Quantum Dots for Temperature Measurement in Microfluidic Devices,” *ACS Applied Nano Materials*, **3**(5), pp. 4045-4053, 2020. [Link](#).
22. Tasidou, K.A., Magnusson, J. [‡], **Munro, T.**, and Assael, M.J., “Reference Correlations for the Viscosity of molten LiF-NaF-KF, LiF-BeF₂, and Li₂CO₃-Na₂CO₃-K₂CO₃”, *J. Phys. Chem. Ref. Data*, **48**, pp. 043102, 2019. [Link](#).
23. Hayden, S.[†], and **Munro, T.**, “Fluorescent Scanning Thermal Microscope based on a Blu-Ray Optical Head to Measure Thermal Diffusivity,” *Review of Scientific Instruments*, **90**, pp. 024903, 2019. [Link](#).
24. Gardner, L., **Munro, T.**, Villarreal, E., Harris, K., Fronk, T., and Ban, H., "Thermal Characterization of Alkali Treated Kenaf Fibers and Kenaf-Epoxy Composites," *Fibers and Polymers*, **19**, pp. 393-402, 2018. [Link](#).
25. Guillou, J., Lavadiya, D.N., **Munro, T.**, Fronk, T., and Ban, H. “From lignocellulose to biocomposite: Multi-level modelling and experimental investigation of the thermal properties of kenaf fiber reinforced composites based on constituent materials,” *Applied Thermal Engineering*, **128**, pp. 1372-1381, 2018. [Link](#).

26. **Munro, T.**, Liu, L., Ban, H., and Glorieux, C., “Thermophysical Properties of Thin Fibers via Photothermal Quantum Dot Fluorescence Spectral Shape-based Thermometry,” *International Journal of Heat and Mass Transfer*, **112**, pp. 1090-1097, 2017. [Link](#).
27. **Munro, T.**, Putzeys, T., Copeland, C., Xing, C., Lewis, R., Ban, H., Glorieux, C., and Wubbenhorst, M., “Investigation of synthetic spider silk crystallinity and alignment via electrothermal, pyroelectric, literature XRD, and tensile techniques,” *Macromolecular Materials and Engineering*, 302(4), pp. 1600480, 2017. [Link](#).
28. Xing, C., **Munro, T.**, Jensen, C., Ban, H., Copeland, C., and Lewis, R., “Thermal Characterization of Natural and Synthetic Spider Silks by Both the 3ω and Transient Electrothermal Methods,” *Materials & Design*, **119**, 2017. [Link](#).

Pre-Faculty

29. **Munro, T.**, Liu, L., Glorieux, C., and Ban, H., “CdSe/ZnS Quantum Dot Fluorescence Spectra Shape-based Thermometry via Neural Network Reconstruction,” *Journal of Applied Physics*, **119**(21), pp. 214903, 2016. [Link](#).
30. Liu, L., Zhong, K., **Munro, T.**, Alvarado, S., Côte, R., Creten, S., Fron, E., Ban, H., Van der Auweraer, M., Roozen, B., Matsuda, O., and Glorieux, C., “Wideband Fluorescence-based Thermometry by Neural Network Recognition: Photothermal Application in Frequency and Time Domain – from 10 Nanoseconds to DC,” *Journal of Applied Physics*, **118**(18), pp. 184906, 2015. [Link](#).
31. **Munro, T.R.**, Ban, H., “Flow and Heat Flux Behavior of Micro-bubble Jet Flows Observed in Thin, Twisted-Wire, Subcooled, Boiling in Microgravity,” *Microgravity Science and Technology*, **27**, pp. 49-60, 2015. [Link](#).
32. **Munro, T.R.**, Koeln, J.P., Fassmann, A.W., Barnett, R.J., and Ban, H., “Phase Change Heat Transfer and Bubble Behavior Observed on Twisted Wire Heater Geometries in Microgravity,” *International Journal of Heat and Fluid Flow*, **47**, pp. 21-30, 2014. [Link](#).
33. Xing, C., **Munro, T.**, Jensen, C., White, B., Ban, H., “Thermal Characterization of Fine Fibers Using an Improved Direct Electrical Heating Method,” *International Journal of Thermophysics*, **35**(8), pp. 1512-1525, 2014. [Link](#).
34. Xing, C., Jensen, C., **Munro, T.**, White, B., Ban, H., Chirtoc, M., “Accurate Thermal Property Measurement of Fine Fibers by the 3-omega Technique,” *Applied Thermal Engineering*, **73**(1), pp. 315-322, 2014. [Link](#).
35. Xing, C., Jensen, C., **Munro, T.**, White, B., Ban, H., Chirtoc, M., “Thermal Property Characterization by the 3-omega Technique,” *Applied Thermal Engineering*, **71**(1), pp. 589-595, 2014. [Link](#).
36. Xing, C., White, B., **Munro, T.**, Ban, H., Copeland, C., and Lewis, R., “Thermophysical Properties of the Dragline Silk of *Nephila clavipes* Spider,” *Polymer*, **55**(16), pp. 4226-4231, 2014. [Link](#).
37. Xing, C., **Munro, T.**, Jensen, C., White, B., Ban, H., Copeland, C., and Lewis, R., “Thermophysical Property Measurement of Electrically Nonconductive Fibers by the Electrothermal Technique,” *Measurement Science and Technology*, **25**(11), pp. 115604, 2014. [Link](#).
38. Xing, C., **Munro, T.**, Jensen, C., and Ban, H., “Analysis of the Electrothermal Technique for Thermal Property Characterization of Thin Fibers,” *Measurement Science and Technology*, **24**(10), pp. 105603, 2013. [Link](#).
39. **Munro, T.R.**, Ban, H., “Jet Flow Behavior Observed during Microgravity Boiling,” *The Journal of the Utah Academy of Sciences, Arts, and Letters*, **88**, 2013. [Link](#).

40. **Munro, T.**, Fassmann, A., and Ban, H., “Surface Geometry and Heat Flux Effect on Thin Wire Nucleate Pool Boiling of Subcooled Water in Microgravity,” The Journal of the Utah Academy of Sciences, Arts, and Letters, **87**, 2012. [Link](#).

Journals – Accepted

1. **Munro, T.**, Chiu, R., Rose, M.A., Benes, O., Boca, M., Gardner, D.N., Leong, A., Mastromarino, S., Pamplin, K.L., Piro, M.H., Saoudi, M., Schorne-Pinto, J., Sclafani, C.M., Smith, A.L., Smith, N.D., Sulejmanovic, D., Berry, A.M., Chen, R., Dahman, C., Detrick, K., Feng, T., Flores, J.O., Gallagher, R., Gardner, L., Guo, X., Jackson, J.M., Karlsson, T., Kasper[†], P., Kim, H., McIlwain, L., Memmott, M., Merritt[†], B., Monreal, M.J., Oishi, K., Orlovskaya, L., Parker, S.S., Prudil, A., Robison, A.D., Scott, S.R., Romero III, R.C., Vlieland, J., Woods, M., Zhang, J., Besmann, T.M., Scarlat, R.O., “Round Robin Measurements of Molten Salt Properties for LiF-NaF-KF (FLiNaK) and NaCl-KCl Mixtures,” Journal of Chemical & Engineering Data, accepted October 14, 2025. [Link](#).
 - a. 10.1021/acs.jced.5c00421

Journals – Under Revision

1. N/A

Journals – Under Review

1. **Munro, T.R.**, Smalley, P., Plummer, K.E., Goodson, M., and West, R.E., “Use of Decision-based Learning to Develop Conditional Knowledge of Binary Phase Diagram Interpretation in Mechanical Engineering,” Computer Applications in Engineering Education, submitted October 15, 2025.

Journals – In Preparation

1. Numbers, J., Birri, A., Termini, N., Hamm, T., and **Munro, T.**, “Thermal Conductivity Model Informed by the Pair Distribution Function of Molten Salts,” Journal of Molecular Liquids.

Peer Reviewed Conference Proceedings

As Associate Professor

1. Numbers, J.[†], Hamm, T.[‡], Ruth, R.[†], Pitchford, H.[‡], Sumsion, M.[‡], Petersen, N.[‡], Wright, B.[‡], Merritt, B.[‡], Petersen, C.[‡], Colton, M.[‡], Larson, S.[‡], Allred, D., Birri, A., and **Munro, T.**, “Advancing Thermal Conductivity Measurement and Modeling for Molten Salts in Gen IV Nuclear Reactors,” Transactions of the American Nuclear Society, ANS Annual Meeting, Las Vegas, NV, June 16-19, 2024.
2. Ruth, R.[†], Merritt, B.[†], and **Munro, T.**, “Further Development and Use of the Needle Probe,” Transactions of the American Nuclear Society, ANS Winter Meeting, Phoenix, AZ, Nov 13-17, 2022.
3. Kasper, P.[†], Dromey, J.[‡], Bolander, A.[‡], Petersen, C.[‡], Carson, T.[‡], and **Munro, T.**, “Molten Salt Thermal Conductivity Hot Wire Sensor,” Transactions of the American Nuclear Society, ANS Winter Meeting, Washington DC, Nov 30 – Dec 3, 2021.

- Merritt, B. †, Seneca, M. ‡, and **Munro, T.**, “Needle Probe Measurements of the Thermal Conductivity of Reference Liquids,” Transactions of the American Nuclear Society, ANS Winter Meeting, Washington DC, Nov 30 – Dec 3, 2021.

As Assistant Professor

- Kasper, P. †, Last, C. ‡, Thorum, A. †, Barbosa, E. ‡, Bettinger, J. ‡, Davis, J. ‡, Steele, K. ‡, and **Munro, T.**, “Molten Salt Thermal Conductivity Sensor,” Transactions of the American Nuclear Society, ANS Winter Meeting, Chicago (Virtual), November 16-19, 2020.
- Hartvigsen, P. †, Wilkerson, M. †, Merritt, B. †, Davis, K., and **Munro, T.**, “Needle Probe for Measuring Thermal Conductivity of Molten Salts,” Transactions of the American Nuclear Society, ANS Winter Meeting, Chicago (Virtual), November 16-19, 2020.
- Sanchez, D. †, Nordin, G., and **Munro, T.**, “Microfluidic Temperature Behavior in a Multi-Material 3D Printed Chip,” IMECE2019-11470, ASME IMECE, Salt Lake City, UT, November 11-14, 2019. ***Awarded Best Paper, MEMS Engineering Division***
- Thorum, A. †, Page, L. ‡, **Munro, T.**, Allred, D., Hua, Z., and Hurley, D., “Thermal Properties of Thin Film Uranium Oxides and Thorium Oxides,” IMECE2019-11699, ASME IMECE, Salt Lake City, UT, November 11-14, 2019.
- Munro, T.**, “Breaking tradition: How complementary methods can extend thermal conductivity measurements into new applications,” Proceedings of the 34th International Thermal Conductivity Conference, DEStech Publications Inc., 2020.
- Hayden, S. †, and **Munro, T.**, “Thermal Diffusivity Measurements with Fluorescent Scanning Microscope,” Transactions of the American Nuclear Society, ANS Winter Meeting, Orlando, Florida, November 11 - November 15, 2018.
- Hayden, S. †, Haddock, R. ‡, and **Munro, T.**, “Simulated Thermal Characterization of Materials via a Blu-ray Based Scanning Fluorescence Microscope,” Proceedings of the 33rd International Thermal Conductivity Conference, pp. 170-178, DEStech Publications Inc., 2018.
- Gardner, L., **Munro, T.**, Villarreal, Z., Harris, K., Fronk, T., and Ban, H., “Laser Flash Measurements on Thermal Conductivity of Bio-Fiber (Kenaf) Reinforced Composites,” Proceedings of the 32nd International Thermal Conductivity Conference, pp. 61-68, DEStech Publications Inc., 2018.
- Hayden, S. †, and **Munro, T.**, “Thermal Characterization of Materials Via a Blu-ray Based Scanning Fluorescence Microscope,” Transactions of the American Nuclear Society, ANS Winter Meeting, Washington D.C., October 29 - November 2, 2017.

Pre-Faculty

- Munro, T.**, Xing, C., Harris, K., and Ban, H., “Thermal Conductivity and Diffusivity for SiC Fibers for use in ATF Cladding Composites,” Transactions of the American Nuclear Society, Vol. 115, ANS Winter Meeting, Las Vegas, Nevada, November 6-10, 2016.
- Munro, T.**, Xing, C., Ban, H., Copeland, C., Lewis, R., and Glorieux, C., “Thermal Property Measurement of Thin Fibers – A Direct Approach,” International Mechanical Engineering Congress and Exposition, Houston, Texas, November 15-21, 2015.
- Munro, T.**, Xing, C., Marquette, A., Ban, H., Copeland, C., and Lewis, R., “Description of Test Setup and Approach to Measure Thermal Properties of Natural and Synthetic Spider Silks at Cryogenic Temperatures,” International Mechanical Engineering Congress and Exposition, San Diego, California, November 15-21, 2013.

17. **Munro, T.**, Xing, C., Copeland, C., Ban, H., and Lewis, R., “Probing the Mysteries of Spider Silk’s Uncharacteristically High Thermal Diffusivity,” ASME Summer Heat Transfer Conference, Minneapolis, Minnesota, July 14-19, 2013.
18. Xing, C., **Munro, T.**, Jensen, C., And Ban, H., “Parametric Study on the Effect of Radiation Heat Loss and Nonconstant Heating in the Electrothermal Technique for Micro- to Nano-scale Fine Fiber Thermal Property Measurement,” MicroTech Conference, Gaylord National Harbor, Maryland, May 12-15, 2013.
19. **Munro, T.**, Xing, C., Jensen, C., Copeland, C., Ban, H., and Lewis, R., “Characterizing Thermal Diffusivity of Synthetic Spider Silk using Improved Transient Electrothermal Technique,” MicroTech Conference, Gaylord National Harbor, Maryland, May 12-15, 2013.
20. **Munro, T.**, Ban, H., “Jet Flow Behavior Observed during Microgravity Boiling,” 18th Annual Rocky Mountain NASA Space Grant Consortium Fellowship Symposium, Utah State University, Logan, Utah, May 9, 2012.
21. Martineau, R.J., Torres, E.M., Kullberg, J.G., and **Munro, T.R.**, “Analysis of a Thin-Wire Boiling Experiment for Application to Thermal Management Systems,” AIAA Region VI Student Conference, Seattle, Washington, March 29-31, 2012.
22. **Munro, T.**, Fassmann, A., and Ban, H., “Surface Geometry and Heat Flux Effect on Thin Wire Nucleate Pool Boiling of Subcooled Water in Microgravity,” AIAA Region VI Student Conference, San Diego, California, March 24-26, 2011.

Patents

1. Munro, Troy, and Ryker Haddock. "Methods and systems for determining at least one thermal property of a sample." U.S. Patent No. 11,585,756. 21 Feb. 2023.
2. US Patent Application, #US01-495273-83, Munro, T., Gomez Paz, S., and Hansen, A., “High Throughput, Thermo-Reflectance Microscopy to Measure Thermal Transport at the Microscopic Scale,” Filed April 2023.

Invited Presentations

As Associate Professor

1. **T. Munro**, “Thermal Property Measurements for Nuclear Energy Applications,” Oak Ridge National Laboratory, Oak Ridge, TN, August 12, 2025.
2. **T. Munro**, “Nuclear Fuels and Molten Salts: Understanding Materials in Extreme Environments,” Graduate Seminar, Dept. of Mechanical and Aerospace Engineering, Utah State University, Logan, UT, September 23, 2024.
3. **T. Munro**, “Transient thermal conductivity/diffusivity measurement,” Measurement and Analysis Thermochemical & Thermophysical Properties of Molten Salts, Molten Salt Thermal Properties Working Group, Online, July 16-17, 2024.
4. **T. Munro**, J. Numbers, R. Ruth, P. Kasper, B. Merritt, “Difficulties in Measuring the Thermal Conductivity of Molten Salts,” The International Association on Transport Properties (IATP), Boulder Colorado, June 23, 2024.
5. **Munro, T.**, “Thermal Control Within 3D-printed Microfluidics to Study Biological Materials,” ZMB Seminar - KU Leuven, Leuven, Belgium, June 7, 2024.
6. **T. Munro**, “Molten Salt Thermal Conductivity Measurements,” Nuclear Fuels Group at EU Joint Research Center at Karlsruhe, Germany, May 15, 2024.

7. **T. Munro**, “Quantifying Uncertainty in Molten Salt Thermal Conductivity Measurements,” Workshop on Uncertainty in Molten Salt Thermal Property Values and Predictions, virtual, hosted by ANL, July 25, 2023.
8. **T. Munro**, “Understanding the Thermal Behavior of Materials,” High-temperature properties (HTPs) seminar series, virtual, hosted by INL, August 19, 2022.
9. **T. Munro**, “Investigation of Hot-cell Capable Thermal Conductivity Measurements for Ceramic Fuels,” TMS 2022, Anaheim, CA, February 27, 2022.
10. **T. Munro**, “Thermophysical Properties of Molten Salts for Use in Energy Systems,” North Carolina State University, Nuclear Engineering Graduate Seminar, February 3, 2022.

As Assistant Professor

11. **T. Munro**, “Thermophysical Property Characterization Capabilities at BYU,” Workshop for the Molten Salt Thermal Properties Working Group, Online, July 15, 2020.
12. **T. Munro**, “Pitfalls and Plans for Molten Salt Thermal Conductivity,” INL Pyroprocessing seminar, Idaho National Laboratory, Idaho Falls, ID, July 7, 2020.
13. **T. Munro**, “The Role of Thermal Transport in Nuclear Energy,” Graduate Seminar at University of New Mexico, Albuquerque, NM, Feb 18, 2020.
14. **T. Munro**, “Nuclear Fuels: Materials in Extreme Environments,” Graduate Seminar, Dept. of Materials Science and Metallurgy, University of Utah, Salt Lake City, UT, Oct 23, 2019.
15. **T. Munro**, “Nuclear Fuels: Physics in Extreme Environments,” Physics Colloquium, Dept. of Physics, Utah State University, Logan, UT, Oct 29, 2019.
16. **T. Munro**, *Plenary*, “Breaking Tradition: How complementary methods can extend thermal conductivity measurements into new applications,” 34th International Thermal Conductivity Conference (ITCC), Wilmington, DE, June 17-20, 2019.
17. **T. Munro**, “Nuclear Fuels: Physics in Extreme Environments,” Physics Colloquium, Provo, UT, Dec 3, 2018.
18. **T. Munro**, “Thermal Characterization of Materials for Nuclear Applications,” BYU-Idaho Physics Research Group, Rexburg, ID, July 2018.
19. **T. Munro**, “Characterizing the Thermal Behavior of Materials with Advanced Instrumentation,” CARAT Working Meeting, Pittsburg, PA, Oct 2017.
20. **T. Munro**, “Characterizing the Thermal Behavior of Materials with Advanced Instrumentation,” CAES MSI Working Meeting, Boise, ID, Aug 2017.
21. **T. Munro**, “Blu-Ray and Raman Instruments for Thermal Characterization of Materials,” Idaho National Lab, Materials and Fuels Complex, June 2017.
22. **T. Munro**, “Thermal Properties of Natural and Synthetic Spider Silk,” Brigham Young University, February 2016.

Presentations

At BYU

As Associate Professor

1. **Troy Munro**, Randall Chiu, Raluca Scarlat, “Round Robin on the Measurement of the Composition, Oxygen Content, Density, Melting Point, and Thermal Conductivity of NaCl-KCl and FLiNaK Salts,” TMS 2026, San Diego, CA, March 15-19, 2026.
2. Seth Leavitt, Christopher Nyborg, **Troy Munro**, “Frequency-Domain Thermorefectance Automation for High Throughput Microstructural and Thermal Characterization,” TMS 2026, San Diego, CA, March 15-19, 2026.
3. Christopher Nyborg, Josh Kelley, Thomas Andrews, Oliver Johnson, **Troy Munro**, “Characterizing Thermal Conductivity in Anisotropic Textured Graphite Composites

- Using Frequency Domain Thermoreflectance,” TMS 2026, San Diego, CA, March 15-19, 2026.
4. Kyle Kelley, Christopher Nyborg, Thomas Andrews, **Troy Munro**, Oliver Johnson, “Inferring the Local, Temperature-Dependent, Anisotropic Thermal Conductivity of TRISO fuel Constituents from Modulated Photothermal Phase Data,” TMS 2026, San Diego, CA, March 15-19, 2026.
 5. Ryan Weber, Tyler Gerczak, **Troy Munro**, Oliver Johnson, “Effective Thermal Conductivity Modeling of Synthetic TRISO Fuel Compacts,” TMS 2026, San Diego, CA, March 15-19, 2026.
 6. Parker Jackman, Isaac Parker, Oliver Johnson, **Troy Munro**, “Anisotropic Thermal Response of SiC-SiC Composite Cladding Via IR Thermography,” TMS 2026, San Diego, CA, March 15-19, 2026.
 7. Kyle Joshua Kelley, **Troy Munro**, Oliver Johnson, “Bayesian Inference of Local, Temperature-Dependent, Anisotropic Thermal Conductivity from Modulated Photothermal Phase Data,” TMS 2026, San Diego, CA, March 15-19, 2026.
 8. Ryan Weber, Tyler Gerczak, **Troy Munro**, Oliver Johnson, “Using 2D Data and Diffusion Model Principles to Generate 3D Microstructures of TRISO Fuel Compacts,” TMS 2026, San Diego, CA, March 15-19, 2026.
 9. Isaac Parker, Parker Jackman, Kyle Kelley, **Troy Munro**, Oliver Johnson, “Bayesian Inference of Local SiC/SiC Thermal Conductivity with Curved Geometry,” TMS 2026, San Diego, CA, March 15-19, 2026.
 10. Jacob Numbers, Isaac Walker, Sam Nasman, Andrew Christensen, Tyler Hamm, Ryan Ruth, Nick Termini, Anthony Birri, Matthew Memmott, **Troy Munro**, “Thermal Conductivity of Fluoride and Chloride Salts,” Molten Salt Reactor Workshop 2025, Knoxville, TN, Nov 18-20, 2025.
 11. Numbers, J., **Munro, T.**, Birri, A., Termini, N., Walker, I., and Hamm, T., “Development of a Thermal Conductivity Model for Molten Salts Based on the Pair Distribution Function,” MS&T25, Columbus, OH, September 28-October 1, 2025.
 12. Nasman, S., **Munro, T.**, Numbers, J., Baltich, B., Walker, I., Christiansen, A., Ruth, R., and Snodgrass, H., “Thermal Conductivity Measurements of High Temperature Fluoride and Chloride Salts,” MS&T25, Columbus, OH, September 28-October 1, 2025.
 13. Baltich, B., **Munro, T.**, Numbers, J., Christensen, A., Nasman, S., Walker, I., Ruth, R., and Snodgrass, H., “Development of an Improved Needle Probe to Measure the Thermal Conductivity Molten Salts,” MS&T25, Columbus, OH, September 28-October 1, 2025.
 14. Weber, R., Johnson, O.K, Gerczak, T., Jellison, G., Raftery, A., Ban, H., and **Munro, T.**, “Using 2-MGEM to Enable Synthetic Microstructure Generation,” Great Basin Microscopy Society Fall Meeting, Provo, UT, September 2025. (Poster)
 15. Johnson, O.K., Kelley, J.K., Nyborg, C., Weber, R., Bridenstine, E., Adair, C.W., Niño, J.D., Baird, S.G., Homer, E.R., Thompson, G.B., **Munro, T.**, Ban, H., Evans, H., Beatty, E., Hansen, D.L., Holladay, S., “Microstructure Characterization and Design with Help from Video Games, Geostatistics, and Other Interdisciplinary Tools,” *Department of Mechanical Engineering and Materials Science Seminar*, Yale University, September 2025.
 16. Johnson, O.K., Kelley, J.K., Nyborg, C., Weber, R., Bridenstine, E., Adair, C.W., Niño, J.D., Baird, S.G., Homer, E.R., Thompson, G.B., **Munro, T.**, Ban, H., Evans, H., Beatty, E., Hansen, D.L., Holladay, S., “Microstructure Characterization and Design with Help

- from Video Games, Geostatistics, and Other Interdisciplinary Tools,” *Princeton Plasma Physics Laboratory (PPPL)*, September 2025.
17. Taha, M., Pelaez-Duque, A., Woolley, A., Nordin, G., and **Munro, T.**, “Development of Miniaturized Peltier Element Towards Temperature Control Within Microfluidic Systems,” ASME Summer Heat Transfer Conference (SHTC), Westminster, CO, July 8-10, 2025.
 18. Day, R., Taha, M., Woolley, A., Nordin, G., and **Munro, T.**, “Development of a Microfluidic Isothermal Titration Calorimeter,” ASME Summer Heat Transfer Conference (SHTC), Westminster, CO, July 8-10, 2025.
 19. Numbers, J., **Munro, T.**, Hamm, T., Christensen, A., Sumsion, M., Ruth, R., and Larson, S., “Development Toward an In-Situ Thermal Conductivity Measurement Device for Nuclear Reactors,” Transactions of the American Nuclear Society, ANS Annual Meeting, Chicago, IL, June 15-18, 2025.
 20. Numbers, J., **Munro, T.**, Birri, A., and Termini, N., “Molten Salt Energy Carrier Model Informed by the Pair Distribution Function,” Transactions of the American Nuclear Society, ANS Annual Meeting, Chicago, IL, June 15-18, 2025.
 21. Goodson, M., Cutler, I., Miles, M., and **Munro, T.**, “Measurement of Heat Transfer Coefficient Between a Friction Stir Welding Tool and Workpiece During Plunge Using a 3-Omega Sensor,” TMS 2025, Las Vegas, NV, March 23-27, 2025.
 22. Johnson, O., Adair, C., Nino, J., Baird, S., Homer, E., Thompson, G., **Munro, T.**, and Ban, H., “Microstructure Characterization and Design with Help from Video Games, Geostatistics, and Other Interdisciplinary Tools,” TMS 2025, Las Vegas, NV, March 23-27, 2025.
 23. Taha, M., Nordin, G.P., Woolley, A.C., and **Munro, T.R.**, “3D Printed Microfluidic Calorimetry of Bioanalysis,” Utah Biomedical Engineering Conference (UBEC), Salt Lake City, UT, September 21, 2024.
 24. Sanchez, D., Nordin, G.P., Woolley, A.C., and **Munro, T.R.**, “Novel Temperature Control of 3D Printed Microfluidic Device Towards Biomolecular Analysis,” Utah Biomedical Engineering Conference (UBEC), Salt Lake City, UT, September 21, 2024.
 25. Taha, M., Fears, C., Day, A., Walton, O., Longhurst, N., Nordin, G., and **Munro, T.**, “Development of Miniaturized Peltier Element Towards Temperature Control Within Microfluidic Systems,” Twenty-Second Symposium on Thermophysical Properties, Boulder, CO, June 23-28, 2024.
 26. Goodson, M., Cutler, I., Rollans, M., Williams, K., Syphus, B., and **Munro, T.**, “ 3ω Contact Resistance Measurement at Pressure” Twenty-Second Symposium on Thermophysical Properties, Boulder, CO, June 23-28, 2024.
 27. Numbers, J., **Munro, T.**, Hamm, T., Ruth, R., Petersen, N., Allred, D., Birri, A., Wright, B., Merritt, B., Petersen, C., Pitchford, H., Colton, M., and Larson, S., “Thermophysical Property Measurements of Molten Fluoride and Chloride Salts,” Twenty-Second Symposium on Thermophysical Properties, Boulder, CO, June 23-28, 2024. *Awarded Best Poster for Young Professionals.*
 28. Numbers, J., Hamm, T., Ruth, R., Pitchford, H., Sumsion, M., Petersen, N., Wright, B., Merritt, B., Petersen, C., Colton, M., Larson, S., Allred, D., Birri, A., and **Munro, T.**, “Advancing Thermal Conductivity Measurement and Modeling for Molten Salts in Gen IV Nuclear Reactors,” ANS Annual Meeting, Las Vegas, NV, June 16-19, 2024.

29. Ferrigno, J., Pavlov, T., Poudel, N., Salvato, D., Merritt, B., Hansen, A., **Munro, T.**, Cappia, F., Khafizov, M., “Analysis of Radially Resolved Thermal Conductivity in High Burnup Mixed Oxide Fuel,” MS&T23, Columbus, OH, October 1-4, 2023.
30. Fitzpatrick, D., Goodson, M., **Munro, T.**, and Miles, M., “Joule Heating COMSOL simulation for FSW analysis,” Intermountain Engineering, Technology, and Computing Conference (i-ETC), Orem, UT, May 12-13, 2023.
31. Goodson, M., Melander, R., Miles, M., and **Munro, T.**, “Measurement of heat transfer coefficient between a friction stir welding tool and workpiece during plunge using a 3ω sensor,” TMS Annual Meeting and Exhibition, San Diego, CA, March 19-23, 2023.
32. Melander, R., Goodson, M., Miles, M., and **Munro, T.**, “The Influence of Heat Transfer and Friction Coefficients on 3D Modeling Predictions of Friction Stir Welding in AA 6061-T6,” TMS Annual Meeting and Exhibition, San Diego, CA, March 19-23, 2023.
33. Merritt, B., Wright, B., Cahill, N., Petersen, N., and **Munro, T.**, “Thermal Conductivity Measurements of FLiNaK, FMgNaK, and LiCl-KCl,” TMS Annual Meeting and Exhibition, San Diego, CA, March 19-23, 2023.
34. Goodson, M., Gage, J., McGinn, S., **Munro, T.**, and Miles, M., “Measuring the heat transfer coefficient between tool and workpiece during friction stir welding with a 3ω sensor,” OMEGA, March 9, 2023.
35. Ruth, R., Merritt, B., and **Munro, T.**, “Further Development and Use of the Needle Probe,” Transactions of the American Nuclear Society, ANS Winter Meeting, Phoenix, AZ, Nov 13-17, 2022.
36. Sanchez, D., Hawkins, G., Hinnen, H., Day, A., Woolley, A., Nordin, G., and **Munro, T.**, “3D Printing-Enabled Uniform Temperature Distributions in Microfluidic Devices,” 2022 SHPE National Convention, Charlotte, NC, November 2-6, 2022, oral presentation.
37. Sanchez, D., and **Munro, T.**, “Adapting the Transient Hot Wire Method to Find the Thermal Conductivity of Stereolithographic 3D Printed PEGDA,” 34th International Thermal Conductivity Conference (ITCC), Lowell, MA, September 25-28, 2022.
38. Goodson, M., and **Munro, T.**, “Validation of 3ω measurement with plans to use during friction stir welding process,” 34th International Thermal Conductivity Conference (ITCC), Lowell, MA, September 25-28, 2022.
39. Merritt, B., and **Munro, T.**, “Thermal Conductivity of Molten Halide Salts Below 750 °C,” 34th International Thermal Conductivity Conference (ITCC), Lowell, MA, September 25-28, 2022.
40. Garrett Hawkins, Derek Sanchez, Hunter S. Hinnen, Alison Day, Adam T. Woolley, Gregory P. Nordin, **Troy Munro**, “3D Printing Enabled Uniform Temperature Distributions and Fluorescent Temperature Sensing in Microfluidic Devices”, 2022 TechConnect World Innovation Conference, June 2022.
41. Goodson, M., Williams, K., Melander, R. Miles, M., and **Munro, T.**, “Friction Law Comparison for 2D simulations of a Friction Stir Welding Plunge,” Intermountain Engineering, Technology, and Computing Conference (i-ETC), Orem, UT, May 13-14, 2022.
42. Melander, R. Goodson, M., Williams, K., **Munro, T.**, and Miles, M., “Temperature Matching of a Friction Stir Welding Plunge: 3D Simulation,” Intermountain Engineering, Technology, and Computing Conference (i-ETC), Orem, UT, May 13-14, 2022. *1st place Student Poster.*

43. Kasper, P.[†], Dromey, J.[‡], Bolander, A.[‡], Petersen, C.[‡], Carson, T.[‡], and **Munro, T.**, “Molten Salt Thermal Conductivity Hot Wire Sensor,” ANS Winter Meeting, Washington DC, Nov 30 – Dec 3, 2021.
44. Merritt, B.[†], Seneca, M.[‡], and **Munro, T.**, “Needle Probe Measurements of the Thermal Conductivity of Reference Liquids,” ANS Winter Meeting, Washington DC, Nov 30 – Dec 3, 2021.
45. **T. Munro**, “Thermal Conductivity Probes for Molten Salts,” Workshop for the Molten Salt Thermal Properties Working Group, Online, November 15-17, 2021.

As Assistant Professor

46. Brian Merritt, Peter Hartvigsen, McKay Wilkerson, Kurt Davis, and **Troy Munro**, “Needle Probe for Measuring Thermal Conductivity of Molten Salts,” Twenty-First Symposium on Thermophysical Properties, Boulder, CO, June 20–25, 2021.
47. Peter Kasper, Kirsten Steele, Jay Bettinger, Jace Davis, Connor Last, Erik Barbosa, and **Troy Munro**, “Molten Salt Hot Wire Sensor for Thermal Conductivity,” Twenty-First Symposium on Thermophysical Properties, Boulder, CO, June 20–25, 2021.
48. Matthew Goodson, Michael Miles, and **Troy Munro**, “Quantitative Analysis of Heat Transfer Coefficient for Friction Stir Welding Temperature Profiles,” Twenty-First Symposium on Thermophysical Properties, Boulder, CO, June 20–25, 2021.
49. Daniel Ellis, Matthew Goodson, Michael Miles, and **Troy Munro**, “Heat Transfer Interface Guided Design for an Instrument to Measure the Heat Transfer Coefficient in Friction Stir Welding,” Twenty-First Symposium on Thermophysical Properties, Boulder, CO, June 20–25, 2021.
50. Conner Mantz, Derek Sanchez, Greg Nordin, and **Troy Munro**, “Adapting the Transient Hot-Wire Method to Find the Thermal Conductivity of Stereolithographic 3D,” Twenty-First Symposium on Thermophysical Properties, Boulder, CO, June 20–25, 2021.
51. Kasper, P., Last, C., Thorum, A., Barbosa, E., Bettinger, J., Davis, J., Steele, K., and **Munro, T.**, “Molten Salt Thermal Conductivity Sensor,” Transactions of the American Nuclear Society, ANS Winter Meeting, Chicago (Virtual), November 16-19, 2020.
52. Hartvigsen, P., Wilkerson, M., Merritt, B., Davis, K., and **Munro, T.**, “Needle Probe for Measuring Thermal Conductivity of Molten Salts,” Transactions of the American Nuclear Society, ANS Winter Meeting, Chicago (Virtual), November 16-19, 2020.
53. Ellis, D., Goodson, M., Miles, M., and **Munro, T.**, ASME IMECE, “Heat Transfer Interface Guided Design for an Instrument to Measure the Heat Transfer Coefficient in Friction Stir Welding,” online, poster presentation (IMECE2020-25392), Nov 16-19, 2020.
54. Goodson, M., Miles, M., and **Munro, T.**, ASME Summer Heat Transfer Conference, “Measuring Heat Transfer Coefficient for Friction Stir Welding with Thermal Waves,” online, oral presentation (SHTC2020-9111), July 13-15, 2020.
55. John Colton, James Erikson, Charles Lewis, Emma McClure, Derek Sanchez, and **Troy Munro**, American Physical Society March Meeting, “CdTe nanoparticles as non-invasive temperature sensors via machine learning of optical properties”, Denver, CO, March 2-6, 2020.
56. Magnussen, J., and **Munro, T.**, Utah Conference on Undergraduate Research (UCUR) 2020, “Thermophysical Property Measurements of Molten Salts for Nuclear Reactors,” February 22, 2019
57. Thorum, A., Page, L., **Munro, T.**, Allred, D., Hua, Z., and Hurley, D., International Mechanical Engineering Congress and Exposition, “Thermal Properties of Thin Film

- Uranium Oxides and Thorium Oxides,” Salt Lake City, UT, oral presentation, paper accepted (IMECE2019-11699), November 11-14, 2019.
58. Sanchez, D., Nordin, G., and **Munro, T.**, International Mechanical Engineering Congress and Exposition, “Microfluidic Temperature Behavior in a Multi-Material 3D Printed Chip,” Salt Lake City, UT, oral presentation, paper accepted (IMECE2019-11470), November 11-14, 2019.
 59. C. Emma McClure, James Erikson, Heather Hogg, Katelyn Watson, **Troy Munro**, John Colton, American Physical Society Conference for Undergraduate Women in Physics (APS CUWiP), “Optical Properties of Rhodamine B as a Temperature Sensor,” Utah State University, Logan, UT, Jan 19, 2019.
 60. Hayden, S., and **Munro, T.**, ANS Winter Meeting, “Thermal Diffusivity Measurements with Fluorescent Scanning Microscope,” Orlando, Florida, oral presentation, paper accepted (Transactions of the American Nuclear Society, Vol. 119), November 11 - November 15, 2018.
 61. Hartvigsen, P., and **Munro, T.**, Joint ASME AIChE and NIST 20th Symposium on Thermophysical Properties, “Comparison of Raman Thermometry Techniques for Thermophysical Properties of Uranium Dioxide,” Boulder, CO, oral presentation (student), June 24-29, 2018.
 62. Hayden, S., and **Munro, T.**, ANS Winter Meeting, “Thermal Characterization of Materials Via a Blu-ray Based Scanning Fluorescence Microscope,” Washington D.C., oral presentation, paper accepted (Transactions of the American Nuclear Society, Vol. 117), October 29 - November 2, 2017.
 63. **Munro, T.**, CARAT Meeting, “Characterizing the thermal behavior of materials with new PIE techniques,” Cranberry, Pennsylvania, oral presentation, October 25-27, 2017.
 64. Hayden, S., and **Munro, T.**, 33rd International Thermal Conductivity Conference (ITCC), “Thermal Characterization of Materials via a Blu-ray Based Scanning Fluorescence Microscope,” Logan, UT, oral presentation, May 16-18, 2017.
 65. Hartvigsen, P., and **Munro, T.**, 33rd International Thermal Conductivity Conference (ITCC), “Mapping of the Thermal Properties and Molecular Bonding of Ceramic Materials via Complementary Raman Scanning Thermal Microscopy (CRSThM),” Logan, UT, oral presentation, May 16-18, 2017.

Pre-BYU

66. ANS Winter Meeting, “Thermal Conductivity and Diffusivity for SiC Fibers for Use in ATF Cladding Composites,” Las Vegas, NV, oral presentation, paper accepted (Transactions of the American Nuclear Society, Vol. 115), November 6-10, 2016.
67. International Mechanical Engineering Congress and Exposition, “Thermal Property Measurement of Thin Fibers – A Direct Approach,” Houston, Texas, oral presentation, paper accepted (IMECE2015-52056), November 13-19, 2015.
68. Joint ASME AIChE and NIST 19th Symposium on Thermophysical Properties, “Thermal Property Measurements of Spider Silks,” Boulder, Colorado, oral presentation, June 21-26, 2015.
69. Joint ASME AIChE and NIST 19th Symposium on Thermophysical Properties, “Photothermal Quantum Dot Fluorescence-Based Thermometry for Thermal Property Determination of Thin Fibers,” Boulder, Colorado, oral presentation, June 21-26, 2015.

70. General Scientific Meeting of the Belgian Physical Society 2014, “Thermal Properties of Synthetic Spider Silk by Photothermal Fluorescence,” Leuven, Belgium, poster presentation, May 28, 2014.
71. SPIE PhD Symposium on Optics, “Thermal Properties of Synthetic Spider Silk by Photothermal Fluorescence,” Leuven, Belgium, poster presentation, January 9-10, 2014.
72. Onderzoekseminarie Akoestiek en Thermische Fysica, “Exploring the Thermal Properties of Natural and Synthetic Spider Silks,” Leuven, Belgium, oral presentation (Invited) , December 12, 2013.
73. KU Leuven Department of Physics and Astronomy Research@Dept 2013, “Thermal Properties of Synthetic Spider Silk by Photothermal Fluorescence,” Leuven, Belgium, poster presentation, November 26, 2013.
74. Space Dynamics Laboratory IR&D Session, “Thermal Diffusivity of Spider Silks at Cryogenic Temperatures,” Logan, Utah, poster presentation (Invited), June 27, 2013.
75. International Mechanical Engineering Congress and Exposition, “Thermal Properties of Natural and Synthetic Spider Silks at Cryogenic Temperatures,” San Diego, California, oral presentation, November 15-21, 2013.
76. ASME Summer Heat Transfer Conference, “Probing the Mysteries of Spider Silk’s Uncharacteristically High Thermal Diffusivity,” Minneapolis, Minnesota, oral presentation, July 14-19, 2013.
77. MicroTech Conference, “Characterizing Thermal Diffusivity of Synthetic Spider Silk using Improved Transient Electrothermal Technique,” Gaylord National Harbor Maryland, poster presentation, May 12-15, 2013.
78. Intermountain Graduate Research Symposium, “Probing the Mysteries of Spider Silk’s Uncharacteristically High Thermal Diffusivity,” Utah State University, Logan, Utah, oral presentation, April 12, 2013.
79. Synthetic Biomanufacturing Institute Science and Technology Review Winter Meeting, “Thermal Properties of Natural and Synthetic Spider Silks,” Utah State University, Logan, Utah, poster presentation, January 29, 2013.
80. Institute of Biological Engineering Western Regional Conference, “Thermal Diffusivity of Natural and Synthetic Spider Silks,” Utah State University, Logan, Utah, poster presentation, October 26, 2012.
81. nanoUtah, “Thermal Diffusivity of Natural and Synthetic Spider Silks,” University of Utah, Salt Lake City, Utah, poster presentation, October 11-12, 2012.
82. Rocky Mountain NASA Space Grant Consortium Annual Symposium, “Jet Flow Behavior Observed during Microgravity Boiling,” Utah State University, Logan, Utah, oral presentation, May 9, 2012.
83. Intermountain Graduate Research Symposium, “Heater Geometry and Heat Flux Effects on Subcooled, Thin Wire, Nucleate Pool Boiling in Microgravity,” Utah State University, Logan, Utah, oral presentation, April 5-6, 2012.
84. USU Physics Department Colloquium, “Gravitational Effects on Thin-Wire Subcooled Nucleate Boiling Dynamics with Two Dimensional Applications,” Utah State University, Logan, Utah, oral presentation (Invited), September 6, 2011.
85. Rocky Mountain NASA Space Grant Consortium Annual Symposium, “Effects of Microgravity on Thin-Wire Subcooled Nucleate Boiling Dynamics,” Utah State University, Logan, Utah, poster presentation, May 7, 2011.

86. Department of Mechanical Engineering, "Collection of CO₂ from the Martian Atmosphere for use as a Propellant for a Radioisotope Powered Mars Research Vehicle," Utah State University, Logan, Utah, poster presentation, May 2, 2011.
87. Utah Academy of Sciences, Arts, and Letters 2011 Annual Conference, "Surface Geometry and Heat Flux Effect on Thin Wire Nucleate Pool Boiling of Subcooled Water in Microgravity," Salt Lake Community College, SLC, UT, oral presentation, April 8, 2011.
88. Utah State University Undergraduate Research Showcase, "Effects of Micro-gravity on Thin-Wire Subcooled Nucleate Boiling Dynamics," Utah State University, Logan, Utah, poster presentation, March 29, 2011.
89. AIAA Region VI Student Conference, "Surface Geometry and Heat Flux Effect on Thin Wire Nucleate Pool Boiling of Subcooled Water in Microgravity," San Diego State University San Diego, California, oral presentation, March 24-26, 2011.
90. AIAA Region VI Student Conference, "Boil, Boil, Toil, and Trouble - Connecting with the Community through Microgravity Boiling Experiments," San Diego State University San Diego, California, oral presentation, March 24-26, 2011.
91. Utah Conference on Undergraduate Research, "The Design and Construction of a Microgravity Boiling Experiment," Weber State University, Ogden, Utah, oral presentation, February 18, 2011.
92. Research on Capitol Hill, "Effects of Micro-gravity on Thin-Wire Subcooled Nucleate Boiling Dynamics," Utah State Capitol, SLC, UT, poster presentation, January 26, 2011.
93. Utah Section of the AIAA, "Gravitational Effects on Thin-Wire Subcooled Nucleate Boiling Dynamics," USU, Logan, Utah, oral presentation, January 20, 2011.
94. USU Physics Department Colloquium, "Gravitational Effects on Thin-Wire Subcooled Nucleate Boiling Dynamics," USU, Logan, Utah, oral presentation (Invited), October 19, 2010.
95. Rocky Mountain NASA Space Grant Consortium Annual Symposium, "Photoelectric Charging by Ultraviolet Light of a Lunar Dust Simulant in a Microgravity Environment," Utah State University, Logan, Utah, poster presentation, May 4, 2009.
96. Utah State University Undergraduate Research Showcase, "Photoelectric Charging by Ultraviolet Light of a Lunar Dust Simulant in a Microgravity Environment," Utah State University, Logan, Utah, poster presentation, March 31, 2009.
97. Weber State Physics Department Colloquium, "USU Microgravity Research Team CubeSat Project," Weber State University, Ogden, UT, oral presentation (Invited), March 27, 2008.

Professional Service

Associate Editor

- International Journal of Thermophysics (2020-present)
 - Increased impact factor from 0.8 in 2019 to 1.608 in 2020, 2.416 in 2021, and 2.91 in 2024
- Guest Editor
 - International Journal of Thermophysics – Special edition. Thermochemical and Thermophysical Properties of Molten Halide Salts (2025-present)

Journal Reviewer (78 total in 26 venues). Updated December 8, 2025

# of Reviews	Journal	Years
27	International Journal of Thermophysics	2020-2025
6	International Journal of Heat and Mass Transfer	2017-2025
5	Nuclear Technology	2017-2024
5	Applied Thermal Engineering	2011-2025
3	Journal of Nuclear Materials	2019-2024
3	Journal of Molecular Liquids	2022-2025
2	Journal of Cleaner Production	2021-2023
2	Measurement	2017-2022
2	Measurements	2023-2024
3	Review of Scientific Instruments	2017-2025
2	PLOS ONE	2021-2022
1	Applied Sciences	2022
1	J. of Heat and Mass Transfer	2015
1	Int. Comm. in Heat and Mass Transfer	2025
1	Int. J. of Precision Eng. and Mfg.-Green Tech.	2023
1	Journal of Applied Physics	2024
1	Journal of Chemical and Engineering Data	2022
1	Journal of Chemical Thermodynamics	2023
1	Journal of Nuclear Science and Technology	2025
1	Materials	2022
1	Nuclear Engineering and Technology	2023
1	Optics Letters	2016
1	Results in Engineering	2025
1	Acta Biomaterialia	2018-2022
1	ACS Materials Letters	2019
1	ACS Sustainable Chemistry and Engineering	2019
78	Total	

Funding Agency Reviewer. Updated May 20, 2025

	DOE, SBIR	DOE, NEUP	NSUF	NSF
2017	-	1	-	-
2018	-	4	7	-
2019	1	2	1	-
2020	1	5	-	-
2021	5	1	-	3
2022	4	4	-	-
2023	1	3	1	-
2024	-	2	2	-
2025	-	1	-	5
Total proposals	12 (5)	23 (10)	11 (3)	8 (5)

Conference Service

- Symposium organizer, Nanoscale Heat Transfer, IMRC Mexico Conf, 2026
- Session Chair – TMS 2025
- Session Chair, reviewer – ANS 2018, 2019, 2020, 2021, 2022
- Session Organizer, reviewer/chair/topic organizer – ASME IMECE 2019, 2020, 2021, 2022, 2023, 2024, 2025
- Session Organizer, reviewer/chair – ASME SHTC 2022, 2023, 2024, 2025
- Reviewer – ASME Intl. Conf. of Micro/Nanoscale Heat and Mass Transfer 2024

Misc.

- Graduate Student University Council Representative, USU 2015-2016.
- STEM outreach organizer for program that visited over 74 classrooms throughout Utah, brought K12 students to USU, and met 9,000 students & community members, 2008-2016.

Memberships

- American Nuclear Society (ANS) 2016-present
- American Society of Mechanical Engineers (ASME) 2009-present
- TMS 2022-present
- Tau Beta Pi Engineering Honor Society 2009-present
- Belgian Physics Society 2014-2015, 2024-2025
- American Chemical Society (ACS) 2019-2020
- Society of Photographic Instrumentation Engineers (SPIE), 2014-2019
- American Institute of Aeronautics and Astronautics (AIAA), 2010-2015

Professional Committees and Working Groups

- ANS Materials Science and Technology Division 2018-present
 - Chair 2021-2022
 - Vice Chair 2020-2021
 - Treasurer/Secretary 2019-2020
 - Nomination Committee Chair 2022-2023
 - Executive Committee 2018-2024
 - Awards Committee 2023-present
 - Standards Committee Liaison 2018-present
- TMS Nuclear Materials Committee 2025-present
- ASME K-7 Thermophysical Properties Division 2018-present
 - Vice Chair 2018-present
- Joint ASME-AIChE Committee on Thermophysical Properties 2021-present
 - Secretary 2021-present
- Molten Salt Thermal Properties Working Group, Member 2020-present
- Fulbright Commission of Belgium Reviewer 2024-present

University Service

- *Post-Associate Professor (2022-Present)*
 - Deputy Director, BYU's Nuclear Research Group, NRG 2017-present
 - Fulbright campus review committee 2024-present
 - Director of REU program for deaf students from RIT/NTID 2024-present
- *Pre-Associate Professor (2016-2022)*

- ORCA reviewer 2017

College Service

- *Post-Associate Professor (2022-Present)*
 - College-wide Writing Group organizer 2017-present
 - College Graduate Student Recruiting Committee Chair 2022-present
 - Faculty co-advisor of American Nuclear Society student chapter 2018-present
 - Bi-weekly Nuclear lunch and learn

Department Service

- *Post-Associate Professor (2022-Present)*
 - Ad Hoc Committee on improving undergraduate research 2025-present
 - Interim Graduate Program Coordinator 2025
 - ME EN 362 Course Committee Chair 2023-present
 - ME EN 250 Course Committee 2017-present
 - Dept. Graduate Committee member 2022-present
 - PhD Qualifying Exam writing 2017-present
 - Dept. presentations
 - Sweet Talks – Nuclear Energy
 - ME 191 – Overview of Materials Science
- *Pre-Associate Professor (2016-2022)*
 - ME EN 362 Course Committee Member 2017-2023
 - Dept. Graduate Committee member 2017-2022

Research Mentoring

Graduate Student Advisement Lab Years

Current

Nathan Burlett	M.S., thesis in progress	2026-Current
Parker Jackson	M.S., thesis in progress	2025-Current
Muhammad Taha	Ph.D., dissertation in progress	2023-Current
Thomas Andrews	M.S., thesis in progress	2023-Current

Graduated/Completed

Jacob Numbers	M.S., graduated December 2025	2023-2025
	- Best Poster Presentation, Thermophysics Symposium, 2024	
Ryan Ruth	M.S./M.B.A., graduated April 2025	2022-2025
Derek Sanchez	Ph.D., graduated December 2024	2018-2024
	- awarded National Research Council Postdoc Fellowship	
Matthew Goodson	Ph.D., graduated August 2024	2018-2024
Alex Hansen	M.S., graduated June 2024	2022-2024
Justin Loose	M.S., graduated December 2023	2020-2023
Brian Merritt	M.S., graduate December 2022	2021-2022
	- awarded national NEUP Fellowship, ANS Scholarship	
Aaron Thorum	M.S., graduated June 2022	2020-2022

Peter Kasper	M.S., graduated June 2022	2020-2022
Peter Hartvigsen	M.S., graduated June 2020	2017-2020
Samuel Hayden	M.S., graduated December 2018	2017-2018

Current Undergraduate Student Advisement **Starting Year**

Bolded students have been authors on journal papers (25), and underlined students have been authors on conference papers, presentations, or patent submissions (50). I have advised 124 (50 new students since my last review) undergraduate students as research assistants.

<u>124. Noah Giauque</u>	Volunteer	2025
123. Shay Carnahan	Volunteer	2025
122. Brian Nelson	Research Assistant	2025
121. Alex Aguiar	Intern from NTID	2025
120. Erik Spencer	Research Assistant	2025
<u>119. Joshua King</u>	Research Assistant	2025
<u>118. Seth Leavitt</u>	Research Assistant	2025
<u>117. Isaac Walker</u>	497R	2025
<u>116. Samuel Nasman</u>	Research Assistant	2025
<u>115. Mitchell Martin</u>	Research Assistant	2024
114. Nate Smith	Research Assistant	2024
113. Beck Kesler	Research Assistant	2024
<u>112. Andrew Christensen</u>	Research Assistant	2024

Former Undergraduate Student Advisement **Starting Year**

111. Chandler Lewis	Research Assistant	2024
110. Spencer Jensen	Volunteer	2025
<u>109. Hailey Snodgrass</u>	Intern from NTID	2025
108. Ryan Day	Research Assistant	2024
107. Lizzy Robinson	Research Assistant	2024
106. Nathan Burlett	Research Assistant	2024
105. Reed Zitting	Research Assistant	2024
104. Rhett Lundell	Research Assistant	2024
103. Kyle Havey	Research Assistant	2024
<u>102. Isaac Cutler</u>	Research Assistant	2023
101. Henry Wooley	Research Assistant	2023
<u>100. Tyler Hamm</u>	Research Assistant	2023
<u>99. McKay Sumsion</u>	Research Assistant	2023
<u>98. Caleb Fears</u>	Research Assistant	2023
<u>97. Olivia Walton</u>	Research Assistant	2023
<u>96. Hunter Pitchford</u>	Research Assistant	2023
<u>95. Mason Rollans</u>	Research Assistant	2023

94. Jonah Lowther	497R	2023
<u>93. Max Colton</u>	Volunteer	2023
92. James Wade	Research Assistant	2023
91. <u>Bethany Syphus</u>	Research Assistant	2023
90. Addison Omdahl	Volunteer	2022
89. Matthew Schwendiman	Research Assistant	2022
88. David Reinhardt	Research Assistant	2022
<u>87. Jarron Gage</u>	Research Assistant	2022
<u>86. Noah Petersen</u>	Research Assistant	2022
<u>85. Sadie McGinn</u>	Research Assistant	2022
84. Jefferson Santos di Silva	Research Assistant	2022
83. Jonah Kendall	497R	2022
<u>82. Noah Cahill</u>	Volunteer	2022
81. Adam Ith	Research Assistant	2022
80. Luke Zollinger	Volunteer	2022
79. Dallin Gariety	Research Assistant	2022
<u>78. Dean Fitzpatrick</u>	Research Assistant	2022
<u>77. Robert Macdonald</u>	Research Assistant	2022
76. David Leavitt	Research Assistant	2022
<u>75. Kate Williams</u>	Research Assistant	2022
<u>74. Alison Day</u>	Research Assistant	2021
<u>73. Benjamin Wright</u>	Research Assistant	2021
<u>72. Santiago Gomez</u>	Research Assistant	2021
71. Spencer Larsen	Research Assistant	2021
<u>70. Crewse Petersen</u>	Research Assistant	2021
69. Brayden Salisbury	Research Assistant	2021
<u>68. Alex Hansen</u>	Research Assistant	2021
<u>67. Tom Carson</u>	Research Assistant	2021
66. Samuel Lino	Research Assistant	2021
65. Yoshiya Sato	Research Assistant	2021
64. Bryce Hamilton	Research Assistant	2021
63. Evan Boekweg	Research Assistant	2021
62. Porter Nichols	Volunteer	2021
61. Austin Bay	Research Assistant	2021
<u>60. Ara Bolander</u>	Research Assistant	2021
59. Brayden Steimle	Research Assistant	2021
<u>58. Jonathan Dromey</u>	Research Assistant	2021
57. Alex Wonnacott	Research Assistant	2021
56. Maren Johnston	Research Assistant	2021
55. Kai Hicken	Volunteer	2021

54. Brendan Mitchell	Research Assistant	2020
<u>53. Ryan Ruth</u>	Research Assistant	2020
<u>52. Conner Mantz</u>	497R	2020
<u>51. Brent Edgerton</u>	Research Assistant	2020
50. Summer Scherer	Research Assistant	2020
49. Katelyn Peterson	Research Assistant	2020
48. Logan Hardy	497R	2020
47. Joseph Summerhays	Research Assistant	2020
46. Tolex Gregory	Research Assistant	2020
<u>45. Peter Kasper</u>	Research Assistant	2020
<u>44. Garrett Hawkins</u>	Research Assistant	2020
43. McKay Christensen	Research Assistant	2020
42. Joseph Erickson	Volunteer	2020
<u>41. Aaron Thorum</u>	Research Assistant	2019
<u>40. Connor Last</u>	Research Assistant	2019
<u>39. Jace Davis</u>	Research Assistant	2019
<u>38. Kirsten Steele</u>	Research Assistant	2019
<u>37. Erik Barbosa</u>	Research Assistant	2019
36. Rebecca Prymark	Research Assistant	2019
35. Zachary Broyles	Research Assistant	2019
34. Logan Page	Research Assistant	2019
<u>33. Jay Bettinger</u>	Research Assistant	2019
<u>32. Daniel Ellis</u>	Research Assistant	2019
31. McKell Miskin	Research Assistant	2019
30. Enqi Luo	Research Assistant	2019
29. Stuart Storheim	Research Assistant	2019
28. McKay Wilkerson	Research Assistant	2019
27. Kenan Fronk	Research Assistant	2019
26. Gabriel Bradford	Research Assistant	2019
25. Jacob Redd	Research Assistant	2019
24. Caelan Osman	Research Assistant	2019
23. Claire Bird	Research Assistant	2019
22. Samuel Olds	497R	2019
21. Zan Aslett	Volunteer	2019
<u>20. Michael Seneca</u>	Research Assistant	2018
19. Samantha Stabler	Research Assistant	2018
<u>18. Samuel Hales</u>	Research Assistant	2018
<u>17. Matthew Goodson</u>	Research Assistant	2018
<u>16. Brian Merritt</u>	Research Assistant	2018
15. Mike Eddington	497R	2018

14. Jared Magnusson	497R	2018
13. Kegasi Turbovsky	497R	2018
12. Colin White	Research Assistant	2018
11. Jonathan Wagstaff	Research Assistant	2017
10. Diana Bolanos	Research Assistant	2017
9. Jack Colton	Research Assistant	2017
8. Wade Smallwood	Volunteer	2017
7. <u>Derek Sanchez</u>	497R	2017
6. Greg Bird	Research Assistant	2017
5. Spencer Diehl	Research Assistant	2017
4. Turner Palombo	Research Assistant	2017
3. Kevin Roberts	497R	2017
2. Haden Heath	497R/Research Assistant	2016
1. <u>Ryker Haddock</u>	Research Assistant	2016

Graduate Committee Advisement

	Years
Benjamin Diehl	Current
Joel Gibb	Current
Joshua Lim, M.S.	Current
Ethan Pike, M.S.	Current
Calvin Clawson, M.S.	Current
Christopher Nyborg (Co-Advisor), Ph.D.	Current
Shu Wang, Ph.D.	Current
Tugrul Yaylali, Ph.D.	Current
Bryce Harward, M.S.	Current
Scott Woodbury, M.S.	Current
Lukas Dean, MS	Current
David Leavitt, MS	Current
Isaac Parker, MS	Current
Ryan Weber, MS	Current
Ethan Pike, MS	Current
Joshua Kelley, MS	Current
Jacob Christensen, M.S.	Current
Joshua Vawdrey, Ph.D.	2024
José Niño, Ph.D.	2024
John Hunt, Ph.D.	2024
Jacob Kullberg, Ph.D.	2024
Ryan Melander (Co-Advisor), M.S.	2023
Kennen Brooks, M.S.	2022
Kent Hooper, M.S.	2022
Colton Inkley, M.S.	2022

Trent Bates, M.S.	2023
Nicholas Wallace, M.S.	2021
Arnold Wright, M.S.	2021
Sterling Voss, M.S.	2020
Christopher Brooks, M.S.	2019
Zachary Sadler, M.S.	2017

Highlights from mentoring undergraduates prior to BYU (total ~60)

Jenica Hillyard (SWE Senora Region Collegiate Representative, 2013-2014)	2011-2013
Ryan Martineau (AIAA The Twenty Under 20s Award, 2014)	2010-2013
Jacob Singleton (Air Force Cadet Research Award, 2014, 1 student nationally)	2011-2013