

Andrew Martin, Ph.D.

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Education

Postdoctoral –	Lawrence Berkeley National Laboratory. Berkeley, CA	Jan 2021 – Jan 2023
	DOE Project: Stable Thermochemical Salt Hydrates for Energy Storage in Buildings	
	North Carolina State University. Raleigh, NC	Feb 2023 - Current
PhD –	Materials Science, Iowa State University. Ames, IA	Nov 2020
	Thesis: <i>Inauditus</i> Materials Processing through Surface Asymmetries	
BS/MS –	Materials Engineering, Iowa State University. Ames, IA	May 2017
	*Transferred from MS to PhD in Fall 2017	

Awards and Honors

Excellence in Mentoring Award (LSAMP)	Spring 2021
Research Excellence Award	Fall 2020
Karl Gschneidner Go for Gold Award	Fall 2020
GPSS Research Award	Spring 2020
GPSRC Conference Best Oral Presentation Award	Spring 2019
NANO@IAState 2018 Best Poster Presentation Award	Summer 2018
GPSRC Conference Best Oral Presentation Award	Spring 2018
College of Engineering Dean's List	Fall 2013 – Spring 2017
Student Affairs' Above and Beyond Award	Spring 2015

Related Experience

SMMT Group Manager – Iowa State University Jan 2019 – Jan 2021

- Assisted the principal investigator as the senior graduate student in co-managing the research group. Became the first contact point for junior graduate student inquiries, lab safety, lab inventory, group event management and public relations.
- Mentored junior graduate students with experimental designs, scientific communications and nurturing collaborative group dynamics.
- Recruited motivated undergraduate students interested in earning research experience.

Co-Organizer - NANO@IAState 2020 Conference Jan 2020 – May 2020

- Organized logistics, fund acquisition, outreach and promotion for the conference with a group of fellow graduate students.

Instructor for MatE 216L - Iowa State University Department of Material Science and Engineering Jan - May 2019

- Taught 3 sections of second-year materials engineering students in an introductory course to materials science consisting of ceramic, polymeric, electronic and magnetic materials.
- Designed course objectives and laboratory procedures to familiarize students with materials analysis processes and instruments as well as their underlying fundamentals and theory.
- **Course Evaluation: 4.7/5.** Course Participants: 30

- Assisted the development in SAFI-Tech's low temperature solder technology. Developed research methods, production scale-up and application strategies to achieve optimal productivity and yield of synthesized undercooled particles.

Publications

Highlighted Publications:

- A. Martin**, W. Kiarie, B. Chang, M. Thuo. "Chameleon Metals: Autonomous Nano-Texturing and Composition Inversion on Liquid Metals Surfaces." *Angew. Chem. Int. Ed.* **2020**. 59, 352-257. doi: 10.1002/anie.201912639 (Cover Article)
- A. Martin**, A.M. Pauls, B. Chang, E. Boyce, M. Thuo. "Photo-activated Growth and Metastable Phase Transition in Metallic Solid Solutions." *Adv. Mater.* **2024**. doi: 10.1002/adma.202309865 (Cover article)
- A. Martin**, M. Thuo. "Beyond Hume-Rothery Rules." *Acct. Mater. Res.* **2023**. doi: 10.1021/accountsmr.3c00126 (Cover article)
- A. Martin**, B. Chang, Z. Martin, D. Paramanik, C. Frankiewicz, S. Kundu, I.D. Tevis, M. Thuo. "Heat-Free Fabrication of Metallic Interconnects for Flexible/Wearable Devices." *Adv. Funct. Mater.* **2019**. 29, 1903687. doi: 10.1002/adfm.201903687 (Cover Article)
- B. Gwalani, **A. Martin**, E. Kautz, S.V. Lambeets, M. Olszta, A.K. Battu, A. Malakar, F. Yang, J. Guo, S. Thevuthasan, R. Li, A. Amassian, M. Thuo, A. Devaraj. "Mechanistic Understanding of Speciated Oxide Growth in High Entropy Alloys." *Nat. Commun.* **2024**. doi: 10.1038/s41467-024-49243-8

Other Publications:

- D.U. Jamadgni, P. Gregory, S. Banerjee, A.M. Pauls, **A. Martin**, B. Chang, C. Du, S. Oyola-Reynoso, D. Raturi, M. Thuo. "Graph theory-based bio-derived solid lubricant." *Matter*. **2025**. doi: 10.1016/j.matt.2025.102474
- A. Malakar, **A. Martin**, F. Ishrak, C. Schenck, A. Yu, M. Pole, J. Darsell, T. Wang, J. Helsing, J. Thornton, M. Lastovich, L. Kovarik, G. Grant, J.B. Tracy, M. Thuo, M. Efe, B. Gwalani. "In-situ thermo-mechano-chemical transformation and consolidation of Sm-Co powders via a single-step route for bulk magnet fabrication." *Nature Communications*. **2025**. doi: 10.1038/s41467-025-62804-9
- A. Martin**, D. Kiptoo, D.S. Kanoy,[†] S. Li, C. Du, M. Kumar, A.M. Pauls, S. Pathak, P. Bogdan, A. Aysu, M. Thuo. "Timed Physical Password or Authentication Keys." *ACS Appl. Mater. Interfaces*. **2025**. doi: 10.1021/acsami.5c06006 (Cover article)
- A. Martin**, S. Zaatini,[†] D.U. Jamadgni, M. Thuo. "Influence of Interface Asymmetry towards Metastable Divergence in Metal Alloys." *Matter*. **2025**. doi: 10.1016/j.matt.2025.102163
- A. Martin**, J.R. Green, M. Thuo. "Avoiding the Entropy Catastrophe via Interface-Driven Divergence in States." *Angew. Chem. Int. Ed.* **2025**. doi: 10.1002/anie.202502197 (Cover article)
- A. Martin**, M. Thuo. "Kauzmann Paradox, Supercooling, and Finding Order in Chaos." *Angew. Chem. Int. Ed.* **2025**. doi: 10.1002/anie.202423536 (Frontispiece)
- M. Thuo, M. Jeffries-EL, J. Holly Jr., **A. Martin**, P.Q. Blair. "Cognitive Diversity for Creativity and Inclusive Growth." *Angew. Chem. Int. Ed.* **2024**. doi: 10.1002/anie.202415695
- J.J. Chang, C. Du, D. Jamadgni, A.M. Pauls, **A. Martin**, L. Wei, T. Ward, M. Lu, M. Thuo. "Guided ad infinitum assembly of mixed-metal oxide arrays from a liquid metal." *Mater. Horiz.* **2024**. doi: 10.1039/d4mh01177e (Cover article)
- A.M. Pauls, A. Dunnum, **A. Martin**, A. Huth, M. Thuo. "Correcting Edge Defects in Self-Assembled Monolayers through Thermal Annealing." *Chem. Phys. Chem.* **2024**. doi: 10.1002/cphc.202400626
- Y. Zhu, H. Wu, **A. Martin**, P. Beck, E. Allahyarov, Y. Zhu, D. Hawthorne,^{*} J. Fan, J. Wu, S. Zhang, L. Zhu, S. Kaur, Q. Pei. "Operando Investigation of the Molecular Origins of Dipole Switching in P(VDF-TrFE-CFE) Terpolymer for Large Adiabatic Temperature Change." *Adv. Funct. Mater.* **2024**. doi: 10.1002/adfm.202314705
- A. Martin**, M. Thuo. "Predicting Emergence of Nanoscale Order in Surface Oxides through Preferential Interactivity Parameter." *ACS Nano*. **2024**. doi: 10.1021/acsnano.3c10935 (Cover article)
- A. Martin**, J. Chen, C. Du, M. Kumar, I. D. Tevis, B. Chang, S. Pathak, M. Thuo. "Atomic Reconstruction of Au Thin Films through Interfacial Strains." *Nano Lett.* **2024**. doi: 10.1021/acs.nanolett.3c04412
- C. Du, P. Gregory, D.U. Jamadgni, A.M. Pauls, J.J. Chang, R.W. Dorn, **A. Martin**, E.J. Foster, A. Rossini, M. Thuo. "Spatially Directed Pyrolysis via Thermally Morphing Surface Adducts." *Angew. Chem. Int. Ed.* **2023**. doi: 10.1002/anie.202308822

19. **A. Martin**, D. Lilley, S. Kaur, R.S. Prasher. "Particle Size Optimization of Thermochemical Salt Hydrates for High Energy Density Thermal Storage." *Energy Environ. Mater.* **2022**. doi: 10.1002/eem2.12544
20. W. Lu, C. Amarasinghe, E. Zhang, **A. Martin**, S. Kaur, R.S. Prasher, M. Ahmed. "Probing Hydrogen-bond Networks in Plastic Crystals with Terahertz and Infrared Spectroscopy." *Cell Rep. Phys. Sci.* **2022**. doi: 10.1016/j.xcrp.2022.100988
21. C. Du, Z. Wang, J. Chen, **A. Martin**, D. Raturi, M. Thuo. "Role of Nanoscale Roughness and Polarity in Odd–Even Effect of Self-Assembled Monolayers." *Angew. Chem. Int. Ed.* **2022**. doi: 10.1002/anie.202205251
22. **A. Martin**, B. Chang, M. Thuo. "Effect of Surface Nanostructures and Speciation on Undercooling for Low-Temperature Solder Alloys." *ACS Appl. Nano Mater.* **2022**. doi: 10.1021/acsanm.1c03865
23. **A. Martin**, B. Chang, J. Cutinho, L. Shen, E. Cochran, M. Thuo. "Passivation-Driven Speciation, Dealloying and Purification." *Mater. Horiz.* **2021**. doi: 10.1039/D0MH01832E (Cover article)
24. **A. Martin**, B. Chang, A.M. Pauls,† C. Du, M. Thuo. "Stabilization of Undercooled Metals via Passivating Oxide Layers." *Angew. Chem. Int. Ed.* **2021**. doi: 10.1002/anie.202013489 (Cover article)
25. **A. Martin**, C. Du, B. Chang, M. Thuo. "Complexity and Opportunities in Liquid Metal Surface Oxides." *Chem. Mater.* **2020**. 32, 21, 9045-9055. doi: 10.1021/acs.chemmater.0c02047 (Cover article)
26. **A. Martin**, C. Du, A.M. Pauls,† T. Ward, M. Thuo. "Printing Conformal Conductive Traces on Non-Adhering Biological Substrates." *Adv. Mater. Interfaces.* **2020**. 7, 2001294. doi: 10.1002/admi.202001294 (Cover article)
27. B. Chang, **A. Martin**, B. Thomas, A. Li, R. W. Dorn, J. Gong, A. Rossini, M. Thuo. "Synthesis of Interface-Driven Tunable Bandgap Metal Oxides." *ACS Mater. Lett.* **2020**. 2, 1211-1217. doi: 10.1021/acsmaterialslett.0c00251 (Cover Article)
28. J.J. Chang, **A. Martin**, C. Du, A.M. Pauls, M. Thuo. "Heat-Free Biomimetic Metal Molding on Soft Substrates." *Angew. Chem. Int. Ed.* **2020**. 59, 16346-16351. doi: 10.1002/anie.202008621 (Frontispiece)
29. B. Chang, M. Fratzl, A. Boyer, **A. Martin**, H. Ahrenholtz, I. De Moraes, J-F Bloch, N. Dempsey, M. Thuo. "Rapid Prototyping of Reconfigurable Microfluidic Channels in Undercooled Metal Particle-Elastomer Composites." *Ind. Engin. Chem. Res.* **2019**. 58 (10), 4137-4142. doi: 10.1021/acs.iecr.8b06441.
30. J. Cutinho, B. Chang, S. Oyola-Reynoso, J. Chen, S. S. Akhter, I. D. Tevis, N. J. Bello, **A. Martin**, M. Foster, M. Thuo. "Autonomous Thermal-Oxidative Composition Inversion and Texture Tuning of Liquid Metal Surfaces." *ACS Nano*. **2018**. 12, 4744–4753. doi: 10.1021/acsnano.8b01438.
31. B. Chang, **A. Martin**, P. Gregory, S. Kundu, C. Du, M. Orondo, M. Thuo. "Functional materials through Surfaces and Interfaces." *MRS Adv.* **2018**. 3 (37), 2221-2233. doi: 10.1557/adv.2018.399.
32. P. Gregory, **A. Martin**, B. Chang, J-F Bloch, M. Thuo. "Inverting Thermal Degradation (*t*TD) of Paper using Chemi- and Physi-sorbed Modifiers for Templated Material Synthesis." *Frontier Chem.* **2018**. 6, 338. doi: 10.3389/fchem.2018.00338
33. A. Perez, **A. Martin**, R.S. Prasher, C. Dames, S. Kaur. "Stable Graphite Composite for Long-Term Thermochemical Energy Storage Devices." (In Review)
34. A.M. Jones, D.U. Jamadgni, C. Frankiewicz, S. Banerjee, J.J. Chang, F. Messo, B.S. Pokuri, P.R. Moran, B. Ganapathysubramanian, B. Kwasia, **A. Martin**,* M. Thuo. "Elemental Separation via Energy Landscape Divergence and Translation." (In Review)
35. A. Kadar, X. Xiao, P. Zhang, X. Zhang, S. Kannur, **A. Martin**, L. Sun, M. Thuo, S. Glotzer, N. Kotov, P. Bogdan. "COMPASS graphs: Graphs from complex particle systems for machine learning driven materials innovation." (In Review)
36. A.M. Pauls, S.D. Toranposhti, D.U. Jamadgni, E. Boyce, **A. Martin**, M. Seifrid, M. Thuo. "Tunable Magnetization in Rare Earth Kagome Lattices." (In Review)
37. **A. Martin**,* K. Nguyen, S. Zaatini,† M. Lastovich, B. Gwalani, P. Bogan, M. Thuo. "Graph-Approach to Element Miscibility and Alloy Design." (In Review)
38. **A. Martin**,* J.R. Green, M. Thuo. "Reciprocity-Breaking Stabilizes Metastable Phases in Metal Particles." (In Review)

Preprints and Conference Proceedings:

39. **A. Martin**, M. Thuo. "Low Heat Fabrication of Metallic Interconnects." *Conference Proceedings for GOMACTECH 2025*. **2025**.
40. **A. Martin**, D.S. Kanoy, E. Boyce, A. Aysu, M. Thuo. "Metastable Metal Particles as Physically-Timed Keys." *Conference Proceedings for GOMACTECH 2024*. **2024**.
41. B. Gwalani, **A. Martin**, E. Kautz, S.V. Lambeets, M. Olszta, A.K. Battu, A. Malakar, F. Yang, J. Guo, S. Thevuthasan, M. Thuo, A. Devaraj. "Mechanistic Understanding of Speciated Oxide Growth in High Entropy Alloys." *Preprint*. **2023**. doi: 10.21203/rs.3.rs-3484151/v1

42. I. Tevis, J. Chen, C. Frankiewicz, **A. Martin**, M. Thuo. “Frugal innovation: Synthesis and applications of undercooled metal particles.” *Abs. Papers Am. Chem. Soc.* **2017**.

In Preparation (Manuscript Available):

43. **A. Martin**, R. Zmarzlak,[†] J.J. Chang, Z. Zhuang, J. Austin, M. Seifrid, R. Chiechi, M. Thuo. “Bulk Data Analysis to Crack Environmental Effect on Large-Area Molecular Junctions.” (In Prep)
44. **A. Martin**, D.U. Jamadgni, M. Thuo. “High-Yield In-situ Sn Oxide Nanowire Synthesis via Pressure Gradient.” (In Prep)
45. A.M. Pauls, **A. Martin**, J. Gitua, M. Thuo. “Structural Tuning of Magnetic Behavior.” (In Prep)
46. **A. Martin**, C. Perez, S. Lee, A. Bucsek, M. Thuo. “Unraveling Non-Equilibrium Phase Relaxation in Metastable Metal Particles.” (In Prep)
47. **A. Martin**, S.Zaatini,[†] M. Thuo. “Rate-Dependent Relaxation in Metastable Liquids.” (In Prep)

[†]Undergraduate mentee

*Corresponding author

Patents

Granted:

48. M. Thuo, P. Collins, **A. Martin**. “Mask-Free Photolithography using Metastable Undercooled Metal Particles.” US Patent No: US11633807B2
49. M. Thuo, T. Ward, **A. Martin**, J.J. Chang, C. Du. “Coated Irregular Surfaces.” US Patent No: US11752666B2
50. M. Thuo, B. Chang, **A. Martin**, W. Kiarie. “Textured Particles.” US Patent No: US11938535B2

Pending:

51. M. Thuo, T. Ward, **A. Martin**. “Method of Separating one or more Elements from Alloys.” US Patent Application Serial No: 17/845,712
52. M. Thuo, **A. Martin**, A. Aysu. “Metastable Metal Particles as Physically Timed Keys.” US Patent Application Serial No: 63/627,355
53. S. Kaur, R.S. Prasher, **A. Martin**, D. Lilley, A. Perez. “Formulation for Stable Thermochemical Salt Hydrate Composite.” In Disclosure
54. M. Thuo, **A. Martin**. “Room Temperature Flux-free Photon-based Metal Joining.” In Disclosure
55. M. Thuo, J.J. Chang, **A. Martin**. “Self-assembly of Functional Semiconductor Components.” In Disclosure
56. M. Thuo, A. Pauls, M. Seifrid, S.D. Toranposhti, **A. Martin**. “Synthesis of Quantum Spin Liquids.” In Disclosure

Conference Presentations

Invited:

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| 1. Science in the Savannah . Nairobi, KE - Metastable Materials for Frugal Innovation
A. Martin | Apr 2025 |
| 2. MIT DMSE . Cambridge, MA - <i>Inauditus</i> Materials Processing through Surface Asymmetries
A. Martin | Feb 2025 |
| 3. COMPASS Junior Scientist Symposium . Energy Landscape Manipulation through Surface Asymmetries.
A. Martin | Jun 2024 |

Contributed:

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| 4. GOMACTECH 2025 . Pasadena, CA - Low Heat Fabrication of Metallic Interconnects
A. Martin , M. Thuo. | Mar 2025 |
| 5. MS&T 2024 . Pittsburgh, PA - Predicting Emergence of Nanoscale Order in Surfaces Oxides.
A. Martin , M. Thuo. | Oct 2024 |
| 6. MS&T 2024 . Pittsburgh, PA - Recycling at Point of Disposal for a Distributed Supply Network
A. Martin , C. Frankiewicz, A.M. Pauls, D.U. Jamadgni, B. Ganapathysubramanian, S. Banerjee, M. Thuo. | Oct 2024 |
| 7. MS&T 2024 . Pittsburgh, PA - Expanding Metastability Beyond Glasses and Undercooled States in Metals.
A. Martin , J.R. Green, M. Thuo. | Oct 2024 |
| 8. MS&T 2024 . Pittsburgh, PA - Metastable Phase Transition in Metallic Solid Solutions.
A. Martin , A.M. Pauls, B. Chang, E. Boyce, M. Thuo. | Oct 2024 |

9. **GOMACTECH 2024.** Charleston, SC - Metastable Metal Particles as Physically Timed Keys. Mar 2024
A. Martin, D.S. Kanoy, E. Boyce, S. Kaur, A. Aysu, M. Thuo.
10. **GRC.** South Hadley, MA - Salt Hydrates for High Energy Density Thermal Storage. Aug 2022
A. Martin, D. Lilley, S. Kaur, R.S. Prasher.
11. **NextGen Materials.** Savannah, GA - Heat-Free Manufacturing through Metastable Material State. Dec 2019
A. Martin, B. Chang, Z. Martin, D. Paramanik, C. Frankiewicz, S. Kundu, I.D. Tevis, M. Thuo.
12. **NANO@IAState.** Ames, IA – Composition Inversion and Texture Tuning of Liquid Metal Surfaces. Aug 2019
A. Martin, W. Kiarie, B. Chang, M. Thuo.
13. **ICMAT 2019.** Singapore, SG - Chemical Potential Driven Stabilization of Undercooled Metal Particles. Jul 2019
A. Martin, B. Chang, A.M. Pauls, C. Du, M. Thuo.
14. **ICMAT 2019.** Singapore, SG - Flexible Conductive Traces from Undercooled Liquid Metal Particle Inks. Jul 2019
A. Martin, B. Chang, Z. Martin, D. Paramanik, C. Frankiewicz, S. Kundu, I.D. Tevis, M. Thuo.
15. **GPSRC Conference.** Ames, IA – Chemical Potential Driven Stabilization of Undercooled Metal Particles. Apr 2019
A. Martin, B. Chang, A.M. Pauls, C. Du, M. Thuo.
16. **MRS Fall 2018.** Boston, MA - Flexible Conductive Traces from Undercooled Liquid Metal Particle Inks. Nov 2018
A. Martin, B. Chang, Z. Martin, D. Paramanik, C. Frankiewicz, S. Kundu, I.D. Tevis, M. Thuo.
17. **GPSRC.** Ames, IA – Flexible Conductive Traces from Undercooled Liquid Metal Particle Inks. Apr 2018
A. Martin, B. Chang, Z. Martin, D. Paramanik, C. Frankiewicz, S. Kundu, I.D. Tevis, M. Thuo.
18. **Presenting MSE.** Ames, IA – Flexible Conductive Traces from Undercooled Liquid Metal Particle Inks. Apr 2018
A. Martin, B. Chang, Z. Martin, D. Paramanik, C. Frankiewicz, S. Kundu, I.D. Tevis, M. Thuo.
19. **MS&T 2017.** Pittsburgh, PA – Heat-Free Manufacturing of Metal Products. Oct 2017
A. Martin, B. Chang, Z. Martin, D. Paramanik, C. Frankiewicz, S. Kundu, I.D. Tevis, M. Thuo.
20. **NANO@IAState.** Ames, IA – Heat-Free Manufacturing of Metal Products. July 2017
A. Martin, B. Chang, Z. Martin, D. Paramanik, C. Frankiewicz, S. Kundu, I.D. Tevis, M. Thuo.

Grant Proposals

Granted:

1. DLA 232-006 – Automating Energy Landscape Manipulation for Rare Earth Separation. **2023**

Co-Written:

2. DARPA-PA-26-01 - Surface Stress-Enabled Non-Equilibrium Phase Relaxation for Tunable Bulk Properties. **2025**
3. NASA ROSES 2025 - Investigation of Non-Equilibrium Phase Relaxation in Metastable Metallic Systems. **2025**
4. DLA EMERGENT IV BAA – Streamlined REE Recovery for Networked Manufacturing Supply Chain. **2024**
5. DLA EMERGENT IV BAA – Metastable Materials as Physically Timed Keys. **2024**
6. DOE DE-FOA-0003329 – Automating Sorting and Speciation for Urban Mining in a Complex Supply Chain Network. **2024**
7. NSF 23-612 – Multi-Layer Surface Oxide Design in Multi-Principal Element Alloys. **2024**
8. DOE DE-FOA-0003258 – COQSS: Center for out-of-Equilibrium Systems and Speciation. **2024**
9. DARPA-EA-23-01-02 – Energy Landscape Modification for REE Recovery. **2023**
10. DARPA-EA-23-01-03 – Metastable Materials as Timed Physical Key. **2023**
11. DOE DE-FOA-0002893 – Electrodeless Mechano-electrochemical Extraction of Magnesium. **2023**
12. NSF 22-609 – Polymerization and Self-Assembly Derived Tunable Bandgap Semiconductor Devices. **2023**
13. DHS-LRBAA 18-01 – Metastable Materials as Physically Timed Keys. **2023**
14. DOE DE-FOA-0003003 – Energy Reduction of Metal Manufacturing through Energy Landscape Manipulation. **2023**

Graduate Co-Mentees

1. **Sarah Trantham.** North Carolina State University, Department of Materials Science and Engineering 2025
Project: Impact of Surface Modification on Additively Manufactured Ti₆Al₄V Parts.
2. **Daisy Kiptoo.** North Carolina State University, Department of Electrical and Computer Engineering 2024
Project: Network Analysis of Phase Separation in Metastable Systems.
3. **Thabiso Masole.** North Carolina State University, Department of Materials Science and Engineering 2024
Project: Impact of Surface Modification on Additively Manufactured Ti₆Al₄V Parts.
4. **Romil Shah.** North Carolina State University, Department of Computer Science. 2023

Project: Development of Preferential Interactivity Parameter Software Application.

5. **Alana M. Pauls.** North Carolina State University, Department of Materials Science and Engineering. 2022

Project: Structural and Molecular Engineering of Rare Earth Elements.

6. **Dhanush U. Jamadgni.** North Carolina State University, Department of Materials Science and Engineering. 2022

Project: Graph and Network Theory in Solid Flow Behaviors.

7. **Alondra Perez.** University of California Berkeley, Department of Mechanical Engineering. 2021

Project: Stabilization of Salt Hydrates for Thermochemical Energy Storage.

Undergraduate Mentees

8. **Sebastian Zaatini.** North Carolina State University. Department of Materials Science and Engineering. 2024
Project: Exploring Metastable Phase Transition Behavior in Binary Alloy Mixtures.

9. **Ryan Zmarzlak.** North Carolina State University. Department of Materials Science and Engineering. 2024

Project: Understanding Environmental Effects in Large Area Junction through Bulk Data Analysis. (REU)

10. **David Sky Kanoy.** North Carolina State University, Department of Materials Science and Engineering. 2023

Project: Utilization of Metastable Metal Particles for Physically-Timed Keys. (REU)

11. **Daniel Hawthorne.** University of California Berkeley, Department of Mechanical Engineering. 2022

Project: Electrocaloric Thermal Energy Storage through Thin Film Ferroelectric Terpolymers.

12. **Ethan Lee.** University of California Berkeley, Department of Mechanical Engineering. 2021

Project: Elastocaloric Thermal Energy Storage Behaviors in Rubbery Materials.

13. **Yahriel Salinas-Reyes.** Iowa State University, Department of Aerospace Engineering. 2020

Project: Design of Disposable Paper-based Piezoelectric Devices.

14. **Harris Seabold.** Iowa State University, Department of Industrial Design. 2020

Project: Design of Disposable Paper-based Piezoelectric Devices.

15. **Alana M. Pauls.** Iowa State University, Department of Materials Science and Engineering. 2019

Project: Printing Conformal Conductive Traces on Non-Adhering Biological Substrates.

16. **Parker Jacobson.** Iowa State University, Department of Materials Science and Engineering. 2019

Project: Stabilization of Undercooled Metals via Passivating Oxide Layers.

References

Prof. Martin Thuo – North Carolina State University, Department of Materials Science and Engineering. 911 Partners Way. Raleigh, NC 27606.

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