

Instructor for Advanced Materials Analysis (ME 4723)

2023

Louisiana State University, Department of Mechanical and Industrial Engineering

Personal Teaching Effectiveness Evaluation (Fall 2023): 4.58 / 5.0

Average Department Teaching Effectiveness Evaluation (Fall 2023): 3.97 / 5.0

Instructor for Materials of Engineering (ME 2733)

2022 – 2023

Louisiana State University, Department of Mechanical and Industrial Engineering

Personal Teaching Effectiveness Evaluation (Spring 2023): 4.06 / 5.0

Average Department Teaching Effectiveness Evaluation (Spring 2023): 4.04 / 5.0

Personal Teaching Effectiveness Evaluation (Fall 2022): 4.26 / 5.0

Graduate Student Advisement

Angelina Jorgenson (ME MS)
Rashed Mia (ME PhD)
Cassidy Thompson (ME PhD)

Aug 2024 - Present
Aug 2024 - Present
Jan 2023 - Present

Graduate Committees

Member: MSME Philip Melton – LSU (MIE)
Member: PhD Mohammad Derikvand – LSU (MIE)
Member: PhD Md Asmat Ullah – LSU (MIE)
Member: MSME Emily Friedman – LSU (MIE)
Member: PhD Anit Gurung

2026
2026
2026
2025

7. He MR, Banerjee A, **Marvel CJ**, Price S, McCue I, Schwalbach EJ, Hemker KJ. Strong Impact of Minor Elements on the Microstructural Evolution of an Additively Manufactured Inconel 625 Alloy. *Metallurgical and Materials Transactions A*. 53(8):2926-42 (2022)
8. Xie KY, Yang Q, **Marvel CJ**, He MR, LaSalvia JC, Harmer MP, Hwang C, Haber RA, Hemker KJ. Experimental observations of amorphization in multiple generations of boron carbide. *Journal of the American Ceramic Society*. 105(5):3008-29 (2022)
9. **Marvel CJ**, Yang Q, Walck SD, Xie KY, Behler KD, LaSalvia JC, Watanabe M, Haber RA, Harmer MP. Applications of analytical electron microscopy to guide the design of boron carbide. *Journal of the American Ceramic Society*. 105(5):2990-3007 (2022)
10. **Marvel CJ**, Behler KD, LaSalvia JC, Haber RA, Harmer MP. Grain boundary segregation in Si-doped B-based ceramics and its effect on grain boundary cohesion. *Acta Materialia*. 227 117684 (2022)
11. **Marvel CJ**, Frueh T, Compson C, Harmer MP. Linking grain boundary structure and

Floating Zone method. *Journal of Crystal Growth*, 28:125700 (2020)

21. Rickman JM, Chan HM, Harmer MP, Smeltzer JA, **Marvel CJ**, Roy A, Balasubramanian G. Materials informatics for the screening of multi-principal elements and high-entropy alloys. *Nature communications*, 10(1), 2618 (2019)
22. **Marvel CJ**, Behler KD, LaSalvia JC, Domnich V, Haber RA, Watanabe M, Harmer MP. Extending γ -factor microanalysis to boron-rich ceramics: Quantification of bulk stoichiometry and grain boundary composition. *Ultramicroscopy*, 202, 163-72 (2019)
23. Yang Q, Hwang C, **Marvel CJ**, Chauhan A, Domnich V, Khan AU, LaSalvia JC, Harmer MP, Hemker KJ, Haber RA. Fabrication and characterization of arc melted Si/B co-doped boron carbide. *Journal of the European Ceramic Society*, 39(16), 5156-66 (2019)
24. Smeltzer JA, **Marvel CJ**

34. Ventura AP, **Marvel CJ**, Pawlikowski G, Bayes M, Watanabe M, Vinci RP, Misiolek WZ. The Effect of Aging on the Microstructure of Selective Laser Melted Cu-Ni-Si. *Metallurgical and Materials Transactions A*, 48, 6070–6082 (2017)

35. **Marvel CJ**, Sabol JC, Watanabe M, Pasang T, Mis1.04 a/97.18710-039(M)(E)9(t)44(h)1(6-6)(r)4-7(0

Invited Conference Presentations

(First author denotes the speaker)

1. **Marvel CJ**, Behler KD, LaSalvia JC, Haber RA, Watanabe M, Harmer MP. Application of γ -factor Microanalysis to Quantify Grain Boundary Enrichment in Eu-doped B_6O . M&M, Cleveland, OH (2024)
2. **Marvel CJ**, Riedel C, Koenig AL, Harmer MP. Kinetics of multiple complexion transitions at 1800 °C in Eu-doped $MgAl_2O_4$, ICACC, Daytona Beach, FL (2023)
3. **Marvel CJ**, Riedel C, Rickman JM, Harmer MP. Experimental and Computational Investigation of Grain-Boundary Transformation Induced Abnormal Grain Growth, ICACC, Daytona Beach, FL (2022)
4. **Marvel CJ**, Behler KD, Synowczynski-Dunn J, LaSalvia JC, Harmer MP. Grain Boundary Complexion Engineering: A Case Study of Silica and Rare-earth Doped Boron Suboxide Armor Ceramics, MG McLaren Lecture, Rutgers University, Piscataway, NJ (2022)
5. **Marvel CJ**. The Lehigh Nano/Human Interface Initiative: A Futuristic Vision of Electron Microscopy, GMC/IMS, Virtual (2021)
6. **Marvel CJ**. The Lehigh Nano/Human Interface Initiative: A Futuristic Vision of Electron Microscopy, IMAT, Virtual (2021)

15. Harmer MP, **Marvel CJ**, Hornbuckle BC, Darling KA. Strategies to Control Microstructure and Properties of Nanocrystalline Materials, MRS Fall, Boston, MA (2017)
16. Kracum M, Anderson K, **Marvel CJ**, Albu M, Harmer MP, Chan HM. Phase Transformation and Evolution of Ceramic-Metal Composites with Unique Hierarchical Microstructures, MS&T, Pittsburgh, PA (2017)
17. **Marvel CJ**. Delving into the World of Grain Boundaries with Electron Microscopy, MS&T, Pittsburgh, PA (2017)
18. Harmer MP, Harmer AJ, Krause AR, **Marvel CJ**. Tenth Anniversary of Grain Boundary Complexions Research, ACerS Robert B. Sosman Symposium, MS&T, Pittsburgh, PA (2017)
19. **Marvel CJ**, Darling KA, Hornbuckle BC, Harmer MP. Probing Grain Boundaries to Determine the Thermal Stability Mechanisms of Nanocrystalline Ni-W, MS&T, Salt Lake City, UT (2016)
20. Harmer MP, **Marvel CJ**, Cantwell PR. A Grain Boundary TTT – Tribute to Thomas, M&M, Columbus, OH (2016)
21. **Marvel CJ**, Yin D, Harmer MP. The Influence of Contamination on the Thermal and Phase Stability of Nanocrystalline Ni-

7. Yin D, **Marvel CJ**

Boundary Complexions to Grain Boundary Toughness in Yb-doped Boron Suboxide, MACH, Annapolis, MD (2021)

8. Bale H, Krause AR, Sun J, **Marvel CJ**, Krill CE, Harmer MP. Mapping the Evolution of Grains

Screening of Multi-principal Element and High-entropy Alloys by Materials Informatics, HEA World Congress, Seattle, WA (2019)

21. Smeltzer JA, Hornbuckle BC, A Giri, **Marvel CJ**, Darling KA, Rickman JM, Chan HM, Harmer MP. Grain Boundary Segregation Behavior of Mechanically-alloyed Refractory High Entropy Alloys, HEA World Congress, Seattle, WA (2019)
22. **Marvel CJ**, Behler KD, LaSalvia JC, Harmer MP. Observations of Multiple Grain Boundary Complexions in Eu-doped Boron Suboxide, MS&T, Portland, OR (2019)
23. Hornbuckle BC, Roberts AJ, Smeltzer JA, **Marvel CJ**, Giri A, Darling KA. True Thermal Stability in a Nanocrystalline Alloy, MS&T, Portland, OR (2019)
24. **Marvel CJ**, Yang Q, Domnich V, Haber RA, Harmer MP. Microstructural Investigation of Amorphization Resistant Silicon and Boron-doped Boron Carbide, MACH, Annapolis, MD (2019)
25. Smeltzer JA, Hornbuckle BC, Giri AK, **Marvel CJ**, Darling KA, Rickman JM, Chan HM, Harmer MP. Phase Separation and Segregation in Mechanically Alloyed and Long-Term Annealed Refractory High Entropy Alloys, TMS, San Antonio, TX (2019)
26. Walck SD, LaSalvia JC, Behler KD, **Marvel CJ**, Leff AC. Grain Boundary Chemistry Measured by EELS, ICACC, Daytona Beach, FL (2019)
27. **Marvel CJ**, Anderson KA, Kundu A, Harmer MP, Frueh T, Compson C. Investigating Anomalous Grain Growth in Calcia and Silica Doped Specialty Alumina, MS&T, Columbus, OH (2018)
28. Behler KD, Payne HE, LaSalvia JC, **Marvel CJ**, Walck SD, Shoulders T, Vargas-Gonzalez LR, Harmer MP. Effect of Excess B₂O₃ on the Density, Microstructure, and Hardness of Reactively Hot-pressed Boron Suboxide, MS&T, Columbus, OH (2018)
29. Behler KD, LaSalvia JC, **Marvel CJ**, Synowczynski-Dunn J, Walck SD, Shoulders T, Harmer MP. Boron Suboxide: Changes in Densification and Microstructure Using Silica and Rare Earth Silicate Additives, MS&T, Columbus, OH (2018)
30. Smeltzer JA, Hornbuckle BC, Giri AK, **Marvel CJ**, Darling KA, Rickman JM, Chan HM, Harmer MP. Long-term Annealing of Mechanically-alloyed Refractory High Entropy Alloy, MS&T, Columbus, OH (2018)
31. LaSalvia JC, Domnich V, **Marvel CJ**, Walck SD, Harmer MP. Evidence of Amorphization-Induced Fragmentation in Ballistically-Impacted Boron Carbide, TMS, Phoenix, AZ (2018)
32. **Marvel CJ**, Behler KD, LaSalvia JC, Harmer MP. The Kinetics and Mechanisms of Abnormal Grain Growth Grain in Si-doped Boron Suboxide, ICACC, Daytona Beach, FL (2018)
33. **Marvel CJ**, Behler KD, Synowczynski-Dunn J, LaSalvia JC, Harmer MP. Grain Boundary Segregation of Rare-Earth Additives in Boron Suboxide, ICACC, Daytona Beach, FL (2018)
34. Behler KD, **Marvel CJ**, Shoulders WT, Vargas LR, LaSalvia JC, Harmer MP. Processing, Microstructure, and Properties of Pressure-Assisted Sintered Boron Suboxide with Oxide

- Additives, ICACC, Daytona Beach, FL (2018)
35. **Marvel CJ**, Wang Y, Rickman JM, Harmer MP, Compson C. Investigating the Origin of Abnormal Grain Growth in Specialty Alumina. MS&T, Pittsburgh, PA (2017)
 36. Rickman JM, Wang Y, **Marvel CJ**, Harmer MP, Rollett AD, Compson C. New Approaches for Grain Boundary Informatics as a Pathway to Processing Reliability, MS&T, Pittsburgh, PA (2017)
 37. **Marvel CJ**, Behler KD, LaSalvia JC, Harmer MP. Grain Boundary Characterization of Boron Suboxide with Silica Additives, MS&T, Pittsburgh, PA (2017)
 38. Behler KD, LaSalvia JC, **Marvel CJ**, Walck SD, Harmer MP. Effect of Oxide Additives on the Densification, Microstructure, and Hardness of Hot-Pressed Boron Suboxide, MS&T, Pittsburgh, PA (2017)
 39. **Marvel CJ**, Hornbuckle BC, Darling KA, Harmer MP. Stable Core-shell Particles in Nanocrystalline Cu-Ta, MS&T, Pittsburgh, PA (2017)
 40. LaSalvia JC, Domnich V, Schuster B, Aydelotte B, Giri A, **Marvel CJ**, Harmer MP. Evidence of Tribochemical Reactions in a Dynamically-Impacted Boron Carbide, MS&T, Pittsburgh, PA (2017)
 41. Zhong X, Krause AR, **Marvel CJ**, Harmer MP, Rohrer GS. Measuring Grain Boundary Mobility Using a Microfabricated Sun-Bauer Style Bicrystal, MS&T, Pittsburgh, PA (2017)
 42. Krause AR, **Marvel CJ**, Rheinheimer W, Hoffman M, Rohrer GS, Harmer MP. Anti-thermal Grain Growth in Strontium Titanate, MS&T, Pittsburgh, PA (2017)
 43. Behler KD, Walck SD, **Marvel CJ**, LaSalvia JC, Harmer MP. Observation and Characterization of Grain Boundary Complexions in Hot-pressed Boron Carbide, TMS, San Diego, CA (2017)
 44. **Marvel CJ**, Behler KD, Walck SD, LaSalvia JC, Harmer MP. Grain Boundary Characterization of High-Purity Boron Carbide with Al₂O₃ and SiO₂ Additives, ICACC, Daytona Beach, FL (2017)
 45. LaSalvia JC, Domnich V, Schuster B, Aydelotte BB, Shanholtz ER, Giri A, Walck SD, Behler KD, **Marvel CJ**, Harmer MP. Tribochemical Reactions in Boron Carbide Impacted at High-Velocity, ICACC, Daytona Beach, FL (2017)
 46. Yin D, **Marvel CJ**, Vinci RP, Harmer MP. Microstructure and Mechanical Properties of Electrodeposited Ni-W Alloys, MS&T, Salt Lake City, UT (2016)
 47. **Marvel CJ**, Yin D, Harmer MP. Connecting Phase Stability to the Grain Growth Behavior of Ni-W Alloys, M&M, Columbus, OH (2016)
 48. **Marvel CJ**, Sabol JC, Pasang T, Watanabe M, Misiolek W. Overcoming Omega-phase Embrittlement with Post-weld Heat treatments in Electron Beam Welded Ti-5Al-5V-5Mo-3Cr, MS&T, Columbus, OH (2015)
 49. **Marvel CJ**, Yin D, Gao Q, Harmer MP, Widom M. On the Effect of Carbon and Oxygen on

