

Purdue University, School of Materials Engineering
701 West Stadium Ave, West Lafayette, IN 47907-2045, USA

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Research Interests

High temperature structural materials, creep deformation mechanisms, rapid alloy design and development, defect and microstructural analysis by advanced electron microscopy, first-principles modeling of crystalline defects in metals, thermodynamic modeling of oxidation in refractory-based alloys, integrated computational materials design of structural alloys

Education

Ph.D. Materials

Materials Department, University of California Santa Barbara
Santa Barbara, CA; Graduation date: June 2015

B.S. Engineering Physics

Department of Physics, The Ohio State University,
Columbus, OH; Graduation date: June 2010

Employment and Positions

Dec 2016–Present School of Materials Engineering, Purdue University
Position: Assistant Professor

Sep 2015–Dec 2016 Max Planck Institute for Iron Research, Dusseldorf, Germany
Position: Alexander von Humboldt Postdoctoral Research Fellow
Sponsor: Prof. Dr. Dierk Raabe

Jul 2015–Sep 2015 Materials Department, University of California, Santa Barbara
Position: Postdoctoral Researcher

Jul 2010–Jun 2015 Materials Department, University of California, Santa Barbara
Position: Graduate Student Researcher, Ph.D. Candidate
Advisor: Prof. Tresa M. Pollock

Jun 2009–Sept 2009 GE Aviation, Cincinnati, OH
Position: Airfoils Materials Application Engineering Intern

Jun 2008–Sept 2008 GE Aviation, Cincinnati, OH
Position: Materials Behavior Intern

Awards and Recognitions

2020 TMS Young Leaders International Scholar - JIM

2019 Outstanding Mentor of Engineering Graduate Students, College of Engineering, Purdue University

2019 NSF CAREER Award

2018 Acta Materialia Outstanding Reviewer Award

2018 TMS SMD Young Leaders Professional Development Award

2017 Acta Materialia Outstanding Reviewer Award

2015 Alexander von Humboldt Fellowship for Postdoctoral Researchers

2014 Runner-up, Best Platform Presentation, SCSMM 2014 Symposium

2013 Los Angeles Chapter of ASM International Scholarship

2012 Best Presentation Award, ACEEES 2012

2012 International Symposium on Superalloys Scholarship

Professional Activities

2020–2023 TMS P&GA Committee Vice Chair

2020 TMS 2020, Materials Design Approaches and Advances V, Co-Organizer

2020 2nd Annual ASM Indianapolis Chapter Conference: Metallic Alloys: Past, Present, and Future, Co-Organizer

2019–Present Metallurgical and Materials Transactions A, Key Reader

2019 TMS 2019, Deformation Behavior of High Temperature Alloys, Lead Organizer

2019 TMS 2019, Gamma (FCC)/Gamma-Prime (L12) Co-Based Superalloys III, Lead Organizer

2018 Summer Faculty Fellow, Air Force Research Laboratories, Dayton, OH

2018 6th International workshop on Co-base Superalloys, 2018, Co-Organizer

2018–Present TMS P&GA Committee SMD representative

2018–Present TMS SMD Council Member

2018 TMS 2018, Deformation and Damage Mechanisms in High-Temperature Ni, Co and Fe-based Superalloys, Co-Organizer

2017 TMS 2017, Gamma (FCC)/Gamma-Prime (L12) Co-Based Superalloys II symposium, Co-Organizer

2017–Present TMS Young Professional Committee, Member

2015–Present TMS High Temperature Alloys Committee, Member

2014 Materials Advantage Congressional Visit Days, Washington, D.C.

2014 Purdue Prospective Faculty Workshop, Purdue University, West Lafayette, IN

Service and Outreach

2020 Klondike Elementary Carnival - Cast and gave out pewter medallions to students

2019–Present Purdue University Materials Advantage Faculty Advisor

2019–Present Purdue University Judo Club Faculty Advisor

2019 Engineering Academic Career Club, Summer Faculty Mentor

2019 Engineering Academic Career Club, Presentation and Panel Discussion entitled “Unraveling the mysteries of faculty applications (in USA)”, presenter and panel moderator

2017 TMS 2017 Meet-A-Mentor, Mentor

Publications

Submitted and Prepared Manuscripts (available upon request)

27. B. Bellón, A.K. Boukellal, T. Isensee, O.M. Wellborn, K.P. Trumble, M.J.M. Krane, M.S. Titus, D. Tourret, J. Llorca, “Multiscale prediction of microstructure length scales in metallic alloy casting.” Under Review.
26. T. Mann, M.F. Fahrman, M.S. Titus, “Ab-initio investigation of planar defects in *Immm*-Ni₂(Cr,Mo,W)-containing Haynes(R) 244(R) Superalloy.” In Preparation.
25. D. Wen and **M.S. Titus**, “Magnetically-driven Suzuki segregation at stacking faults in face centered cubic Co-Ni alloys.” In Preparation.

Refereed Journal Articles

24. O.N. Senkov, T.I. Daboiku, T.M. Butler, M.S. Titus, N.R. Philips, and E.J. Payton, “International Journal of Refractory Metals and Hard Materials High-Temperature Mechanical Properties and Oxidation Behavior of Hf-27Ta and Hf-21Ta-21X (X is Nb, Mo or W) Alloys,” *International Journal of Refractory METals and Hard Materials* **96** 105467 (2021). [[doi](#)]
23. K. Wertz, D. Weaver, D. Wen, **M.S. Titus**, R. Shivpuri, S. Niezgoda, M. Mills, and S.L. Semiatin, “Supersolvus hot workability and dynamic recrystallization in wrought Co-Al-W base alloys,” in: S. Tin et al. (eds) *Superalloys 2020*. The Minerals, Metals and Materials Society, Warrendale, PA, USA, pp. 857–869 (2020). [[doi](#)]
22. S. Tripathi, K.G. Vishnu, **M.S. Titus**, and A. Strachan, “Tunability of martensitic transformation in Mg-Sc shape memory alloys: a DFT study,” *Acta Materialia* **189**, 1–9 (2020). [[doi](#)]

21. S. Matsunaga, D. Huang, S.B. Inman, J.C. Mason, D. Konitzer, D.R. Johnson, and **M.S. Titus**, “Planar front growth of single crystal Ni-based superalloy René N515,” *JOM*, March (2020). [[doi](#)]
20. D. Wen, C.-H. Chang, S. Matsunaga, G. Park, L. Ecker, S.K. Gill, M. Topsakal, M.A. Okuniewski, S. Antonov, D.R. Johnson, and **M.S. Titus**, “Structure and Tensile Properties of $M_x(\text{MnFeCoNi})_{100-x}$ Solid Solution Strengthened High Entropy Alloys.” *Materialia*, 100539 (2020). [[doi](#)]
19. S. Liu, S.N. Reed, M.J. Higgins, **M.S. Titus**, and R. Kramer-Bottiglio, “Oxide rupture-induced conductivity in liquid metal nanoparticles by laser and thermal sintering,” *Nanoscale* **11**, 17615–17629 (2019). [[doi](#)]
18. L. Feng, D. Lv, R.K. Rhein, J.G. Goiri, **M.S. Titus**, A. Van der Ven, T.M. Pollock, and Y. Wang, “Shearing of γ' particles in Co-base and Co-Ni-base superalloys,” *Acta Materialia* **161**, 99–109 (2018). [[doi](#)]
17. R.K. Rhein, P.G. Callahan, S.P. Murray, J.-C. Stinville, **M.S. Titus**, A. Van der Ven, and T.M. Pollock, “Creep behavior of quinary γ' -strengthened Co-base superalloys,” *Metallurgical and Materials Transactions A* **49A**, 4090–4098 (2018). [[doi](#)]
16. C.-H. Chang, **M.S. Titus**, and J.-W. Yeh, “Oxidation behavior between 700 and 1300 °C of refractory TiZrNbHfTa high-entropy alloys containing aluminum,” *Advanced Engineering Materials* **1700948** (2018). [[doi](#)]
15. P.G. Callahan, J.-C. Stinville, E. Yao, M. Echlin, **M.S. Titus**, S. Daly, D.S. Gianola, M. De Graef, and T.M. Pollock, “Scanning transmission electron microscopy using a conventional scanning electron microscope: defect observations and image simulations,” *Ultramicroscopy* **186**, 49–61 (2018). [[doi](#)]
14. **M.S. Titus**, R.K. Rhein, P.B. Wells, P.C. Dodge, G.B. Viswanathan, M.J. Mills, A. Van der Ven, and T.M. Pollock, “Solute segregation and deviation from bulk thermodynamics at nanoscale crystalline defects,” *Science Advances* **2**:e1601796, (2016). [[doi](#)]
13. M.P. Echlin, **M.S. Titus**, M. Straw, P. Gumbsch, and T.M. Pollock, “Femtosecond laser interactions with functional materials,” *Acta Materialia* **124**, 37–46 (2017). [[doi](#)]
12. **M.S. Titus**, L.H. Rettberg, and T.M. Pollock, “High temperature creep of γ' -containing CoNi-based superalloys.” In M.C. Hardy, et al., editors, *Superalloys 2016*, Seven Springs, PA, USA, 2012. The Minerals, Metals and Materials Society, Warrendale, PA, USA. pp. 141–148 (2016). [[doi](#)]
11. Y.M. Eggeler, J. Müller, **M.S. Titus**, A. Suzuki, T.M. Pollock, and E. Spiecker, “Planar defect formation in the γ' phase during high temperature creep in single crystal CoNi-base superalloys,” *Acta Materialia* **113**, 335–349 (2016). [[doi](#)]
10. R.W. Jackson, **M.S. Titus**, M.R. Begley, and T.M. Pollock, “Implications of thermal expansion mismatch for coated L_{12} -containing Co-based superalloys,” *Surface and Coatings Technology* **289**, 61–68 (2016). [[doi](#)]
9. R.K. Rhein, P.C. Dodge, M.-H. Chen, **M.S. Titus**, T.M. Pollock, and A. Van der Ven, “Vibrationally-induced stability of the L_{12} phase along the $\text{Co}_3\text{Al-Co}_3\text{W}$ pseudobinary calculated using first-principles methods,” *Physical Review B* **92**, 174117 (2015). [[doi](#)]
8. **M.S. Titus**, M.P. Echlin, P. Gumbsch, and T.M. Pollock. “Dislocation Injection in Strontium Titanate by Femtosecond Laser Pulses,” *Journal of Applied Physics* **118**, 075901 (2015). [[doi](#)]
7. D.J. Jorgensen, **M.S. Titus**, and T.M. Pollock “Femtosecond laser ablation behavior of the Intermetallic NiAl,” *Applied Surface Science* **353**, 700–707 (2015). [[doi](#)]
6. **M.S. Titus**, A. Mottura, G.B. Viswanathan, M.J. Mills, and T.M. Pollock. “High Resolution Energy Dispersive Spectroscopy Mapping of Planar Defects in L_{12} -containing Co-base Superalloys,” *Acta Materialia* **85**, 423–437 (2015). [[doi](#)]

5. **M.S. Titus**, Y.M. Eggeler, A. Suzuki, and T.M. Pollock. “Creep-induced Planar Defects in L1₂-containing Co- and CoNi-base Superalloys,” *Acta Materialia* **82**, 530-539 (2015). [[doi](#)]
4. J. Zhu, **M.S. Titus**, and T.M. Pollock. “Experimental Investigation and Thermodynamic Modeling of the Co-rich Region in the Co-Al-Ni-W Quaternary System,” *Journal of Phase Equilibria*, **35**:5, 595-611 (2014). [[doi](#)]
3. Y.M. Eggeler, **M.S. Titus**, A. Suzuki, and T.M. Pollock. “Creep Deformation-induced Antiphase Boundaries in L1₂-containing Single Crystal Cobalt Base Superalloys,” *Acta Materialia* **77**, 352-359 (2014). [[doi](#)]
2. **M.S. Titus**, A. Suzuki, and T. M. Pollock. “High Temperature Creep of New L1₂-containing Cobalt-base Superalloys.” In E. Huron, M. Hardy, M. Mills, R. Montero, P. Portella, J. Telesman, and R. C. Reed, editors, *Superalloys 2012*, Seven Springs, PA, USA, 2012. The Minerals, Metals and Materials Society, Warrendale, PA, USA. 823-832 (2012). [[doi](#)]
1. **M.S. Titus**, A. Suzuki, T. M. Pollock, “Creep and directional coarsening in single crystals of new γ - γ' cobalt-base alloys,” *Scripta Materialia* **66**:8, 574-577 (2012). [[doi](#)]

Invited Oral Presentations

36. M.S. Titus *Deformation mechanisms in high-strength, cast Ni-based superalloys*. 2nd Annual ASM Indianapolis Chapter Conference: Metallic Alloys: Past, Present, and Future, Purdue University (2020). Host: Joel Davis.
35. M.S. Titus *Accelerated design of structural alloys*. University of Kentucky, Lexington, KY (2019). Host: Paul Rottmann.
34. M.S. Titus *Accelerated discovery and development of new high temperature structural alloys*. University of Science and Technology Beijing, Beijing, China (2018). Host: Qiang Feng.
33. M.S. Titus *Accelerated discovery and development of new high temperature structural alloys*. IMDEA Materials, Madrid, Spain (2017). Host: Dr. Jon M. Molina-Aldareguia.
32. M.S. Titus. *On the role of planar faults during creep of single crystal superalloys with γ/γ' microstructures*. Ruhr-Universität Bochum, Bochum, Germany (2016). Host: Prof. Gunther Eggeler.
31. M.S. Titus. *High temperature γ' shearing mechanisms from Ni- to Co-base superalloys*. Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany (2016). Host: Prof. Mathias Göken and Dr. Steffen Neumeier.
30. M.S. Titus, Rob. K. Rhein, P.B. Wells, M.J. Mills, A. Van der Ven, and T.M. Pollock. *High temperature deformation mechanisms in L1₂-containing Co-based superalloys*. Tokyo Institute of Technology, Tokyo, Japan (2015). Host: Prof. Masao Takeyama.
29. M.S. Titus, Y.M. Eggeler, A. Mottura, A. Suzuki, M.J. Mills, and T.M. Pollock. *Single Crystal Creep Deformation Mechanisms and Planar Defect Energies in L1₂-containing Co-base Superalloys*. Air Force Research Laboratory, Dayton, OH (2014). Host: Dr. Adam Pilchak.
28. M.S. Titus, Y.M. Eggeler, A. Mottura, A. Suzuki, M.J. Mills, and T.M. Pollock. *High Temperature Single Crystal Creep Deformation Mechanisms of New L1₂-containing Co-base Superalloys*. IMDEA Materials, Spain (2014). Host: Dr. Teresa Pérez-Prado.
27. M.S. Titus, Y.M. Eggeler, R.K. Rhein, A. Suzuki, M.J. Mills, and T.M. Pollock. *Single Crystal Tensile Creep Deformation Mechanisms and Planar Defect Energies in L1₂-containing Co-base Superalloys*. The Ohio State University, Columbus, OH (2013). Host: Prof. Mike Mills.
26. M.S. Titus, Y.M. Eggeler, A. Suzuki, and T.M. Pollock. *Single Crystal Tensile Creep Deformation Mechanisms in L1₂-containing Co-base Superalloys at High Temperature*. Ruhr-Universität of Bochum, Bochum, Germany (2013). Host: Prof. Gunther Eggeler.

Contributed Oral Presentations

20. D. Wen, S. Matsunaga, M.S. Titus. *First-principles study of displacive-diffusive phase transformations during high temperature creep: from Ni- to Co-based superalloys*. TMS 2020, San Diego, CA (2020).
19. D. Wen, C.-H. Chang, S. Matsunaga, S. Antonov, G. Park, M.A. Okuniewski, D.R. Johnson, M.S. Titus. *Integrated Experimental and Computational Investigation of Strengthening in MnFeCoNi-based Alloys*. TMS 2019, San Antonio, TX (2019).
18. M.S. Titus, R.K. Rhein, A. Van der Ven, and T.M. Pollock. *Modeling segregation to stacking faults using a Clusters Approach to Statistical Mechanics (CASM)*. TMS 2018, Phoenix, AZ (2018).
17. M.S. Titus, K.N. Wertz, D.B. Miracle, J.D. Miller, F. K'ormann, B. Grabowski, H. Springer, and D. Raabe. *Accelerated discovery and development of intermetallic-containing refractory-based multi-principal-component alloys*. TMS 2017, San Diego, CA (2017).
16. M.S. Titus, R.K. Rhein, A. Mottura, M.-H. Chen, A. Van der Ven, and T.M. Pollock. *Superlattice intrinsic stacking fault energies and segregation to planar defects in Co-based superalloys*. TMS 2017, San Diego, CA (2017).
15. M.S. Titus, A. Mottura, R.K. Rhein, M.-H. Chen, A. Van der Ven, and T.M. Pollock. *The influence of stacking fault energies and solute segregation on high temperature creep strength in L1₂-containing Co-based superalloys*. Beyond Ni-based Superalloys II, Cambridge, UK (2016).
14. M.S. Titus, K.N. Wertz, J.D. Miller, D.B. Miracle, and D. Raabe. *Development of high temperature refractory-based multi-principle-component alloys by thermodynamic calculations and rapid alloy prototyping*. Beyond Ni-based Superalloys II, Cambridge, UK (2016).
13. M.S. Titus, K.N. Wertz, J.D. Miller, D.B. Miracle, and D. Raabe. *Making materials in the 21st century: accelerated discovery of new high temperature structural alloys*. Network Meeting of the Alexander von Humboldt Foundation, Düsseldorf, Germany (2016).
12. M.S. Titus, R.K. Rhein, P.C. Dodge, A. Mottura, A. Van der Ven, and T.M. Pollock. *Modeling Chemical Fluctuations Across Stacking Faults in L1₂-containing Co-base Superalloys Using Cluster-Assisted Statistical Mechanics*. TMS 2015, Orlando, FL (2015).
11. M.S. Titus, A. Mottura, A. Suzuki, M.J. Mills, and T.M. Pollock. *Creep deformation mechanisms and HRSTEM EDS mapping of stacking faults in L1₂-containing Co-base Superalloys*. TMS 2015, Orlando, FL (2015).
10. M.S. Titus, A. Mottura, A. Suzuki, M.J. Mills, and T.M. Pollock. *Sub-nanometer Resolution Chemi-STEM EDS Mapping of Superlattice Intrinsic Stacking Faults in Co-base Superalloys*. M&M 2014, Hartford, CT (2014). [[Abstract](#)]
9. M.S. Titus, A. Suzuki, M.J. Mills, and T.M. Pollock. *Sub-nanometer Resolution Chemi-STEM EDS Mapping of Superlattice Intrinsic Stacking Faults in Co-base Superalloys*. SCSMM 2014 Symposium, University of Irvine, Irvine, CA (2014). [[Abstract](#)]
8. M.S. Titus, Y.M. Eggeler, R.K. Rhein, A. Suzuki, and T.M. Pollock. *Single Crystal Creep Deformation Mechanisms and Planar Defect Energies of New Co-base Superalloys*. TMS 2014, San Diego, CA (2014).
7. M.S. Titus, Y.M. Eggeler, R.K. Rhein, A. Mottura, A. Suzuki, and T.M. Pollock. *Single Crystal Creep Deformation Mechanisms and Planar Defect Energies in L1₂-containing Co-base Superalloys*. UCSB Fall Structural Seminar, UCSB, CA (2013).
6. M.S. Titus, Y.M. Eggeler, A. Suzuki, and T.M. Pollock. *Single Crystal Tensile Creep Deformation Mechanisms in L1₂-containing Co-base Superalloys at High Temperature*. International Workshop on Advanced Cobalt-Base Superalloys, Bavaria, Germany (2013).
5. M.S. Titus, A. Suzuki, and T.M. Pollock. *New Co-base Alloys for Gas Turbine Engines*. ACEEES Forum 2012, Waikoloa, HI (2012).

4. M.S. Titus, A. Suzuki, and T.M. Pollock. *High Temperature Microstructure and Properties of New L₁₂-containing Co-Al-W Single Crystals*. Superalloys 2012, Seven Springs, PA (2012).
3. M.S. Titus, A. Mottura, A. Suzuki, and T.M. Pollock. *High Temperature Microstructure and Properties of New L₁₂-containing Co-Al-W Alloys*. TMS 2012, Orlando, FL (2012).
2. M.S. Titus, J. Zhu, A. Mottura, A. Suzuki, and T.M. Pollock. *High Temperature Microstructure and Properties of New L₁₂-containing Co-Al-W Alloys*. MS&T 2011, Columbus, OH (2011).
1. M.S. Titus and R. Sooryakumar. *Nanocrystallinity and enhancing magnetism in soft Fe-Si-Nb-Cu alloys*. The American Physical Society Regional Meeting, Miami University, Oxford, OH (2008).

Teaching

Materials Engineering, Purdue University, West Lafayette, IN

Spring 2021 MSE 536, Solidification Processing, Instructor

Fall 2020 MSE 190, Introduction to Materials Engineering, Instructor

Spring 2020 MSE 597, Superalloys - High Temperature, Instructor

Fall 2019 MSE 235, Materials Properties Laboratory, Instructor

Spring 2019 MSE 536, Solidification Processing, Instructor

Fall 2018 MSE 235, Materials Properties Laboratory, Instructor

Spring 2018 MSE 235, Materials Properties Laboratory, Instructor

Spring 2017 MSE 536, Solidification Processing, Instructor

Former Masters Students

Purdue University

Sep 2016–Jul 2018 Chia-Hsiu Chang (M.S. Materials Science and Engineering)

Thesis Title: "Solid-solution strengthening of FCC complex, concentrated alloys"

Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany

Apr 2016–Sep 2016 Jean Balmon (Ingénieur Civil des Mines, École des mines de Saint-Étienne)

Materials Department, University of California Santa Barbara, Santa Barbara, CA

Aug 2012–Jan 2014 Yolita Eggeler (Diploma Thesis, Friedrich-Alexander-Universität Erlangen-Nürnberg)

Former Undergraduate Students

Purdue University, West Lafayette, IN

Chadwick Choy, Haydn Schroader, Shelby McClain, Brynna Kelly, Mallory Benoit, Natalie Carter, Jack Mason, Sam Inman (UVA), Austin Beggs, Tyler Lucas (MIT), Jacob Melvin, Muqiao Su, Rachel Mooar, Owen Wellborn, Matthew Higgins (University of Michigan)

Senior Design Projects

Purdue University, West Lafayette, IN

2020–2021 Amanda L. Guyre, Riley N. Plotner, Bryan M. Adams, Bryce G. McKenzie, Sponsor: Haynes International.

2019–2020 Kyle Petrosky, Margaret A. Serewicz, Jack T. Siwajek, Michael G. Wardeburg, Sponsor: Haynes International.

2018–2019 Samuel B. Inman, Adam D. Smith, Rachel M. Nederhoed, Analiese M. Long, Sponsor: AIM-MRO and GE

2018–2019 Harley J. Rowland, Austin D. Beggs, Tze Jian Tay, Anthony E. Pupillo, Sponsor: Haynes International

2017–2018 Eric C. Rohrbach, Grant L. Hinkle, Adam J. Miller, Samuel W. Humphrey, Sponsor: Haynes International

2016–2017 Alex V. Post, Alex W. Kaiser, John F. Schrader, Jared D. Smith, Sponsor: Haynes International

Summer Undergraduate Research Fellowship (SURF) Program

Purdue University, West Lafayette, IN

Jun 2020–Aug 2020 Haydn Schroader (Purdue University, West Lafayette, IN)

Jun 2017–Aug 2017 Anjola Uprety (Wesleyan College, Macon, GA)

Current Postdoctoral Researchers

Purdue University, West Lafayette, IN

Aug 2020– Logan Ware

Current Graduate Students

Purdue University, West Lafayette, IN

Jan 2021– Ching-Chien Chen (Co-advised with Prof. Alejandro Strachan)

Aug 2020– Austin Hernandez (Co-advised with Prof. Ken Sandhage)

Aug 2019– Thomas Mann

Aug 2019– Sona Avetian (Co-advised with Prof. Ken Sandhage)

May 2018– Shivam Tripathi (Co-advised with Prof. Alejandro Strachan)

Sep 2017– Dongsheng Wen

Oct 2016– Sae Matsunaga

Current Master's Students

Purdue University, West Lafayette, IN

Aug 2020– Benjamin Smith (Co-advised with Prof. Tim Pourpoint)

Current Undergraduate Students

Purdue University, West Lafayette, IN

Jan 2021– Thomas Deucher

Aug 2019– David Ho

Service at Purdue University

Committee Work

2018- Equipment Committee, Chair

2017- Graduate Committee, Member

2016- Equipment Committee, Member

Professional Preparation

2019– Purdue University Materials Advantage (PUMA) chapter, Faculty Advisor

July 2019 Gordon Research Seminar, Physical Metallurgy, Faculty Mentor

Summer 2019 Engineering Academic Career Club mentoring circle, Faculty Mentor

Mar 2019 “Unraveling the mysteries of faculty applications Pt. I” with Engineering Academic Career Club (and C. Davis, K. Solomon, V. Narshimhan)

Outreach

Apr 2019 WIEP JEEP MSE Co-Organizer

Apr 2018 WIEP JEEP Sunday Welcome

Jul 2018 – Present ASM Cincinnati Teacher's Camp

Apr 2017 WIEP JEEP Sunday Welcome

Undesired outcomes

Rejected degree programs

2006 Case Western Reserve University, B.S. program

Rejected faculty applications

- 2014** École polytechnique fédérale de Lausanne, Switzerland
- 2014** Georgia Institute of Technology
- 2014** North Carolina State University
- 2014** Colorado School of Mines

Rejected award applications

- 2016** Best Student Paper, *Acta Materialia*
- 2016** TMS Young Professional Development Award
- 2016** ORAU Ralph E. Powe Junior Faculty Enhancement Award
- 2019** TMS Young Leaders International Scholar Award

Rejected funding, full proposals as lead PI

- 2018** NSF DMR MMN
- 2018** DOE NEUP
- 2019** DOE NEUP
- 2019** DOD ONR MURI

Rejected manuscripts

- 2x *Acta Materialia*
- 1x *Scripta Materialia*
- 1x *Science*
- 1x *J Alloys and Compounds*