TIMOTHY J. RUPERT

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ACADEMIC APPOINTMENTS

University of California, Irvine — Irvine, CA

2017 – present **Associate Professor**

2011 – 2017 **Assistant Professor**
Materials Science and Engineering (MSE)
Mechanical and Aerospace Engineering (MAE)
Chemical and Biomolecular Engineering (CBE)
Materials and Manufacturing Technology (MMT)

2015 – present **Associate Director**
Institute for Design and Manufacturing Innovation (IDMI)

EDUCATION

Massachusetts Institute of Technology — Cambridge, MA

2011 **Ph.D. in Materials Science and Engineering**
Thesis: "Nanocrystalline Alloys: Enhanced Strengthening Mechanisms and Mechanically-Driven Structural Evolution"
Advisor: Prof. Christopher A. Schuh
Committee: Prof. Samuel M. Allen, Prof. Michael J. Demkowicz
Minor: Teaching

Johns Hopkins University — Baltimore, MD

2007 **M.S. in Mechanical Engineering**
Thesis: "Understanding Mechanically-Induced Grain Growth in Nanocrystalline Aluminum Thin Films"
Advisor: Prof. Kevin J. Hemker
Committee: Prof. William N. Sharpe, Jr.
Concentration: Mechanics and Materials

2007 **B.S. in Mechanical Engineering**
Departmental and University Honors, Dean's List (all semesters)

AWARDS AND HONORS

- AIME-TMS Rossiter W. Raymond Memorial Award (2020)
- Scripta Materialia, Outstanding Reviewer (2019)
- Invited Speaker, Gordon Research Conference – Physical Metallurgy (2019)
- Finalist, Robert W. Cahn Best Paper Prize for the Journal of Materials Science (March 2019)
- Acta Materialia and Scripta Materialia, Outstanding Reviewer (2017)

- ASM International Bradley Stoughton Award for Young Teachers (2017)
- National Academy of Engineering U.S. Frontiers of Engineering Symposium Participant (2017)
- Invited Speaker, Gordon Research Conference – Structural Nanomaterials (2016)
- TMS Structural Materials Division JOM Best Paper Award (2016)
- Modelling and Simulation in Materials Science and Engineering, Outstanding Reviewer (2016)
- UCI Engineering, Early Career Award for Faculty Excellence in Research (2016)
- Army Research Office, Young Investigator Program (YIP) Award (2016)
- Scripta Materialia, Outstanding Reviewer (2015)
- Department of Energy, Early Career Research Program Award (2015)
- TMS Young Leader Professional Development Award (2015)
- Hellman Faculty Fellow (2014)
- NSF Faculty Early Career Development (CAREER) Award (2013)
- NSF Broadening Participation Research Initiation Grants in Engineering (BRIGE) Award (2012)
- NSF, Graduate Research Fellowship Program, Honorable Mention (2007, 2008)
- Charles A. Miller Award – Johns Hopkins University (2007)

RESEARCH GRANTS

Funding as PI or co-PI: $24,373,898 – Total
$5,518,152 – Direct Funding to Research Group

- "Microstructure-within-a-Microstructure: Uncovering fundamental scaling laws connecting complexion network descriptors to damage tolerance"
  Funding Agency: Department of Energy, Basic Energy Sciences (BES)
  Award Dates: 08/2020 – 07/2023
  Leadership: PI: **TJ Rupert**
  Amount: $450,000

- "UCI MRSEC: Materials Discovery Through Atomic Level Structural Design and Charge Control"
  (Leader of IRG 1: Interfacial Science of Complex Concentrated Materials)
  Funding Agency: National Science Foundation
  Award Dates: 09/2020 – 08/2026
  Leadership: PIs: X Pan, Z Guan, R Ragan, **TJ Rupert**, R Wu
  Amount: $18,000,000

- "Accelerating Manufacturing of Powder-Processed Strong, Lightweight, and Thermally Stable Bulk Nanocrystalline Al Alloys via Engineered Interface States"
  Funding Agency: Department of Energy, Advanced Manufacturing Office
  Award Dates: 06/2020 – 05/2022
  Leadership: PIs: DS Gianola, **TJ Rupert**
  Amount: $500,000 (Rupert's share: $250,000)

- "BIAM-UCI Research Centre for the Fundamental Study of Novel Structural Materials"
  (Rupert's Project: Strengthening and Toughening Mechanisms of Al-Matrix Composites Reinforced by Multi-Scale, Hybrid Particles)
  Funding Agency: Beijing Institute of Aeronautical Materials (BIAM)

Award Dates: 01/2018 – 12/2020
Leadership: PIs: **TJ Rupert**, EJ Lavernia, JM Schoenung, L Valdevit
Amount: $1,855,004 (Rupert's share: $458,557)

- "DMREF: Multiscale Alloy Design of HCP Alloys via Twin Mesh Engineering"
  Funding Agency: National Science Foundation, CMMI
  Award Dates: 10/2017 – 09/2021
  Leadership: PI: JM Schoenung; Co-I: **TJ Rupert** and EJ Lavernia
  Amount: $800,000 (Rupert's share: $353,515)

- "Using Complexions to Fabricate Bulk Nanocrystalline Metals with Enhanced Ductility"
  Funding Agency: Army Research Office, Young Investigator Program (YIP)
  Award Dates: 07/2016 – 06/2019
  Leadership: PI: **TJ Rupert**
  Amount: $359,100

- "Doping Metallic Grain Boundaries to Control Atomic Structure and Damage Tolerance"
  Funding Agency: Department of Energy, Early Career Research Program
  Award Dates: 07/2015 – 06/2020
  Leadership: PI: **TJ Rupert**
  Amount: $750,000

- "Predicting Changes in Structure and Properties During Wear in Metallic Systems"
  Funding Agency: National Science Foundation, CMMI
  Award Dates: 09/2015 – 08/2018
  Leadership: PI: **TJ Rupert**
  Amount: $344,998

- "Enabling Generation IV Nuclear Reactors with Interface-Dominated Materials"
  Funding Agency: Hellman Fellows Fund
  Award Dates: 07/2014 – 06/2015
  Leadership: PI: **TJ Rupert**
  Amount: $47,244

- "CAREER: Nanocrystalline Grain Boundary Network Engineering Enabled by New Deformation Mechanisms"
  Funding Agency: National Science Foundation, DMR
  Award Dates: 07/2013 – 06/2018 (no-cost extension to 06/2019)
  Leadership: PI: **TJ Rupert**
  Amount: $537,053

- "Tailoring Grain Boundary Chemistry for Failure Resistant Nanostructured Metals"
  Funding Agency: Army Research Office
  Award Dates: 09/2012 – 08/2015
  Leadership: PI: **TJ Rupert**
  Amount: $337,186

- "BRIGE: Interfacial Defects and the Failure of Nanostructured Metals"
  Funding Agency: National Science Foundation, CMMI

Award Dates: 09/2012 – 08/2014
Leadership: PI: **TJ Rupert**
Amount: $174,994

- "MRI: Development of nano-CT-based elastography system for three-dimensional deformation field and elastic characterization of heterogeneous materials"
  Funding Agency: National Science Foundation, CMMI
  Award Dates: 09/2012 – 08/2015
  Leadership: PI: L Sun; Co-I: **TJ Rupert** and five others
  Amount: $555,505

PUBLICATIONS

Journal Articles:

[J63] Grigorian CM, **Rupert TJ**. "Critical cooling rates for amorphous-to-ordered complexion transitions in Cu-rich nanocrystalline alloys," (Submitted to *Acta Materialia*). (http://arxiv.org/abs/2008.00292)

[J62] McCarthy MJ, **Rupert TJ**. "Shuffling mode competition leads to directionally-anisotropic mobility of faceted Σ11 boundaries in face centered cubic metals," (Submitted to *Physical Review Materials*). (http://arxiv.org/abs/2007.08692)

[J61] Hu Y, Turlo V, Beyerlein IJ, Lavernia EJ, Mahajan S, Schoenung JM, **Rupert TJ**. "Embracing the chaos: Alloying adds stochasticity to twin embryo growth," (Submitted to *Physical Review Letters*). (https://arxiv.org/abs/2006.15242)

[J60] Yaddanapudi K, Leu B, Kumar MA, Wang X, Schoenung JM, Lavernia EJ, **Rupert TJ**, Beyerlein IJ, Mahajan S. "Accommodation and formation of $\{\bar{1}012\}$ twins in Mg-Y alloys," (Submitted to *Acta Materialia*).

[J59] Jiang L, Gong M, Wang J, Pan Z, Wang X, Zhang D, Wang Y, Ciston J, Minor AM, Xu M, Pan X, **Rupert TJ**, Mahajan S, Lavernia EJ, Beyerlein IJ, Schoenung JM. "Direct Observation and Simulation Validation of a Pure-shuffle Mechanism for Deformation Twin Nucleation in Magnesium," (Submitted to *Nature Materials*).

[J58] Zhou X, Schuler JD, Grigorian CM, Tweddle D, **Rupert TJ**, Li L, Thompson GB. "Influence and Comparison of Contamination Partitioning on Nanocrystalline Stability in Sputter Deposited and Ball Milled Cu-Zr Alloys," *Journal of Materials Science*, (2020) In Press.

[J57] Wang X, Jiang L, Zhang D, **Rupert TJ**, Beyerlein IJ, Mahajan S, Lavernia EJ, Schoenung JM. "Revealing the deformation mechanisms for room-temperature compressive superplasticity in nanocrystalline magnesium," *Materialia*, (2020) 11, 100731. (https://doi.org/10.1016/j.mtla.2020.100731)

[J56] Wang X, Jiang L, Cooper C, Yu K, Zhang D, **Rupert TJ**, Mahajan S, Beyerlein IJ, Lavernia EJ, Schoenung JM. "Toughening Magnesium with Gradient Twin Meshes," *Acta Materialia*, (2020) 195, 468. (https://doi.org/10.1016/j.actamat.2020.05.021)

[J55] McCarthy MJ, **Rupert TJ**. "Emergence of directionally-anisotropic mobility in a faceted Σ11 <110> tilt grain boundary in Cu," *Modelling and Simulation in Materials Science and Engineering*, (2020) 28, 055008. (https://doi.org/10.1088/1361-651X/ab8baa)

[J54] Hu Y, Turlo V, Beyerlein IJ, Lavernia EJ, Mahajan S, Schoenung JM, **Rupert TJ**. "Disconnection-mediated twin embryo growth in Mg," *Acta Materialia*, (2020) 194, 437. (https://doi.org/10.1016/j.actamat.2020.04.010)

[J53] Schuler JD, Copeland G, Hattar K, **Rupert TJ**, Briggs SA. "Solid-state dewetting instability in thermally-stable nanocrystalline binary alloys," *Materialia*, (2020) 9, 100618. (https://doi.org/10.1016/j.mtla.2020.100618)

[J52] Schuler JD, Grigorian CM, Barr CM, Boyce BL, Hattar K, **Rupert TJ**. "Amorphous intergranular films mitigate radiation damage in nanocrystalline Cu-Zr," *Acta Materialia*, (2020) 186, 341. (https://doi.org/10.1016/j.actamat.2019.12.048)

[J51] Cantwell PR, Frolov T, **Rupert TJ**, Krause AR, Marvel CJ, Rohrer GS, Rickman JM, Harmer MP. "Grain Boundary Complexion Transitions," *Annual Review of Materials Research*, (2020) 50, 465. (https://doi.org/10.1146/annurev-matsci-081619-114055)

[J50] Turlo V, **Rupert TJ**. "Prediction of a wide variety of linear complexions in face centered cubic alloys," *Acta Materialia*, (2020) 185, 129. (https://doi.org/10.1016/j.actamat.2019.11.069)

[J49] Grigorian CM, **Rupert TJ**. "Thick amorphous complexion formation and extreme thermal stability in ternary nanocrystalline Cu-Zr-Hf alloys," *Acta Materialia*, (2019) 179, 172. (https://doi.org/10.1016/j.actamat.2019.08.031)

[J48] Islam Z, Paoletta AL, Monterrosa A, Schuler JD, **Rupert TJ**, Hattar K, Glavin N, Haque A. "Heavy Ion Irradiation Effects on GaN/AlGaN High Electron Mobility Transistor Failure at Off-state," *Microelectronics Reliability*, (2019) 102, 113493. (https://doi.org/10.1016/j.microrel.2019.113493)

[J47] Donaldson OK, **Rupert TJ**. "Amorphous Intergranular Films Enable the Consolidation of Bulk Nanocrystalline Cu-Zr with Full Density," *Advanced Engineering Materials*, (2019) 1900333. (https://doi.org/10.1002/adem.201900333)

[J46] Jiang L, Kumar MA, Beyerlein IJ, Wang X, Zhang D, Wu C, Cooper C, **Rupert TJ**, Mahajan S, Lavernia EJ, Schoenung JM. "Twin formation from a twin boundary in Mg during in-situ nanomechanical testing," *Materials Science and Engineering A*, 759, 142 (2019). (https://doi.org/10.1016/j.msea.2019.04.117)

[J45] Turlo V, **Rupert TJ**. "Linear complexions: Metastable phase formation and coexistence at dislocations," *Physical Review Letters*, 122, 126102 (2019). (https://doi.org/10.1103/PhysRevLett.122.126102)

[J44] Schuler JD, Barr CM, Heckman NM, Copeland G, Boyce BL, Hattar K, **Rupert TJ**. "In situ high-cycle fatigue reveals the importance of grain boundary structure in nanocrystalline Cu-Zr," *JOM*, 74, 1221 (2019). (https://doi.org/10.1007/s11837-019-03361-7)

[J43] Huang Z, Chen F, Shen Q, Zhang L, **Rupert TJ**. "Combined effects of metallic dopants and nonmetal impurities on grain boundary energy and strength," *Acta Materialia*, 166, 113 (2019). (https://doi.org/10.1016/j.actamat.2018.12.031)

[J42] Hu Y, **Rupert TJ**. "Atomistic modeling of interfacial segregation and structural transitions in ternary alloys," *Journal of Materials Science*, 54, 3975 (2019). (https://doi.org/10.1007/s10853-018-3139-x)

[J41] Bober DB, LaGrange T, Kumar M, **Rupert TJ**. "Pronounced grain boundary network evolution in nanocrystalline Cu subjected to large cyclic strains," *Journal of Materials Research*, 34, 35 (2019). (http://dx.doi.org/10.1557/jmr.2018.334)

[J40] Panzarino JF, **Rupert TJ**. "Concurrent transitions in wear rate and surface microstructure in nanocrystalline Ni-W," *Materialia*, 4, 38 (2018). (https://doi.org/10.1016/j.mtla.2018.09.010)

[J39] Fu Z, Jiang L, Wardini JL, MacDonald BE, Wen H, Xiong W, Zhang D, Zhou Y, **Rupert TJ**, Chen W, Lavernia EJ. "A high-entropy alloy with hierarchical nanoprecipitates and ultrahigh strength," *Science Advances*, 4, eaat8712 (2018). (https://doi.org/10.1126/sciadv.aat8712)

[J38] Balbus GH, Echlin MP, Grigorian CM, **Rupert TJ**, Pollock TM, Gianola DS. "Femtosecond laser rejuvenation of nanocrystalline metals," *Acta Materialia*, 156, 183 (2018). (https://doi.org/10.1016/j.actamat.2018.06.027)

[J37] Schuler JD, Donaldson OK, **Rupert TJ**. "Amorphous complexions enable a new region of high temperature stability in nanocrystalline Ni-W," *Scripta Materialia*, 154, 49 (2018). (https://doi.org/10.1016/j.scriptamat.2018.05.023)

[J36] Turlo V, **Rupert TJ**. "Dislocation-assisted linear complexion formation driven by segregation," *Scripta Materialia*, 154, 25 (2018). (https://doi.org/10.1016/j.scriptamat.2018.05.014)

[J35] Turlo V, **Rupert TJ**. "Grain boundary complexions and the strength of nanocrystalline metals: Dislocation emission and propagation," *Acta Materialia*, 151, 100 (2018). (https://doi.org/10.1016/j.actamat.2018.03.055)

[J34] Hu Y, Schuler JD, **Rupert TJ**. "Identifying interatomic potentials for the accurate modeling of interfacial segregation and structural transitions," *Computational Materials Science*, 148, 10 (2018). (https://doi.org/10.1016/j.commatsci.2018.02.020)

[J33] Huang Z, Chen F, Shen Q, Zhang L, **Rupert TJ**. "Uncovering the influence of common nonmetal impurities on the stability and strength of a Σ5 (310) grain boundary in Cu," *Acta Materialia*, 148, 110 (2018). (https://doi.org/10.1016/j.actamat.2018.01.058)

[J32] Wang X, Jiang L, Zhang D, Beyerlein IJ, Mahajan S, **Rupert TJ**, Lavernia EJ, Schoenung JM. "Reversed Compressive Yield Anisotropy in Magnesium with Microlaminated Structure," *Acta Materialia*, 146, 12 (2018). (https://doi.org/10.1016/j.actamat.2017.12.025)

[J31] Bustamante J, Panzarino JF, **Rupert TJ**, Loudon C. "Forces to pierce cuticle of tarsi and material properties determined by nanoindentation: The Achilles' heel of bed bugs," *Biology Open*, 6, 1541 (2017). (https://dx.doi.org/10.1242/bio.028381)

[J30] Schuler JD, **Rupert TJ**. "Materials selection rules for amorphous complexion formation in binary metallic alloys," *Acta Materialia*, 140, 196 (2017). (https://dx.doi.org/10.1016/j.actamat.2017.08.042)

[J29] Pan Z, **Rupert TJ**. "Mechanisms of near-surface structural evolution in nanocrystalline materials during sliding contact," *Physical Review Materials*, 1, 043602 (2017). (http://dx.doi.org/10.1103/PhysRevMaterials.1.043602)

[J28] Pun SC, Wang W, Khalajhedayati A, Schuler JD, Trelewicz JR, **Rupert TJ**. "Nanocrystalline Al-Mg with extreme strength due to grain boundary doping," *Materials Science and Engineering A*, 296, 400 (2017). (http://dx.doi.org/10.1016/j.msea.2017.04.095)

[J27] Pham QN, Larkin LS, Lisboa CC, Saltonstall CB, Qiu L, Schuler JD, **Rupert TJ**, Norris PM. "Effect of Growth Temperature on the Synthesis of Carbon Nanotube Arrays and Amorphous Carbon for Thermal Applications," *Physica Status Solidi A*, 1600852 (2017). (http://dx.doi.org/10.1002/pssa.201600852)

[J26] Bober DB, Lind J, Mulay RP, **Rupert TJ**, Kumar M. "The formation and characterization of large twin related domains," *Acta Materialia*, 129, 500 (2017). (http://dx.doi.org/10.1016/j.actamat.2017.02.051)

[J25] Pan Z, **Rupert TJ**. "Spatial variation of short-range order in amorphous intergranular complexions," *Computational Materials Science*, 131, 62 (2017). (http://dx.doi.org/10.1016/j.commatsci.2017.01.033)

[J24] Pan Z, **Rupert TJ**. "Formation of ordered and disordered intergranular films in immiscible metal alloys," *Scripta Materialia*, 130, 91 (2017). (http://dx.doi.org/10.1016/j.scriptamat.2016.11.025)

[J23] Panzarino JF, Pan Z, **Rupert TJ**. "Plasticity-induced restructuring of a nanocrystalline grain boundary network," *Acta Materialia*, 120, 1 (2016). (http://dx.doi.org/10.1016/j.actamat.2016.08.040)

[J22] **Rupert TJ**. "The role of complexions in metallic nano-grain stability and deformation," *Current Opinion in Solid State & Materials Science*, 20, 257 (2016). (http://dx.doi.org/10.1016/j.cossms.2016.05.005)

[J21] Pan Z, **Rupert TJ**. "Effect of grain boundary character on segregation-induced interface structural transitions," *Physical Review B*, 93, 134113 (2016). (http://dx.doi.org/10.1103/PhysRevB.93.134113)

[J20] Khalajhedayati A, Pan Z, **Rupert TJ**. "Manipulating the interfacial structure of nanomaterials to achieve a unique combination of strength and ductility," *Nature Communications*, 7, 10802 (2016). (http://dx.doi.org/10.1038/ncomms10802)

[J19] Bober DB, Khalajhedayati A, Kumar M, **Rupert TJ**. "Grain boundary character distributions in nanocrystalline metals produced by different processing routes," *Metallurgical and Materials Transactions A*, 47, 1389 (2016). (http://dx.doi.org/10.1007/s11661-015-3274-9)

[J18] Ludy JE, **Rupert TJ**. "Amorphous intergranular films act as ultra-efficient point defect sinks during collision cascades," *Scripta Materialia*, 110, 37 (2016). (http://dx.doi.org/10.1016/j.scriptamat.2015.07.040)

[J17] Khalajhedayati A, **Rupert TJ**. "High-temperature stability and grain boundary complexion formation in a nanocrystalline Cu-Zr alloy," *JOM*, 67, 2788 (2015). (http://dx.doi.org/10.1007/s11837-015-1644-9)

[J16] Flores-Johnson EA, **Rupert TJ**, Hemker, KJ, Gianola DS, Gan Y. "Modelling wrinkling interactions produced by patterned defects in metal thin films," *Extreme Mechanics Letters*, (2015) 4, 175. (http://dx.doi.org/10.1016/j.eml.2015.07.002)

[J15] Khalajhedayati A, **Rupert TJ**. "Disruption of Thermally-Stable Nanoscale Grain Structures by Strain Localization," *Scientific Reports*, 5, 10663 (2015). (http://dx.doi.org/10.1038/srep10663)

[J14] Pan Z, **Rupert TJ**. "Amorphous intergranular films as a toughening structural feature," *Acta Materialia*, 89, 205 (2015). (http://dx.doi.org/10.1016/j.actamat.2015.02.012)

[J13] Panzarino JF, Ramos JJ, **Rupert TJ**. "Quantitative tracking of grain structure evolution in a nanocrystalline metal during cyclic loading," *Modelling and Simulation in Materials Science and Engineering*, 23, 025005 (2015). (http://dx.doi.org/10.1088/0965-0393/23/2/025005)

[J12] Bober DB, Kumar M, **Rupert TJ**. "Nanocrystalline grain boundary engineering: Increasing Σ3 boundary fraction in pure Ni using collective deformation physics," *Acta Materialia*, 86, 43 (2015). (http://dx.doi.org/10.1016/j.actamat.2014.11.034)

[J11] Pan Z, **Rupert TJ**. "Damage nucleation from repeated dislocation absorption at a grain boundary," *Computational Materials Science*, 93, 206 (2014). (http://dx.doi.org/10.1016/j.commatsci.2014.07.008)

[J10] **Rupert TJ**. "Solid solution strengthening and softening due to collective nanocrystalline deformation physics," *Scripta Materialia*, 81, 44 (2014). **(**http://dx.doi.org/10.1016/j.scriptamat.2014.03.006)

[J9] Panzarino JF, **Rupert TJ**. "Tracking Microstructure of Crystalline Materials: A Post-Processing Algorithm for Atomistic Simulations," *JOM*, 66, 417 (2014). (http://dx.doi.org/10.1007/s11837-013-0831-9)

[J8] Khalajhedayati A, **Rupert TJ**. "Emergence of localized plasticity and failure through shear banding during microcompression of a nanocrystalline alloy," *Acta Materialia*, 65, 326 (2014). (http://dx.doi.org/10.1016/j.actamat.2013.10.074)

[J7] **Rupert TJ**. "Strain localization in a nanocrystalline metal: Atomic mechanisms and the effect of testing conditions," *Journal of Applied Physics*, 114, 033527 (2013). (http://dx.doi.org/10.1063/1.4815965)

[J6] **Rupert TJ**, Cai W, Schuh CA. "Abrasive wear response of nanocrystalline Ni-W alloys across the Hall-Petch breakdown," *Wear*, 298-299, 120 (2013). (http://dx.doi.org/10.1016/j.wear.2013.01.021)

[J5] **Rupert TJ**, Trelewicz JR, Schuh CA. "Grain boundary relaxation strengthening of nanocrystalline Ni-W alloys," *Journal of Materials Research*, 27, 1285 (2012). (http://dx.doi.org/10.1557/jmr.2012.55)

[J4] **Rupert TJ**, Schuh CA. "Mechanically-driven grain boundary relaxation: a mechanism for cyclic hardening in nanocrystalline Ni," *Philosophical Magazine Letters*, 92, 20 (2012). (http://dx.doi.org/10.1080/09500839.2011.619507)

[J3] **Rupert TJ**, Trenkle JC, Schuh CA. "Enhanced solid solution effects on the strength of nanocrystalline alloys," *Acta Materialia*, 59, 1619 (2011). (http://dx.doi.org/10.1016/j.actamat.2010.11.026)

[J2] **Rupert TJ**, Schuh CA. "Sliding wear of nanocrystalline Ni-W: Structural evolution and the apparent breakdown of Archard scaling," *Acta Materialia*, 58, 4137 (2010). (http://dx.doi.org/10.1016/j.actamat.2010.04.005)

[J1] **Rupert TJ**, Gianola DS, Gan Y, Hemker KJ. "Experimental Observations of Stress-Driven Grain Boundary Migration," *Science,* 326, 1686 (2009). (http://dx.doi.org/10.1126/science.1178226)

Conference Proceedings:

[C3] Balbus GH, Echlin MP, Grigorian CM, **Rupert TJ**, Pollock TM, Gianola DS. "Rejuvenation of Disorder-Containing Materials," *ICTAEM 2018: Proceedings of the First International Conference on Theoretical, Applied and Experimental Mechanics*, (2018). (https://doi.org/10.1007/978-3-319-91989-8_85)

[C2] Sharma S, Khalajhedayati A, **Rupert TJ**, Madou MJ. "SU8 Derived Glassy Carbon for Lithium Ion Batteries," *Electrochemical Society (ECS) Transactions*, (2014). (http://dx.doi.org/10.1149/06107.0075ecst)

[C1] Moodie ALR, Angle JP, Tackett EC, **Rupert TJ**, Mecartney ML, Valdevit L. "Ceramic and Hybrid Micro-architected Materials for High Temperature Applications," *Society for the Advancement of Material and Process Engineering (SAMPE) Proceedings*, (2013).

PATENTS

[P1] Rupert TJ, Khalajhedayati A. "Enhancing Mechanical Properties of Nanostructured Materials with Interfacial Films," U.S. Patent Application No. 15/896,849, Filed on 02/14/2018

PRESENTATIONS

Invited Lectures:

[L77] "Controlling the structure of interfaces and dislocations to directly alter mechanical response," *Materials Research Society (MRS) Fall Meeting*, December 2020, Boston, MA.

[L76] "Unique migration of faceted Σ11 boundaries in face centered cubic metals," *Society of Engineering Science (SES) 57th Annual Technical Meeting, September 2020*, Minneapolis, MN.
* Postponed due to COVID-19 *

[L75] "Creating nanoalloys that actually prefer extreme environments using amorphous interfacial complexions," *International Materials Applications & Technologies (IMAT) 2020*, September 2020, Cleveland, OH.
* Cancelled due to COVID-19 *

[L74] "Tuning defect structure to control mechanical behavior on the nanoscale," *Society of Experimental Mechanics (SEM) Annual Conference - International Symposium on Micro- and Nanomechanics (ISMAN)*, September 2020, Orlando, FL. (KEYNOTE)
* Postponed due to COVID-19 *

[L73] "Segregation-induced structural transformations near interfaces and dislocations," *5th International Workshop on Mechanical Behavior at Small Length Scales*, July 2020, Bangalore, India.
* Postponed due to COVID-19 *

[L72] "Moving closer to equilibrium but maintaining the defects (and the properties)," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[L71] "Making strong, tough, thermally-stable, and radiation tolerant nanocrystalline materials in bulk form," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[L70] "Optimizing the mechanical behavior of metals with grain boundary and dislocation complexions," *International Conference on Plasticity, Damage, and Fracture*, January 2020, Rivera Maya, Mexico.

[L69] "The thermodynamics and kinetics of defect-driven complexion formation," *International Conference on Plasticity, Damage, and Fracture*, January 2020, Rivera Maya, Mexico.

[L68] "Using TEM to isolate the importance of complexion transitions on the behavior of nanocrystalline materials," *Second International Symposium on Advanced Microscopy and Spectroscopy (ISAMS-2)*, December 2019, Irvine, CA.

[L67] "Micro-Scale In Situ Mechanical Testing to Uncover Deformation Mechanisms in Al-Matrix Composites," *Beijing Institute of Aeronautical Materials*, October 2019, Beijing, China.

[L66] "Coupled experimental and computational studies of amorphous grain boundary complexions," *Materials Science & Technology (MS&T) Conference and Exhibition*, September 2019, Portland, OR.

[L65] "Linear complexion formation driven by local stress concentrations near dislocations," *Dislocations 2019*, September 2019, Haifa, Israel.

[L64] "Probing nanoscale complexion transformations with computational techniques that complement experiments," *Recent Advances in the Modeling and Simulation of the Mechanics of Nanoscale Materials Workshop*, August 2019, Philadelphia, PA.

[L63] "Segregation-Induced Complexion Transitions: New Opportunities for Materials Design," *Gordon Research Conference – Physical Metallurgy*, July 2019, Manchester, NH.

[L62] "Amorphous intergranular films for improved performance under irradiation," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2019, San Antonio, TX.

[L61] "Tailoring mechanical behavior with one- and two-dimensional complexions," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2019, San Antonio, TX.

[L60] "Promoting beneficial complexion transitions: Tuning defect structure to make better materials," *University of California, Los Angeles – Department of Materials Science and Engineering*, March 2019, Los Angeles, CA.

[L59] "Promoting beneficial complexion transitions: Tuning defect structure to make better materials," *University of Illinois at Urbana-Champaign – Department of Materials Science and Engineering*, February 2019, Urbana, IL.

[L58] "Promoting beneficial complexion transitions: Using defects to make better materials," *Dartmouth College – Thayer School of Engineering*, January 2019, Hanover, NH.

[L57] "Enabling tough and stable nanocrystalline metals through the incorporation of amorphous complexions," *International Conference on Plasticity, Damage, and Fracture*, January 2019, Panama City, Panama.

[L56] "Repetitive deformation at high temperatures leads to grain boundary network restructuring in nanocrystalline metals," *International Conference on Plasticity, Damage, and Fracture*, January 2019, Panama City, Panama.

[L55] "Decorating defects with segregating dopants to tailor mechanical properties," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2018, Columbus, OH.

[L54] "Dislocation-assisted linear complexion formation in body-centered cubic and face-centered cubic alloys," *Society of Engineering Science (SES) Annual Technical Meeting*, October 2018, Madrid, Spain. (KEYNOTE)

[L53] "Controlled alteration of nanocrystalline grain boundary networks using cyclic plasticity at elevated temperatures," *Society of Engineering Science (SES) Annual Technical Meeting*, October 2018, Madrid, Spain.

[L52] "Stabilization and toughening of nanocrystalline alloys through the incorporation of amorphous complexions," *THERMEC International Conference on Processing and Manufacturing of Advanced Materials*, July 2018, Paris, France.

[L51] "In situ mechanical testing of hierarchical and gradient nanostructures," *International Conference on Metallurgical Coatings and Thin Films (ICMCTF)*, April 2018, San Diego, CA.
[L50] "Promoting Beneficial Grain Boundary Phase Transitions with Segregation Engineering," *University of Pennsylvania – Department of Materials Science and Engineering*, April 2018, Philadelphia, PA.
[L49] "Manipulating the Structure and Properties of Nanocrystalline Metals using Segregation Engineering," *University of California, Berkeley – Department of Mechanical Engineering*, March 2018, Berkeley, CA.
[L48] "Competing effects of nonmetal impurities and planned metallic dopants on grain boundary deformation," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2018, Phoenix, AZ.
[L47] "Stabilization of nanocrystalline alloys through the incorporation of grain boundary complexions," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2018, Phoenix, AZ.
[L46] "Small-scale mechanical testing of hierarchical nanostructured materials," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2018, Phoenix, AZ.
[L45] "Modeling of complexion transitions at one- and two-dimensional defects," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2018, Phoenix, AZ.
[L44] "Surface structure transitions during sliding contact of nanostructured metals," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2018, Phoenix, AZ.
[L43] "Nanometallurgy: Current directions at UC Irvine and extension to Al-matrix composites," *Beijing Institute of Aeronautical Materials*, October 2017, Beijing, China.
[L42] "Decorating defects with segregating dopants to tailor mechanical properties," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2017, Pittsburgh, PA.
[L41] "Tribology of nanostructured metals: Connecting transitions in surface structure and wear rate," *Rice University – Contact Mechanics Workshop*, May 2017, Houston, TX.
[L40] "Complexion transitions in metals: Unique opportunities for mechanical behavior and materials processing," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2017, San Diego, CA.
[L39] "Collective deformation mechanisms and their effect on nanoscale interfacial networks," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2017, San Diego, CA.
[L38] "Controlling Nanocrystalline Structure and Properties with Segregation Engineering," *California Institute of Technology – Department of Mechanical and Civil Engineering*, February 2017, Pasadena, CA.
[L37] "Promoting Beneficial Grain Boundary Phase Transitions with Segregation Engineering," *University of California, Santa Barbara – Materials Department*, November 2016, Santa Barbara, CA.
[L36] "Using Grain Boundary Complexion Transitions to Toughen Nanocrystalline Metals," *University of California, Irvine - Department of Chemical Engineering and Materials Science*, October 2016, Irvine, CA.
[L35] "Controlling Nanocrystalline Structure and Properties with Segregation Engineering," *Wuhan University of Technology*, September 2016, Wuhan, China.
[L34] "Adding Complexions to Nanostructured Metals to Achieve a Unique Combination of Strength and Ductility," *Functional and Nanomaterials 2025*, September 2016, Irvine, CA.
[L33] "Using Interfacial Structure to Control the Properties of Nanocrystalline Metals," *Sandia National Laboratories*, September 2016, Albuquerque, NM.

[L32] "Promoting Beneficial Grain Boundary Phase Transitions with Segregation Engineering," *University of Southern California – Materials Science and Engineering*, September 2016, Los Angeles, CA.

[L31] "Effect of Interfacial Doping and Complexion Formation on Nanocrystalline Mechanical Behavior," *Gordon Research Conference – Structural Nanomaterials*, July 2016, Hong Kong, China.

[L30] "Doping Nanocrystalline Alloys to Improve Strength and Toughness," *THERMEC International Conference on Processing and Manufacturing of Advanced Materials*, May 2016, Graz, Austria.

[L29] "Formation and Toughening Effects of Amorphous Interfacial Phases," *International Symposium on Plasticity*, January 2016, Kona, HI.

[L28] "Nanocrystalline Grain Boundary Engineering with Cyclic Plastic Deformation," *International Symposium on Plasticity*, January 2016, Kona, HI.

[L27] "Tuning Grain Boundary Structure to Control the Mechanical Behavior of Nanostructured Metallic Alloys," *Materials Research Society (MRS) Fall Meeting*, December 2015, Boston, MA.

[L26] "Controlling Grain Boundary Structure and Properties with Segregation Engineering," *University of Florida – Department of Materials Science and Engineering*, November 2015, Gainesville, FL.

[L25] "Nanoscale Amorphous Intergranular Films: Mechanical Properties and Interfacial Thermodynamics," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2015, Columbus, OH.

[L24] "Using amorphous complexions to tailor the mechanical behavior of nanostructured metals," *International Workshop on Interfaces*, September 2015, Bear Creek, PA.

[L23] "Characterizing and Modifying Grain Boundary Networks in Nanocrystalline Metals," *University of North Carolina at Charlotte – Nanoscale Science Seminar Series*, September 2015, Charlotte, NC.

[L22] "Doping Nanocrystalline Metals to Improve Ductility and Toughness," *Mackenzie Presbyterian University*, April 2015, São Paulo, Brazil.

[L21] "Controlling Grain Boundary Structure and Properties with Segregation Engineering," *Boise State University – Materials Science and Engineering*, March 2015, Boise, ID.

[L20] "Cyclic Plasticity and Microstructural Modification in Nanocrystalline Thin Films," *International Symposium on Plasticity*, January 2015, Montego Bay, Jamaica.

[L19] "Connecting Computational and Experimental Tools for Tracking the Evolution of Nanostructured Materials," *International Symposium on Plasticity*, January 2015, Montego Bay, Jamaica.

[L18] "Complexion Engineering in Nanostructured Materials," *Pennsylvania State University – Materials Science and Engineering*, December 2014, State College, PA.

[L17] "Nanocrystalline Grain Boundary Networks and Their Evolution during Thermomechanical Cycling," *International Conference of Young Researchers on Advanced Materials (ICYRAM)*, October 2014, Haikou, China.

[L16] "Catastrophic Failure of Nanocrystalline Metals: Mechanisms and Novel Toughening Strategies," *Fraunhofer Institute for Mechanics of Materials IWM*, September 2014, Freiburg, Germany.

[L15] "Doping Nanocrystalline Alloys to Improve Strength and Toughness," *Materials Science Engineering (MSE 2014)*, September 2014, Darmstadt, Germany. (KEYNOTE)

[L14] "Mechanical and Tribological Behavior of Nanocrystalline Ni-W Coatings: Importance of Grain Size and Grain Boundary State," *International Conference on Metallurgical Coatings and Thin Films (ICMCTF)*, April 2014, San Diego, CA.

[L13] "Tailoring Grain Boundary Structure to Control the Mechanical Behavior of Nanocrystalline Alloys," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2014, San Diego, CA.

[L12] "Nanocrystalline Grain Boundary Engineering Enabled by Novel Deformation Physics," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2014, San Diego, CA.

[L11] "Nano-Metallurgy: Taking Advantage of Novel Deformation Physics," *California State University Fullerton – College of Engineering,* December 2013, Fullerton, CA.

[L10] "The Influence of Grain Boundary Structure on Plastic Flow and Failure in Nanocrystalline Alloys," *THERMEC International Conference on Processing and Manufacturing of Advanced Materials*, December 2013, Las Vegas, NV.

[L9] "Catastrophic Shear Banding in Nanocrystalline Metals and the Importance of Grain Boundary Structure," *University of California, Riverside – Materials Science and Engineering*, November 2013, Riverside, CA

[L8] "Shear Localization in Nanocrystalline Metals: A Combined Atomistic and Experimental Study," *Society of Engineering Science (SES) Annual Technical Meeting*, July 2013, Providence, RI.

[L7] "Nanocrystalline Metallurgy: Taking Advantage of Novel Deformation Physics," *ASM – Orange Coast Chapter*, January 2013, Irvine, CA.

[L6] "Tribology of Nanocrystalline Ni-W: Evolving Structure and Properties," *Materials Research Society (MRS) Fall Meeting*, November 2012, Boston, MA.

[L5] "Nanocrystalline Metallurgy: Taking Advantage of Novel Deformation Physics," *Lawrence Livermore National Laboratory*, August 2012, Livermore, CA.

[L4] "Enhanced Strengthening Mechanisms in Nanocrystalline Alloys," *University of California, Irvine - Department of Chemical Engineering and Materials Science*, November 2011, Irvine, CA.

[L3] "Nanocrystalline metals: Dynamic nanostructures and properties under loading," *University of Minnesota - Department of Chemical Engineering and Materials Science*, February 2011, Minneapolis, MN.

[L2] "Nanocrystalline metals: Dynamic nanostructures and properties under loading," *University of California, Irvine - Department of Mechanical and Aerospace Engineering*, January 2011, Irvine, CA.

[L1] "Microstructure-Property Relationships in Nanocrystalline Metals," *University of Pennsylvania - Materials Science and Engineering*, January 2010, Philadelphia, PA.

Contributed Talks** (Presenter's name is in bold)**:

[T68] **McCarthy MJ**, Rupert TJ. "Directionally-anisotropic Mobility of Faceted Boundaries Explained through Interfacial Dislocation Mechanisms," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2020, Pittsburgh, PA.

[T67] **Yu K**, Wang X, Donaldson OK, Mahajan S, Beyerlein IJ, Rupert TJ, Schoenung JM, Lavernia EJ. "Microscratch-induced deformation twins in Mg single crystals," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[T66] **Wang X**, Wang J, Yu K, Rupert TJ, Mahajan S, Lavernia EJ, Beyerlein IJ, Schoenung JM. "Effects of Y Concentration on Mechanical Response of Mg-Y Alloys," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[T65] **Su Y**, Kumar M, Wang X, Hu Y, Yu K, Wang J, Mahajan S, Lavernia EJ, Rupert TJ, Schoenung JM, Beyerlein IJ. "Characterization of twin-twin interactions in Mg," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[T64] **McCarthy MJ**, Rupert TJ. "Anisotropic mobility in faceted Σ11 <110> tilt FCC grain boundaries and the effect of subsequent doping," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[T63] **Wang X**, Hu Y, Yu K, Mahajan S, Beyerlein IJ, Lavernia EJ, Rupert TJ, Schoenung JM. "{10-12} Twin Boundary Segregation of Y in Mg alloys," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[T62] **Grigorian CM**, Rupert TJ. "Thick Amorphous Complexions Enabled by Compositional and Thermal Manipulation," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[T61] **Hu Y**, Turlo V, Mahajan S, Lavernia EJ, Beyerlein IJ, Schoenung JM, Rupert TJ. "Manipulating twin morphology in Mg alloys by varying solute concentration," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[T60] Donaldson OK, Wardini JL, **Rupert TJ**. "Probing the Deformation Mechanisms of Al-Matrix Composites with Small-Scale Mechanical Testing," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[T59] **Turlo V**, Rupert TJ. "Linear complexion formation and their effect on the strength of metallic alloys," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2020, San Diego, CA.

[T58] Wang X, Yu K, Jiang L, Zhang D, Rupert TJ, Beyerlein IJ, Mahajan S, Lavernia EJ, **Schoenung JM**. "Multiscale investigation of the microstructure-mechanical property-processing relationships in Mg and Mg alloys," *Materials Research Society (MRS) Fall Meeting*, December 2019, Boston, MA.

[T57] Balbus GH, Echlin MP, Grigorian CM, Rupert TJ, Pollock TM, **Gianola DS**. "Controlling Disorder-Property Relationships in Metallic Alloys via Targeted Processing," *Society of Engineering Science (SES) Annual Technical Meeting*, October 2019, St. Louis, MO.

[T56] **McCarthy MJ**, Rupert TJ. "Anisotropic mobility of faceted Σ11 <110> tilt grain boundaries in face centered cubic metals," *Materials Science & Technology (MS&T) Conference and Exhibition*, September 2019, Portland, OR.

[T55] **Turlo V**, Rupert TJ. "Discovery of a wide variety of linear complexions in metallic alloys," *Materials Science & Technology (MS&T) Conference and Exhibition*, September 2019, Portland, OR.

[T54] **Hu Y**, Turlo V, Beyerlein IJ, Lavernia EJ, Mahajan S, Schoenung JM, Rupert TJ. "Growth of twin embryos by disconnection propagation in Mg: Molecular dynamics and phenomenological modeling," *Materials Science & Technology (MS&T) Conference and Exhibition*, September 2019, Portland, OR.

[T53] **Rupert TJ**. "Doping Metallic Grain Boundaries to Control Atomic Structure and Damage Tolerance," *Department of Energy (DOE), Basic Energy Sciences PI Meeting*, August 2019, Gaithersburg, MD.

[T52] **Balbus GH**, Echlin MP, Eggeler YM, Grigorian CM, Rupert TJ, Pollock TM, Gianola DS. "Exploring the Grain Boundary Energy Landscape in Nanocrystalline Al-Ni-Ce," *Gordon Research Conference – Physical Metallurgy*, July 2019, Manchester, NH. (poster)

[T51] **Donaldson OK**, Rupert TJ. "Structural evolution and wear-rate transitions in nanocrystalline alloys," *International Conference on Metallurgical Coatings and Thin Films (ICMCTF)*, May 2019, San Diego, CA.

[T50] Schuler JD, Wardini JL, **Rupert TJ**. "Nanocrystalline Alloys with Disordered Complexions Probed by In Situ Mechanical Testing," *International Conference on Metallurgical Coatings and Thin Films (ICMCTF)*, May 2019, San Diego, CA.

[T49] Balbus GH, Echlin MP, Grigorian CM, Gammer C, Kiener D, Maier-Kiener V, Rupert TJ, Pollock TM, **Gianola DS**. "Processing Routes for Controlling Disorder-Property Relationships

in Metallic Alloys," *Materials Research Society (MRS) Spring Meeting*, April 2019, Phoenix, AZ.

[T48] **Balbus GH**, Echlin MP, Grigorian CM, Gammer C, Renk O, Maier-Kiener V, Kiener D, Rupert TJ, Pollock TM, Gianola DS. "Rejuvenation of Nanocrystalline Metals," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2019, San Antonio, TX.

[T47] **Donaldson OK**, Rupert TJ. "Fabrication of bulk nanostructured materials with high toughness through simple powder processing," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2019, San Antonio, TX.

[T46] **Schuler JD**, Barr C, Briggs S, Heckman NM, Hattar K, Boyce BL, Rupert TJ. "Irradiation and Mechanical Behavior of Nanocrystalline Alloys with Amorphous Intergranular Films," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2019, San Antonio, TX.

[T45] **Grigorian CM**, Rupert TJ. "Extreme thermal stability in ternary nanocrystalline Cu-Zr-Hf and Cu-Zr-Al alloys with amorphous complexions," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2018, Columbus, OH.

[T44] **Hu Y**, Rupert TJ. "Atomistic modeling of interfacial segregation and structural transitions in ternary alloys," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2018, Columbus, OH.

[T43] Balbus GH, Echlin MP, Grigorian CM, Rupert TJ, Pollock TM, **Gianola DS**. "Rejuvenation of Nanocrystalline Metals using Femtosecond Laser Treatments," *18th International Conference on the Strength of Materials (ICSMA)*, July 2018, Columbus, OH.

[T42] **Turlo V**, Rupert TJ. "Grain boundary complexions and the strength of nanocrystalline metals," *18th International Conference on the Strength of Materials (ICSMA)*, July 2018, Columbus, OH.

[T41] **Rupert TJ**, McCarthy MJ. "Anisotropic mobility of faceted grain boundaries," *18th International Conference on the Strength of Materials (ICSMA)*, July 2018, Columbus, OH.

[T40] **Rupert TJ**, Mahajan S, Beyerlein IJ, Lavernia EJ, Schoenung JM. "Multiscalealloy design of HCP alloys via twin mesh engineering," *2018 Materials Genome Initiative PI Meeting*, March 2018, College Park, MD. (poster)

[T39] **Balbus G**, Echlin M, Grigorian CM, Rupert TJ, Pollock TM, Gianola DS. "Sub-Ablation Femtosecond Laser Processing of Nanocrystalline Alloys," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2018, Phoenix, AZ.

[T38] **Wang X**, Jiang L, Zhang D, Cooper C, Wang R, Hernandez A, Rupert TJ, Mahajan S, Beyerlein IJ, Lavernia EJ, Schoenung JM. "Strengthening and Toughening Effects of Twin Mesh Structures in Polycrystalline Mg," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2018, Phoenix, AZ.

[T37] **Huang Z**, Rupert TJ. "Impact of impurities and transition metal dopants on the stability and strength of grain boundaries via first-principles calculations," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2017, Pittsburgh, PA.

[T36] **Hu Y**, Rupert TJ. "Identifying interatomic potentials for the accurate modeling of interfacial segregation and structural transitions," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2017, Pittsburgh, PA. (poster)

[T35] Schuler JD, Pan Z, **Rupert TJ**. "Doping Metallic Grain Boundaries to Control Atomic Structure and Damage Tolerance," *Department of Energy (DOE), Basic Energy Sciences PI Meeting*, September 2017, Gaithersburg, MD.

[T34] **Schuler JD**, Rupert TJ. "Unambiguous Complexion Identification and Inspection in High Purity Binary Alloy Systems," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2017, San Diego, CA.

[T33] **Rupert TJ**. "Restructuring of Nanoscale Grain Boundary Networks during Cycling," *Materials Research Society (MRS) Fall Meeting*, December 2016, Boston, MA.

[T32] Pan Z, **Rupert TJ**. "The Mechanics and Thermodynamics of Interfacial Complexions in Transition Metal Alloys," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2016, Salt Lake City, UT.

[T31] **Panzarino JF**, Rupert TJ. "Plasticity-induced Restructuring of Nanocrystalline Grain Boundary Networks," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2016, Salt Lake City, UT.

[T30] **Schuler JD**, Rupert TJ. "Formation and Characterization of Interfacial Complexions in a Range of Transition Metal Alloy Systems," *Gordon Research Conference – Structural Nanomaterials*, July 2016, Hong Kong, China. (poster)

[T29] **Pan Z**, Rupert TJ. "Atomistic Simulations of Wear-Driven Structural Evolution in Nanocrystalline Materials," *Gordon Research Conference – Structural Nanomaterials*, July 2016, Hong Kong, China. (poster)

[T28] **Bober DB**, Lind J, Mulay R, Rupert TJ, Kumar M. "Large Twin Related Domains in Grain Boundary Engineered FCC Metals," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2016, Nashville, TN.

[T27] Ludy JE, Pan Z, **Rupert TJ**. "Doping Metallic Grain Boundaries to Control Atomic Structure and Damage Tolerance," *Department of Energy (DOE), Basic Energy Sciences PI Meeting*, September 2015, Gaithersburg, MD. (poster)

[T26] Khalajhedayati A, **Rupert TJ**. "Plasticity and failure of nanocrystalline alloys probed with small-scale mechanical testing," *International Materials Research Congress*, August 2015, Cancun, Mexico.

[T25] **Pan Z**, Rupert TJ. "Atomistic Modeling of Grain Boundary Complexions: Toughening Effects and Interface Thermodynamics," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2015, Orlando, FL.

[T24] **Panzarino JF**, Rupert TJ. "Mapping grains and interface networks in atomistic simulations: Tracking dynamic nanocrystalline microstructures," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2015, Orlando, FL.

[T23] **Bustamante J**, Panzarino JF, Rupert TJ, Loudon C. "Characterization of material properties of bed bug cuticle (Cimex lectularius)," *Society of Integrative and Comparative Biology (SICB) Annual Meeting*, January 2015, West Palm Beach, FL.

[T22] **Bober DB**, Panzarino JF, Rupert TJ. "Nanocrystalline Grain Boundary Engineering: Experiments and Atomistic Modeling," *Materials Research Society (MRS) Fall Meeting*, November 2014, Boston, MA.

[T21] **Khalajhedayati A**, Pan Z, Rupert TJ. "Creating tough and thermally stable nanocrystalline Cu by grain boundary doping and complexion engineering," *Materials Research Society (MRS) Fall Meeting*, November 2014, Boston, MA.

[T20] **Bustamante J**, Panzarino JF, Rupert TJ, Loudon C. "Characterization of material properties of bed bug cuticle (Cimex lectularius)," *Entomological Society of America (ESA) Annual Meeting*, November 2014, Portland, OR.

[T19] **Pan Z**, Rupert TJ. "Damage Nucleation from Dislocation-Grain Boundary Interactions: Mechanisms and Toughening Strategies," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2014, Pittsburgh, PA.

[T18] **Rupert TJ**. "Novel Solid Solution Effects on the Strength of Nanocrystalline Metals," *UCI-UNIST Engineering Workshop*, February 2014, Irvine, CA.

[T17] **Khalajhedayati A**, Rupert TJ. "The Effects of Grain Boundary Volume Fraction and Relaxation State on Uniaxial Plasticity of Nanocrystalline Metals," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2014, San Diego, CA.

[T16] **Panzarino J**, Rupert TJ. "Tracking Microstructure Evolution in Crystalline Materials: A Post-Processing Algorithm for Atomistic Simulations," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, February 2014, San Diego, CA.

[T15] **Rupert TJ**. "Interfacial Defects and the Failure of Nanostructured Metals," *Third Annual Meeting of Principal Investigators in the NSF Broadening Participation Research Initiation Grants in Engineering (BRIGE) Program*, August 2013, Arlington, VA. **(**poster**)**

[T14] Moodie ALR, Angle JP, Tackett EC, Rupert TJ, Mecartney ML, **Valdevit L**. "Ceramic and Hybrid Micro-architected Materials for High Temperature Applications," *Society for the Advancement of Material and Process Engineering (SAMPE) Conference and Exhibition*, May 2013, Long Beach, CA.

[T13] **Khalajhedayati A**, Rupert TJ. "Uniaxial Flow and Failure of Nanocrystalline Alloys Investigated by Focused Ion Beam Microscopy," *Southern California Society for Microscopy and Microanalysis Spring Symposium*, March 2013, Los Angeles, CA.

[T12] Bober DB, **Rupert TJ**. "The Evolution of Nanocrystalline Grain Boundary Networks under Thermomechanical Cycling," *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2013, San Antonio, TX.

[T11] Khalajhedayati A, **Rupert TJ**. "The Influence of Atomic Grain Boundary Structure on Plastic Flow in Nanocrystalline Alloys," *Materials Research Society (MRS) Fall Meeting*, November 2012, Boston, MA. (*poster*)

[T10] Khalajhedayati A, **Rupert TJ**. "Grain Boundary Structure and Chemistry: Impact on Nanocrystalline Plasticity," *Society of Engineering Science (SES) Annual Technical Meeting*, October 2012, Atlanta, GA.

[T9] **Rupert TJ**, Schuh CA. "Isolating the Relationship between Grain Size and Strength in Nanocrystalline Alloys," *Materials Research Society (MRS) Fall Meeting*, November 2011, Boston, MA.

[T8] **Rupert TJ**, Schuh CA. "Grain Boundary Relaxation and the Plastic Deformation of Nanocrystalline Alloys," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2011, Columbus, OH.

[T7] **Rupert TJ**, Schuh CA. "Separating Solid Solution and Grain Size Strengthening in Nanocrystalline Alloys," *Materials Research Society (MRS) Fall Meeting*, December 2010, Boston, MA.

[T6] **Rupert TJ**, Schuh CA. "Structural Evolution during Sliding Wear of Nanocrystalline Ni-W Alloys," *Materials Science & Technology (MS&T) Conference and Exhibition*, October 2010, Houston, TX.

[T5] **Rupert TJ**, Schuh CA. "Strengthening in Nanocrystalline Metals as a Result of Mechanically-Driven Grain Boundary Relaxation," *Gordon Research Conference on Thin Film & Small Scale Mechanical Behavior*, July 2010, Waterville, ME. (*poster*)

[T4] **Rupert TJ**, Schuh CA. "Tribology of Nanocrystalline Ni-W across the Hall-Petch Breakdown," *Winter School on Nanoscale Materials: Structure - Property - Relations*, March 2009, Stuttgart, Germany. (*poster*)

[T3] **Rupert TJ**, Schuh CA. "Tribology of a nanocrystalline alloy across the Hall-Petch breakdown," *Materials Research Society (MRS) Fall Meeting*, December 2008, Boston, MA.

[T2] **Rupert TJ**, Sharon JA, Gianola DS, Hemker, KJ. "Microtensile Testing of Nanocrystalline Thin Films for MEMS" *The Minerals, Metals and Materials Society (TMS) Annual Meeting & Exhibition*, March 2008, New Orleans, LA.

[T1] **Rupert TJ**, Hemker KJ. "High Temperature Microtensile Testing of Ni-Pt-Al Alloys for Implementation in Thermal Barrier Coating Systems" *2006 ICMR Advanced Thermostructural Materials Summer School*, August 2006, University of California-Santa Barbara, Santa Barbara, CA. (poster)

MENTORING AND ADVISING

- *Postdoctoral Scholars:*

Tianjiao Lei	UC Irvine	Summer 2020 – present
Pulkit Garg	UC Irvine	Spring 2020 – present
Olivia Donaldson	UC Irvine	Summer 2017 – Winter 2020
Currently at GE Aviation		
Vladyslav Turlo	UC Irvine	Fall 2016 – Winter 2019
Currently at Empa - Swiss Federal Laboratories for Materials Sci. and Tech.		
Zhiliang Pan	UC Irvine	Fall 2013 – Summer 2016
Currently at Guilin University of Electronic Technology		

- *Graduate Advisees:*

<u>*Ph.D.*</u>

Carol Lin	UC Irvine, MSE	Summer 2020 – present
Esther Hessong	UC Irvine, MSE	Summer 2020 – present
Megan McCarthy	UC Irvine, MMT	Winter 2017 – present
Charlette Grigorian	UC Irvine, CBE	Spring 2016 – present
Yang Hu	UC Irvine, MSE	Spring 2016 – present
Jiantuo Zhao	Xi'an Jiaotong Univ.	Winter 2019 – Winter 2020
Zhifeng Huang	Wuhan Univ. Tech.	Fall 2017 – Spring 2019
Currently at Monash University		
Jennifer Schuler	UC Irvine, MSE	Spring 2015 – Spring 2019
Thesis: "*Amorphous Intergranular Film Design Criteria and Application as Damage Tolerant Features*"		
Currently at GlobalFoundries		
David Bober	UC Irvine, MAE	Winter 2012 – Winter 2017
Thesis: "*Local Crystallographic Orientation Correlation Measurements Connecting the Processing and Properties of Face-Centered Cubic Metals*"		
Currently at Lawrence Livermore National Laboratory		
Jason Panzarino	UC Irvine, MAE	Fall 2012 – Summer 2016
Thesis: "*Quantification of Grain Boundary Mediated Plasticity Mechanisms in Nanocrystalline Metals*"		
Currently at Virgin Orbit		
Amir Khalajhedayati	UC Irvine, MSE	Fall 2011 – Summer 2015
Thesis: "*Grain boundary structure and interfacial complexions for the creation of tough, stable nanostructured metals*"		
Currently at TowerJazz Semiconductor		

<u>*M.S.*</u>

Jenna Wardini	UC Irvine, MSE	Winter 2017 – Summer 2019
Joseph Ludy	UC Irvine, MAE	Summer 2014 – Spring 2016
Thesis: "*Radiation Tolerant Interface Design and Complexion Dynamics via Atomistic Modeling*"		
Currently at Vail Systems		
Simon Pun	UC Irvine, MAE	Summer 2014 – Winter 2016
Thesis: "*Nanocrystalline Al-Mg with extreme strength due to grain boundary doping*"		
Currently at Divergent3D		

- *Undergraduate Researchers:*

Ian Geiger	UC Irvine, MSE	Winter 2020 – present
Brenda Cruz	UC Irvine, ChEMS	Summer 2017 – Fall 2018
Kelsey Safar	UC Irvine, MAE	Fall 2016 – Summer 2017
Carlos Ramirez	UC Irvine, MAE	Spring 2015 – Summer 2016
Jim Mendez-Lopez	UC Merced, MAE	Summer 2015
Jesus Ramos	UC Irvine, MAE	Fall 2013 – Spring 2014
Simon Pun	UC Irvine, MAE	Fall 2013 – Spring 2014
Manash Sharma	UC Irvine, ChEMS	Spring 2013 – Fall 2013
Abdullaah Tarif	UC Irvine, MAE	Spring 2013 – Fall 2013
Trent Nash	UC Riverside, ME	Summer 2013
Daniel Grant	UC Irvine, MAE	Spring 2012 – Summer 2013
Andrew Moodie	UC Irvine, MAE	Winter 2012 – Spring 2013
Clarita Vargas	UC Irvine, MAE	Spring 2012 – Spring 2013
Danny Rodriguez	UC Irvine, MAE	Summer 2012
Kent Codilla	UC Irvine, MAE	Summer 2011
Chao Shen	UC Irvine, MAE	Summer 2011
Jason Douglas	MIT, DMSE	Spring 2010
Pantea Khodami	MIT, DMSE	Spring 2008

- *High School Researchers:*

Kirthin Rajkumar	Northwood High School	Summer 2018
Snehin Rajkumar	Northwood High School	Summer 2018
Rocky Mandayam	Irvine High School	Summer 2013 – Summer 2014
Maria Zepeda	Century High School	Summer 2014
Jesus Garcia	Saddleback High School	Summer 2014
Meril Tomy	University High School	Summer 2012 – Summer 2013

Student Awards:

David Bober	JMR Early Career Scholar in Materials Science	2019
	Lawrence Graduate Scholar Program Fellowship	2014
Charlette Grigorian	UCI Pedagogical Fellow	2019
Yang Hu	Finalist, Robert W. Cahn Best Paper Prize (J. Mater. Sci.)	2019
Amir Khalajhedayati	2nd Place, MRS Science as Art	2014
Megan McCarthy	Complex Systems Summer School (CSSS) at the Santa Fe Institute	2020
Jason Panzarino	Best Graduate Student, MAE	2016
	Mazda Foundation Scholarship	2015
	Hysitron Presentation Silver Medal Award	2015
Jennifer Schuler	U.S. Department of Energy (DOE) Office of Science Graduate Student Research (SCGSR) award	2017

PROFESSIONAL SERVICE

- *The Minerals, Metals and Materials Society (TMS)*
  Board of Directors (2021 – present)
  Director/Chair of Programming (2021 – present)

Chair, Frontiers of Materials Award Selection Committee (2019 – present)
Acta Materialia Scholarship Committee (2018 – 2021)

- *ASM International:*
  Chair, Awards Policy Committee (2020 – present)
  Vice Chair, Awards Policy Committee (2019 – 2020)
  Member, ASM Nominating Committee (2020)
  Member, Awards Policy Committee (2017 – present)
  Multiple Awards Selection Committees (Exact dates and awards are confidential)

- *Structural Materials Division (SMD) Council of TMS:*
  Programming Committee Representative (2016 – 2019)
  Awards Subcommittee (2017 – 2019)
  Young Leaders Representative (2015 – 2016)

- *Thin Films and Interfaces Committee (TFIC) of TMS:*
  Chair (2020 – present)
  Vice-Chair (2018 – 2020)
  Secretary (2016 – 2018)

- *Editorial Board:*
  Materials Science and Engineering A
  Metallurgical and Materials Transactions A
  Scientific Reports

- *Guest Editor:*
  Journal of Materials Research, Focus Issue on *Advanced Nanomechanical Testing* (2020)
  MRS Advances (Fall 2016)

- *Technical Manuscript Reviewer* (>50 journals):
  ACS Applied Nano Materials, Acta Materialia, Advanced Engineering Materials, Applied Physics A, Applied Physics Letters, Ceramics International, Communications Materials, Computational Materials Science, Current Opinion in Solid State & Materials Science, European Journal of Mechanics - A/Solids, Extreme Mechanics Letters, Intermetallics, International Journal of Plasticity, Journal of Applied Physics, Journal of Alloys and Compounds, Journal of Engineering Tribology, Journal of Materials Research, Journal of Materials Science, Journal of Nuclear Materials, Journal of Physical Chemistry, Journal of Physics: Condensed Matter, Journal of Vacuum Science and Technology A, Materialia, Materials Characterization, Materials Horizons, Materials Letters, Materials Research Letters, Materials Science and Engineering A, Materials Today, Materials Today Communications, Mechanics of Materials, Metallurgical and Materials Transactions A, Microscopy and Microanalysis, Modelling and Simulation in Materials Science and Engineering, Molecular Simulation, Nano Letters, Nanoscale, Nature, Nature Communications, Nature Reviews Materials, npj Materials Degradation, Nuclear Instruments and Methods in Physics Research, Philosophical Magazine, Philosophical Magazine Letters, Physical Review Letters, Physical Review Materials, Physica Status Solidi (A), Physics Letters A, Review of Scientific Instruments, Science, Science Advances, Science of Advanced Materials, Scientific Reports, Scripta Materialia, Surface and Coatings Technology, Thin Solid Films, Tribology International, Tribology Letters, Wear

- *Discussion Leader*
  iMechanica Journal Club: "Frontiers in Nanocrystalline Mechanical Behavior"

- *External Ph.D. Thesis Reviewer:*
  Department of Materials Engineering, Indian Institute of Science (IISc)
  Metallurgical & Materials Engineering, National Institute of Technology Rourkela

- *Grant Proposal Reviewer:*
  Army Research Office (ARO) – Materials Science Division
  Austrian Science Fund (FWF)
  Department of Energy (DOE) – Center for Integrated Nanotechnologies (CINT)
  Department of Energy (DOE) – Office of Basic Energy Sciences (BES)
  Department of Energy (DOE) – Office of Nuclear Energy (NE)
  Deutsche Forschungsgemeinschaft (German Research Foundation)
  Israeli Ministry of Science and Technology
  National Science Foundation (NSF) – Broadening Participation Research Initiation Grants in Engineering (BRIGE)
  National Science Foundation (NSF) – Civil, Mechanical and Manufacturing Innovation (CMMI)
  National Science Foundation (NSF) – Division of Materials Research (DMR)
  Natural Sciences and Engineering Research Council (NSERC) of Canada
  University of California Institute for Mexico and the United States (UC MEXUS)

- *Conference or Workshop Organizer:*
  "18th International Conference on the Strength of Materials (ICSMA 18)" at Ohio State University, July 2018.
  "Controversies Colloquium 2018: Stability of Nanostructures" at UC Irvine, Feb. 2018

- *Symposium Organizer:*
  "Advanced Mechanical Testing of Surfaces, Thin Films, Coatings and Small Volumes" at 2021 International Conference on Metallurgical Coatings and Thin Films (ICMCTF).
  "Advanced Mechanical Testing of Surfaces, Thin Films, Coatings and Small Volumes" at 2019 International Conference on Metallurgical Coatings and Thin Films (ICMCTF).
  "Interfacial Science and Engineering: Mechanics, Thermodynamics, Kinetics, and Chemistry" at 2019 MRS Spring Meeting
  "Size Effects and Small-Scale Mechanical Behavior of Materials" at 2016 MRS Fall Meeting
  "Ultrafine Grained Materials IX" at 2016 TMS Annual Meeting & Exhibition
  "Interface and Surface-Dominated Plasticity, Fracture, and Fatigue in Metals" at 2016 International Symposium on Plasticity
  "Light Alloys and Metal-based Composites" at 2014 International Conference of Young Researchers on Advanced Materials (ICYRAM)
  "Elasticity, Plasticity and Inelastic Deformations in Hierarchical Materials: Mechanisms to Mechanics" at 2014 U.S. National Congress on Theoretical and Applied Mechanics (USNCTAM)
  "Mechanics of Crystalline Nanostructures" at 2012 Society of Engineering Science (SES)

- *Member:*
  The Minerals, Metals and Materials Society (TMS)
  Materials Research Society (MRS)
  ASM International
  U.S. Association for Computational Mechanics (USACM)
  Thin Films and Interfaces Committee, Functional Materials Division (FMD) of TMS
  Nanomechanical Behavior of Materials Committee, Materials Processing and Manufacturing Division (MPMD) of TMS
  Mechanical Behavior of Materials Committee, Structural Materials Division (SMD) of TMS

UNIVERSITY AND DEPARTMENT SERVICE

- ***Lead***, MSE Anti-Racism Working Group (2020 – present)
- UCI Academic Senate, Council on Equity and Inclusion (2019 – present)
  Advise the Irvine Division on matters related to equity, inclusion, and diversity, including the recommendation of new policies and practices to improve campus climate.
- ***DECADE Mentor (promoting diversity)***, Materials Science and Engineering (2018 – present)
  Serve as a mentor and advocate for diversity and inclusion in all department activities.
- Graduate Recruiting Committee, Materials Science and Engineering (2018 – present)
- Campus-wide Laboratory Safety Committee (2017 – present)
- Academic Advisory Group - Division of Finance and Administration (2017 – present)
- School of Engineering - Executive Committee (2012 – 2019, Spring 2020 – present)
  Represented the Faculty interests in planning the governance and academic administration of the School of Engineering.
- Seminar Coordinator, Materials Science and Engineering (2019 – 2020)
- School of Engineering - Website Committee (2019)
- Review Committee for Continuing Graduate Student Fellowships (2019)
- ***Academic Senate Representative***, School of Engineering (2017 – 2019)
  Represented the School on campus-wide committee tasked with transaction of business and legislation of the Irvine Division.
- ***Graduate Advisor***, Mechanical and Aerospace Engineering (2013 – 2015, 2017 – 2018)
  Revitalized the admissions and recruitment process for graduate students, to increase the number of high quality Ph.D. students and external funding within the department.
- ***Chair***, School of Engineering - Research Committee (2013 – 2018)
  Advised the Associate Dean of Research on new research initiatives and programs. Organized competitions and made selections for internal seed grants to promote new research directions.
- Graduate Studies Committee, Mechanical and Aerospace Engineering (2013 – 2018)
- School of Engineering - Research Committee (2012 – 2018)
- ***Chair***, School of Engineering - Graduate Studies Committee (2014 – 2015)
- Graduate Visit Day Coordinator, Mechanical and Aerospace Engineering (2012 – 2015, 2018)
- UCI Academic Senate, Council on Student Experience (2012 – 2015)
- Seminar Coordinator, Mechanical and Aerospace Engineering (2011 – 2014)
- Faculty Mentor, MAE Senior Design Group (2011 – 2012)
- *Graduate Committee Service:*

Shehreen Dheda	UC Irvine, ChEMS	Qualifying Exam Committee, 2011
Fernan Saiz	UC Irvine, MAE	Qualifying Exam Committee, 2012

Leiting Dong	UC Irvine, MAE	Qualifying Exam Committee, 2012
Peter Bishay	UC Irvine, MAE	Qualifying Exam Committee, 2012
Matthew Schnoor	UC Irvine, MAE	Qualifying Exam Committee, 2012
Rafael Borrajo	UC Irvine, MAE	Qualifying Exam Committee, 2012
Zhongyan Qian	UC Irvine, MAE	Qualifying Exam Committee, 2013
Enric Grustan	UC Irvine, MAE	Qualifying Exam Committee, 2013
Amir Khalajhedayati	UC Irvine, ChEMS	Qualifying Exam Committee, 2013
Ladan Sharif	UC Irvine, MAE	Qualifying Exam Committee, 2013
Elham Vakil	UC Irvine, MAE	Qualifying Exam Committee, 2013
Ethan Hill	UC Irvine, Chemistry	Qualifying Exam Committee, 2013
Timothy Montalbano	UC Irvine, ChEMS	Qualifying Exam Committee, 2014
Patrick Nguyen	UC Irvine, MMT	Qualifying Exam Committee, 2014
Luis Herrera	UC Irvine, CEE	Qualifying Exam Committee, 2014
Sam Mann	UC Irvine, Chemistry	Qualifying Exam Committee, 2014
Camilla Favaretti	UC Irvine, CEE	Qualifying Exam Committee, 2015
Kenta Ohtaki	UC Irvine, ChEMS	Qualifying Exam Committee, 2015
Jason Panzarino	UC Irvine, MAE	Qualifying Exam Committee, 2016
David Bober	UC Irvine, MAE	Qualifying Exam Committee, 2016
Shuai Fan	UC Irvine, CEE	Qualifying Exam Committee, 2016
Kelsey Miller	UC Irvine, Chemistry	Qualifying Exam Committee, 2016
Kara Bridges	UC Irvine, ChEMS	Qualifying Exam Committee, 2017
Arghavan Arafati	UC Irvine, MAE	Qualifying Exam Committee, 2017
Ali Morshedifard	UC Irvine, CEE	Qualifying Exam Committee, 2017
Anna Guell	UC Irvine, MAE	Qualifying Exam Committee, 2017
Ziqi Yu	UC Irvine, MAE	Qualifying Exam Committee, 2017
Charlette Grigorian	UC Irvine, CBE	Qualifying Exam Committee, 2018
Yang Hu	UC Irvine, MSE	Qualifying Exam Committee, 2018
Ben MacDonald	UC Irvine, MSE	Qualifying Exam Committee, 2018
Parnian Kiani	UC Irvine, MSE	Qualifying Exam Committee, 2018
Quang Pham	UC Irvine, MMT	Qualifying Exam Committee, 2019
Thao Nguyen	UC Irvine, CBE	Qualifying Exam Committee, 2019
Sen Jiang	UC Irvine, MSE	Qualifying Exam Committee, 2020
Hong Wei	UC Irvine, MSE	Qualifying Exam Committee, 2020
Megan McCarthy	UC Irvine, MMT	Qualifying Exam Committee, 2020
Xiao Song	UC Irvine, MMT	M.S. Comp. Exam Committee, 2013
Jeffery Catterlin	UC Irvine, MMT	M.S. Comp. Exam Committee, 2014
Charlene Bermudez	UC Irvine, MMT	M.S. Comp. Exam Committee, 2014
Yong Wang	UC Irvine, MMT	M.S. Comp. Exam Committee, 2015
Patrick Wong	UC Irvine, MMT	M.S. Comp. Exam Committee, 2015
Ahmed Shirazi	UC Irvine, MMT	M.S. Comp. Exam Committee, 2016
Jianyang Chen	UC Irvine, MMT	M.S. Comp. Exam Committee, 2019
Andrew Bond	UC Irvine, MMT	M.S. Comp. Exam Committee, 2019
Albert Luu	UC Irvine, CEE	M.S. Thesis Committee, 2013
Sharada Bhavanam	UC Irvine, MAE	M.S. Thesis Committee, 2014
Jianan Zhu	UC Irvine, MAE	M.S. Thesis Committee, 2014
Van Wifvat	UC Irvine, MAE	M.S. Thesis Committee, 2016
Simon Pun	UC Irvine, MAE	M.S. Thesis Committee, 2016
Joseph Ludy	UC Irvine, MAE	M.S. Thesis Committee, 2016
Blake Lane	UC Irvine, MAE	M.S. Thesis Committee, 2017

Bianca Endo	UC Irvine, MAE	M.S. Thesis Committee, 2017
Katherine Terrassa	UC Irvine, ChEMS	M.S. Thesis Committee, 2017
Nithya Ramesh	UC Irvine, ChEMS	M.S. Thesis Committee, 2018
Zhengyu Zhang	UC Irvine, MSE	M.S. Thesis Committee, 2019
Nick Auwaijan	UC Irvine, MAE	M.S. Thesis Committee, 2019
Liming Zhao	UC Irvine, MAE	M.S. Thesis Committee, 2019
Danju Men	UC Irvine, ChEMS	Ph.D. Thesis Committee, 2012
Shehreen Dheda	UC Irvine, ChEMS	Ph.D. Thesis Committee, 2012
Matthew Schnoor	UC Irvine, MAE	Ph.D. Thesis Committee, 2013
Leiting Dong	UC Irvine, MAE	Ph.D. Thesis Committee, 2013
Zhongyan Qian	UC Irvine, MAE	Ph.D. Thesis Committee, 2013
Peter Bishay	UC Irvine, MAE	Ph.D. Thesis Committee, 2014
Jessie Angle	UC Irvine, ChEMS	Ph.D. Thesis Committee, 2014
Patrick Nguyen	UC Irvine, MMT	Ph.D. Thesis Committee, 2014
Enric Grustan	UC Irvine, MAE	Ph.D. Thesis Committee, 2015
Colin Arnold	UC Irvine, ChEMS	Ph.D. Thesis Committee, 2015
Amir Khalajhedayati	UC Irvine, ChEMS	Ph.D. Thesis Committee, 2015
Timothy Montalbano	UC Irvine, ChEMS	Ph.D. Thesis Committee, 2015
Ladan Sharif	UC Irvine, MAE	Ph.D. Thesis Committee, 2016
Jason Panzarino	UC Irvine, MAE	Ph.D. Thesis Committee, 2016
David Bober	UC Irvine, MAE	Ph.D. Thesis Committee, 2017
Elham Vakil	UC Irvine, MAE	Ph.D. Thesis Committee, 2017
Kenta Ohtaki	UC Irvine, ChEMS	Ph.D. Thesis Committee, 2018
Shuai Fan	UC Irvine, CEE	Ph.D. Thesis Committee, 2018
Kara Bridges	UC Irvine, MSE	Ph.D. Thesis Committee, 2019
Xin Wang	UC Irvine, MSE	Ph.D. Thesis Committee, 2019
Jennifer Schuler	UC Irvine, MSE	Ph.D. Thesis Committee, 2019
Quang Pham	UC Irvine, MMT	Ph.D. Thesis Committee, 2020
Sen Jiang	UC Irvine, MSE	Ph.D. Thesis Committee, 2020
Yang Hu	UC Irvine, MSE	Ph.D. Thesis Committee, 2020
Charlette Grigorian	UC Irvine, CBE	Ph.D. Thesis Committee, 2020
Parnian Kiani	UC Irvine, MSE	Ph.D. Thesis Committee, 2020
Ben MacDonald	UC Irvine, MSE	Ph.D. Thesis Committee, 2020
Megan McCarthy	UC Irvine, MMT	Ph.D. Thesis Committee, 2020

TEACHING EXPERIENCE

University of California, Irvine MSE and MAE Departments

Spring 2020	ENGR 54 Principles of Materials Science and Engineering	*(3.82/4.00)
Winter 2020	MAE 256 Nanomechanics	*(3.92/4.00)
Spring 2019	ENGR 54 Principles of Materials Science and Engineering	*(3.63/4.00)
Winter 2019	MAE 256 Nanomechanics	*(3.99/4.00)
Fall 2018	MAE 259 Mechanical Behavior of Solids: Atomistic Theories	*(3.63/4.00)
Winter 2018	MAE 157 Lightweight Structures	*(3.62/4.00)
Fall 2017	MAE 259 Mechanical Behavior of Solids: Atomistic Theories	*(3.86/4.00)
Spring 2017	MAE 295 Nanomechanics	*(3.95/4.00)
Winter 2017	MAE 157 Lightweight Structures	*(3.47/4.00)
Fall 2016	MAE 259 Mechanical Behavior of Solids: Atomistic Theories	(3.71/4.00)

Spring 2016	MAE 295 Nanomechanics	*(4.00/4.00)
Winter 2016	MAE 157 Lightweight Structures	*(3.56/4.00)
Fall 2015	MAE 259 Mechanical Behavior of Solids: Atomistic Theories	*(3.84/4.00)
Spring 2015	MAE 259 Mechanical Behavior of Solids: Atomistic Theories	*(3.77/4.00)
Winter 2015	MAE 157 Lightweight Structures	*(3.68/4.00)
Fall 2014	MAE 295 Nanomechanics	*(3.97/4.00)
Spring 2014	MAE 259 Mechanical Behavior of Solids: Atomistic Theories	*(3.86/4.00)
Winter 2014	MAE 157 Lightweight Structures	*(3.79/4.00)
Fall 2013	MAE 295 Nanomechanics	*(4.00/4.00)
Spring 2013	MAE 295 Mechanical Behavior of Solids: Atomistic Theories	(Evals. Not Activated)
Winter 2013	MAE 157 Lightweight Structures	*(3.48/4.00)
Fall 2012	MAE 295 Nanomechanics	*(3.97/4.00)
Spring 2012	MAE 295 Mechanical Behavior of Solids: Microscopic Theories	*(3.93/4.00)
Winter 2012	MAE 157 Lightweight Structures *Instructor Evaluation:*	*(3.51/4.00)

*Denotes student evaluations above the department average

Massachusetts Institute of Technology Department of Materials Science and Engineering

Fall 2010	3.012 Fundamentals of Materials Science and Engineering (Teaching Assistant)
Fall 2009	3.032 Mechanical Behavior of Materials (Teaching Assistant)
	3.034 Organic and Biomaterials Chemistry (Teaching Assistant)

Johns Hopkins University Department of Mechanical Engineering

Fall 2006	530.352 Materials Selection (Teaching Assistant)

OUTREACH ACTIVITIES

- ***Lead Organizer and Speaker***, "UC Irvine: Materials Discovery in Engineering and Science" STEM outreach event (2014, 2016, 2019)
- ***Judge***, MRS Graduate Student Awards (2014, 2016, 2017)
- ***Research Mentor***, The University of California's Leadership Excellence through Advanced Degrees (UC LEADS) Program for disadvantaged students (2013 – 2015)
- ***Research Mentor***, California Alliance for Minority Participation (CAMP) Summer Science Scholars Program for underrepresented minorities (2012 – 2014)
- ***Panel Speaker***, Graduate Admissions Workshop at UC Irvine (2014)
- ***Panel Speaker***, Young Investigator Workshop at UC Irvine (2013, 2015)
- ***Panel Speaker***, Graduate Women in Engineering Group and the Engineering Diversity Council at UC Irvine (2013)
- ***Panel Speaker***, Science-Technology-Engineering-Math Careers, CAMP Summer Science Scholars Program for underrepresented minorities (2011)
- ***Faculty Host***, UC Irvine/Salman Bin Abdel-Aziz University Summer Exchange Program (2012)
- ***Mentor***, MIT Undergraduate Research Opportunities Program (2008 – 2010)
- Participant in Science-Engineering-Technology Congressional Visit Day, Washington, D.C. (2006, 2007)