

# Robert Y. Wang

School for Engineering of Matter, Transport and Energy  
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## Professional Experience

### Arizona State University, Tempe, AZ

Associate Professor, Mechanical Engineering, Aerospace Engineering	2017 –
Graduate Faculty Member – Materials Science and Engineering	2011 –
Graduate Faculty Member – Chemical Engineering	2011 –
Assistant Professor, Mechanical Engineering, Aerospace Engineering	2011 – 2017

### Lawrence Berkeley National Laboratory, Berkeley, CA

Postdoctoral Fellow in the Molecular Foundry	2008 – 2011
Advisor: Delia Milliron – Materials Science Division	

## Education

### University of California, Berkeley, CA

Ph.D. in Mechanical Engineering	2008
Advisors: Arun Majumdar – Mechanical Engineering	
Rachel Segalman – Chemical Engineering	

### University of California, Berkeley, CA

M.S. in Mechanical Engineering	2005
Advisors: Arun Majumdar – Mechanical Engineering	
Rachel Segalman – Chemical Engineering	

### University of California, Los Angeles, CA

B.S. in Mechanical Engineering	2003
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## Selected Awards and Honors

- NSF CAREER Award 2017
- AFOSR Young Investigator Program Award 2013
- NSF BRIGE Award 2012
- Outstanding Graduate Student Instructor Award, UC Berkeley 2007 – 2008
- NSF IGERT Fellowship 2004 – 2007
- NSF Graduate Research Fellowship – Honorable Mention 2004
- UC Regents Scholar, UCLA 1999 – 2003
- Thomas J. Watson Memorial Scholarship, IBM 1999 – 2003

## Journal Publications

Advised students shown in **bold** \*Corresponding Author(s) %Co-Advised Student  
†PhD Student in R. Wang's Group €MS Student in R. Wang's Group #BS Student in R. Wang's Group  
∇Visiting Researcher in R. Wang's Group

## Published Journal Articles

- J30. **W. Kong**,<sup>†,%</sup> **Z. Wang**,<sup>†</sup> **N. Casey**,<sup>€,%</sup> M. Korah, **A. Uppal**,<sup>†,%</sup> M. Green, K. Rykaczewski,\* and R. Wang,\* “High Thermal Conductivity in Multiphase Liquid Metal and Silicon Carbide Soft Composites,” *Advanced Materials Interfaces*, **8**, 2100069 (2021).
- J29. H. Daghooghi-Mobarakeh, M. Miner, L. Wang, R. Wang, and P. Phelan,\* “Application of Ultrasound in Regeneration of Silica Gel for Industrial Gas Drying Processes,” *Drying Technology*, In Press - (2021).
- J28. **S. Sadat**<sup>†</sup> and R. Wang,\* “A Machine Learning Based Approach for Phononic Crystal Property Discovery,” *Journal of Applied Physics*, **128**, 025106 (2020).
- J27. **W. Kong**,<sup>†,%</sup> **N. Shah**,<sup>†,%</sup> T. Neumann, M. Vong, P. Kotagama, M. Dickey, R. Wang,\* and K. Rykaczewski,\* “Oxide-Mediated Mechanisms of Gallium Foam Generation and Stabilization During Shear Mixing in Air,” *Soft Matter*, **16**, 5801-5805 (2020).
- J26. **Z. Wang**,<sup>†</sup> A.S.S. Singaravelu, R. Dai, Q. Nian, N. Chawla, and R. Wang,\* “Ligand Crosslinking Boosts Thermal Transport in Colloidal Nanocrystal Solids,” *Angewandte Chemie*, **59**, 9556-9563 (2020).
- J25. **P. Vartak**<sup>†</sup> and R. Wang,\* “Tin(IV) Methylselenolate as a Low Temperature SnSe Precursor and Conductive ‘Glue’ Between Colloidal Nanocrystals,” *ChemNanoMat*, **6**, 442-450 (2020).
- J24. H. Daghooghi-Mobarakeh, N. Campbell, W. Bertrand, P. Kumar, S. Tiwari, L. Wang, R. Wang, M. Miner, and P. Phelan,\* “Ultrasound-Assisted Regeneration of Zeolite/Water Adsorption Pair,” *Ultrasonics Sonochemistry*, **64**, 105402 (2020).
- J23. **P. Vartak**,<sup>†</sup> **Z. Wang**,<sup>†</sup> T. Groy, R. Trovitch, and R. Wang,\* “Solution and Solid-State Characterization of PbSe Precursors,” *ACS Omega*, **5**, 1949-1955 (2020).
- J22. **A. Uppal**,<sup>†,%</sup> **M. Ralphs**,<sup>†,%</sup> **W. Kong**,<sup>†,%</sup> **M. Hart**,<sup>#,%</sup> K. Rykaczewski,\* and R. Wang,\* “Pressure-Activated Thermal Transport via Oxide Shell Rupture in Liquid Metal Capsule Beds,” *ACS Applied Materials & Interfaces*, **12**, 2625-2633 (2020).
- J21. **W. Kong**,<sup>†,%</sup> **Z. Wang**,<sup>†</sup> M. Wang, K. Manning, **A. Uppal**,<sup>†,%</sup> M. Green, R. Wang,\* and K. Rykaczewski,\* “Oxide-Mediated Formation of Chemically-Stable Tungsten-Liquid Metal Mixtures for Enhanced Thermal Interfaces,” *Advanced Materials*, **31**, 1904309 (2019).
- J20. **M. Ralphs**,<sup>†,%</sup> **W. Kong**,<sup>†,%</sup> R. Wang,\* and K. Rykaczewski,\* “Thermal Conductivity Enhancement of Soft Polymer Composites through Magnetically

- Induced Percolation and Particle-Particle Contact Engineering,” *Advanced Materials Interfaces*, 6, 1801857 (2019).
- J19. **M. Ralphs**,<sup>†,%</sup> **C. Scheitlin**,<sup>#,%</sup> **R. Wang**,\* and K. Rykaczewski;\* “Buckling of Magnetically Formed Filler Fiber Columns Under Compression Increases Thermal Resistance of Soft Polymer Composites,” *Journal of Heat Transfer*, 141, 012001 (2019).
- J18. **Z. Wang**,<sup>†</sup> **Y. Ma**,<sup>†</sup> **P. Vartak**,<sup>†</sup> and **R. Wang**;\* “Precursor for PbTe, PbSe, SnTe, and SnSe Synthesized Using Diphenyl Dichalcogenides,” *Chemical Communications*, 54, 9055 (2018).
- J17. K. Rykaczewski\* and **R. Wang**; “Probability of conductive bond formation in a percolating network of nanowires with fusible tips,” *Applied Physics Letters*, 112, 131904 (2018).
- J16. **M. Ralphs**,<sup>†,%</sup> **N. Kemme**,<sup>ε,%</sup> **P. Vartak**,<sup>†</sup> E. Joseph,<sup>ν,%</sup> **S. Tipnis**,<sup>ε,%</sup> S. Turnage, K. Solanki, **R. Wang**,\* and K. Rykaczewski;\* “In Situ Alloying of Thermally Conductive Polymer Composites by Combining Liquid and Solid Metal Micro-Additives,” *ACS Applied Materials & Interfaces*, 10, 2083-2092 (2018)
- J15. **Y. Ma**,<sup>†</sup> **P. Vartak**,<sup>†</sup> **P. Nagaraj**,<sup>ε</sup> and **R. Wang**;\* “Thermoelectric Properties of Copper Chalcogenide Alloys Deposited via the Solution-Phase Using a Thiol-Amine Solvent Mixture,” *RSC Advances*, 6, 99905-99913 (2016)
- J14. **S. Sadat**<sup>†</sup> and **R. Wang**;\* “Colloidal Nanocrystal Superlattices as Phononic Crystals: Plane Wave Expansion Modeling of Phonon Band Structure,” *RSC Advances*, 6, 44578-44587 (2016)
- J13. K. Rykaczewski,\* D.G. Mieritz, **M. Liu**,<sup>†</sup> **Y. Ma**,<sup>†</sup> E.B. Iezzi, X. Sun, L.P. Wang, K.N. Solanki, D.-K. Seo, and **R. Wang**; “Far-reaching geometrical artifacts due to thermal decomposition of polymeric coatings around Focused Ion Beam milled pigment particles,” *Journal of Microscopy*, 262, 316-325 (2016)
- J12. **M. Liu**,<sup>†</sup> **Y. Ma**,<sup>†</sup> and **R. Wang**;\* “Modifying Thermal Transport in Colloidal Nanocrystal Solids with Surface Chemistry,” *ACS Nano*, 9, 12079-12087 (2015)
- J11. **Y. Ma**,<sup>†</sup> **M. Liu**,<sup>†</sup> **A. Jaber**,<sup>ε</sup> and **R. Wang**;\* “Solution-Phase Synthesis and Thermal Conductivity of Nanostructured CdSe, In<sub>2</sub>Se<sub>3</sub>, and Composites Thereof,” *Journal of Materials Chemistry A*, 3, 13483-13491 (2015)
- J10. **M. Liu**<sup>†</sup> and **R. Wang**;\* “Size-Dependent Melting Behavior of Colloidal In, Sn, and Bi Nanocrystals,” *Scientific Reports*, 5, 16353 (2015)
- J9. **M. Liu**,<sup>†</sup> **Y. Ma**,<sup>†</sup> H. Wu, and **R. Wang**;\* “Metal Matrix - Metal Nanoparticle Composites with Tunable Melting Temperature and High Thermal Conductivity for Phase-Change Thermal Storage,” *ACS Nano*, 9, 1341-1351 (2015)
- J8. **M. Liu**<sup>†</sup> and **R. Wang**;\* “Phase Change Nanocomposites with Tunable Melting Temperature and Thermal Energy Storage Density,” *Nanoscale*, 5, 7234-7237, (2013)

- J7. R. Wang, R. Tangirala, S. Raoux, J. Jordan-Sweet, and D. Milliron;\* “Ionic and Electronic Transport in Ag<sub>2</sub>S Nanocrystal – GeS<sub>2</sub> Matrix Composites with Size-Controlled Ag<sub>2</sub>S Nanocrystals,” *Advanced Materials*, 24, 99-103 (2012)
- J6. R. Wang, M. Caldwell, R. Jeyasingh, S. Aloni, R. Shelby, H. Wong, and D. Milliron;\* “Electronic and Optical Switching of Solution-Phase Deposited SnSe<sub>2</sub> Phase Change Material,” *Journal of Applied Physics*, 109, 113506 (2011)
- J5. M. Caldwell, S. Raoux, R. Wang, H. Wong,\* and D. Milliron;\* “Synthesis and size-dependent crystallization of colloidal germanium telluride nanoparticles,” *Journal of Materials Chemistry*, 20, 1285-1291 (2010)
- J4. R. Wang, J. Feser, X. Gu, K. Yu, R. Segalman, A. Majumdar, D. Milliron.\* and J. Urban,\* “Universal and Solution-Processable Precursor to Bismuth Chalcogenide Thermoelectrics,” *Chemistry of Materials*, 22, 1943-1945 (2010)
- J3. R. Wang, J. Feser, J. Lee, D. Talapin,\* R. Segalman,\* and A. Majumdar;\* “Enhanced Thermopower in PbSe Nanocrystal Quantum Dot Superlattices,” *Nano Letters*, 8, 2283-2288 (2008)
- J2. W. Kim, R. Wang, and A. Majumdar;\* “Nanostructuring expands thermal limits,” *Nano Today*, 2, 40-47 (2007)
- J1. R. Wang, R. Segalman,\* and A. Majumdar;\* “Room Temperature Thermal conductance of Alkanedithiol Self-Assembled Monolayers,” *Applied Physics Letters*, 89, 173113 (2006)

### Invited Presentations and Seminars

Advised students shown in **bold**      \* Principal Investigator(s)      % Co-Advised Student  
 †PhD Student in R. Wang’s Group      €MS Student in R. Wang’s Group      #BS Student in R. Wang’s Group  
 §Presenter      ∇Visiting Researcher in R. Wang’s Group

- IP21. R. Wang;§,\* “The Interplay Between Thermal and Mechanical Properties in Colloidal Nanocrystal Assemblies,” XXIX International Materials Research Congress, Cancun, Mexico (August 2021)
- IP20. R. Wang;§,\* “The Interplay Between Thermal and Mechanical Properties in Colloidal Quantum Dot Assemblies,” ECS 239th Meeting, Chicago, IL (June 2021)
- IP19. K. Rykaczewski,§,\* R. Wang;§,\* “Heterogeneous Liquid Metal Composites for Thermal Interface Materials,” GRC Technology Transfer Workshop, Virtual Presentation (April 2021)
- IP18. W. Kong,†,%§ A. Uppal,†,%§ K. Rykaczewski,§,\* R. Wang;§,\* “Heterogeneous Liquid Metal Composites for Thermal Interface Materials,” Intel Corporation, Chandler, AZ (February 2021)
- IP17. R. Wang;§,\* “Thermal Storage and Interface Materials for Electronics Thermal Management,” Workshop on Next-Generation Dielectric Materials for Microelectronics/Electrical Applications, Boston, MA (December 2019)

- IP16. R. Wang,<sup>§,\*</sup> “Engineering Particle-Particle Contacts for Improved Thermal Interface Materials,” ECS 236th Meeting, Atlanta, GA (October 2019)
- IP15. R. Wang,<sup>§,\*</sup> “Nanoscale Aspects of Thermal Transport at Particle-Particle Interfaces,” Telluride Research Science Center Workshop on Thermal Transport at the Nanoscale, Telluride, CO (June 2019)
- IP14. R. Wang,<sup>§,\*</sup> “Heterogeneous Liquid Metal Particle Composites for Thermal Interface Materials,” ECS 234th Meeting, Cancun, Mexico (October 2018)
- IP13. K. Rykaczewski<sup>§,\*</sup> and R. Wang,<sup>§,\*</sup> “Thermal Interface Materials with Hybrid Liquid-Solid Fillers,” Intel Corporation, Chandler, AZ (May 2018)
- IP12. R. Wang,<sup>§,\*</sup> “Thermoelectric Thin Films and Nanocomposites Synthesized Via Solution-Phase Chemistry,” ECS 232nd Meeting, National Harbor, MD (October 2017)
- IP11. R. Wang,<sup>§,\*</sup> “Nanostructured Inorganic Materials for Thermal Storage and Thermoelectricity Made Via Solution-Phase Synthesis,” EITA-New Materials, Ann Arbor, MI (July 2017)
- IP10. R. Wang,<sup>§,\*</sup> “Thermal Properties of Colloidal Nanocrystal Composites,” Telluride Research Science Center Workshop on Thermal Transport at the Nanoscale, Telluride, CO (June 2016)
- IP9. R. Wang,<sup>§,\*</sup> “Thermal Energy Transport and Storage in Colloidal Nanocrystal Composites,” Mechanical and Aerospace Engineering, University of California at San Diego, San Diego, CA (June 2016)
- IP8. R. Wang,<sup>§,\*</sup> “Colloidal Nanocrystal Composites for Thermoelectricity, Thermal Energy Storage, and Mixed Ionic/Electronic Transport,” A\*STAR Institute of Materials Research and Engineering, Singapore, Singapore (January 2016)
- IP7. R. Wang,<sup>§,\*</sup> “Colloidal Nanocrystal Composites with High and Low Thermal Conductivity,” ECS 228th Meeting, Phoenix, AZ (October 2015)
- IP6. R. Wang,<sup>§,\*</sup> “Colloidal Nanocrystal Composites with High and Low Thermal Conductivity,” IGERT SUN Seminar, Phoenix, AZ (October 2015)
- IP5. R. Wang,<sup>§,\*</sup> “Thermal Transport and Storage in Colloidal Nanocrystal-Based Materials,” MRS Spring Meeting, San Francisco, CA (April 2015)
- IP4. R. Wang,<sup>§,\*</sup> **M. Liu**,<sup>†</sup> R. Tangirala, M. Caldwell, S. Raoux, J. Jordan-Sweet, H. Wong, and D. Milliron; “Phase Transitions in Colloidal Nanoparticle-Based Materials,” XI International Conference on Nanostructured Materials, Rhodes, Greece (August 2012)
- IP3. R. Wang,<sup>§,\*</sup> “Thermoelectric Energy Conversion and Charge Transport in Thin Films, Nanoparticles, and Nanocomposites,” Arizona State University Nanoscience Seminar Series, Tempe, AZ (September 2011)
- IP2. R. Wang,<sup>§</sup> R. Tangirala, G. Garcia and D. Milliron;<sup>\*</sup> “Ionic and Electronic Transport in Ag<sub>2</sub>S Thin Films and Ag<sub>2</sub>S-GeS<sub>2</sub> Nanocomposites,” The Molecular Foundry Workshop on Transport in Nanostructured Materials, Berkeley, CA (April 2010)

- IP1. M. Caldwell,<sup>§</sup> S. Raoux, R. Wang, D. Milliron,\* and H. Wong;\* “Synthesis and Electrical Characterization of Amorphous GeTe Nanoparticles,” MRS Spring Meeting, San Francisco, CA (April 2010)

## Patents

- P1. K. Rykaczewski and R. Wang, “Multi-Layer Thin Film Composite Thermal Interface Materials,” Patent Number 10937716, Application Number 16217906, (2021)

## Provisional Patents

- PP2. K. Rykaczewski and R. Wang, “Multi-Layer Thin Film Composite Thermal Interface Materials,” Application Number 62/597,873 filed on 12/12/2017
- PP1. K. Rykaczewski and R. Wang, “Composite Thermal Interface Materials, Synthesis Methods, and Methods of Use Thereof,” Application Number 62/370,398 filed on 08/03/2016

## Invention Disclosures

- ID3. R. Wang, J. Kocher, S. Yee, “Air Conditioning System Using a Responsive Hygroscopic Material” (2020)
- ID2. K. Rykaczewski and R. Wang, “Multi-layer thin film composite thermal interface materials with in situ alloying of liquid and solid metal inner components,” (2017)
- ID1. K. Rykaczewski and R. Wang, “Multi-filler composite thermal interface materials with liquid metal ‘solder’ drops and tunable electrical properties,” (2016)

## Contributed Conference Presentations

Advised students shown in **bold** \* Principal Investigator(s) % Co-Advised Student  
†PhD Student in R. Wang’s Group €MS Student in R. Wang’s Group #BS Student in R. Wang’s Group  
§Presenter ∇Visiting Researcher in R. Wang’s Group

- CP51. **W. Kong**,<sup>§,†,%</sup> **N. Shah**,<sup>†,%</sup> T. Neumann, M. Vong, P. Kotagama, M. Dickey, R. Wang,\* and K. Rykaczewski;\* “Oxide-Mediated Mechanisms of Gallium Foam Formation During Ambient Shear Mixing Processes,” 2021 Virtual MRS Spring Meeting and Exhibit, Video Presentation (Apr 2021)
- CP51. **Z. Wang**,<sup>§,†</sup> and R. Wang,\* “Mechanical Property Enhancements in Assemblies of Colloidal Nanocrystals and Magic-Sized-Clusters via Ligand Exchange Processes,” 2020 Virtual MRS Spring/Fall Meeting and Exhibit, Video Presentation (Dec 2020)
- CP50. H. Daghooghi-Mobarakeh,<sup>§</sup> K. Bandara, L. Wang, R. Wang, M. Miner, and P. Phelan;\* “Low-Grade Heat Utilization Through Ultrasound-Enhanced Desorption of

- Activated Alumina/Water for Thermal Energy Storage,” ASME ICONE POWER, Video Presentation (Aug 2020)
- CP49. **A. Uppal**,<sup>§,†,%</sup> **W. Kong**,<sup>†,%</sup> **M. Hart**,<sup>#,%</sup> **R. Wang**\* and K. Rykaczewski;\* “Design of Thermally Enhanced Grease with Liquid Metal Coated Particle Fillers in Polymer Composite as Thermal Interface Material,” SRC TECHCON, Oral Presentation, Austin, TX (Sept 2019)
- CP48. **W. Kong**,<sup>§,†,%</sup> **R. Wang**\* and K. Rykaczewski;\* “Oxide-Dependent Thermal and Rheological Properties of Ga-based Thermal Interface Materials with Tungsten Inclusions,” SRC TECHCON, Oral Presentation, Austin, TX (Sept 2019)
- CP47. **Z. Wang**,<sup>§,†</sup> R. Dai, A. Sundar, N. Chawla, Q. Nian, and **R. Wang**;\* “Increasing Thermal Conductivity in Colloidal Nanocrystal Solids by Ligand Cross-Linking,” MRS Spring Meeting, Oral Presentation, Phoenix, AZ (April 2019)
- CP46. **J. Kocher**,<sup>§,€</sup> **Y. Zhang**,<sup>†</sup> and **R. Wang**;\* “Modelling of a Water-Harvesting Thermal Battery with a NIPAAm Hydrogel Sorbent,” MRS Spring Meeting, Poster Presentation, Phoenix, AZ (April 2019)
- CP45. **Z. Wang**,<sup>§,†</sup> L. Liu, R. Dai, Q. Nian, H. Zhuang, and **R. Wang**;\* “Investigation on Thermal Conductivity of BAs Monolayer – A First Principles Study,” MRS Spring Meeting, Poster Presentation, Phoenix, AZ (April 2019)
- CP44. **P. Vartak**,<sup>§,†</sup> **Z. Wang**,<sup>†</sup> **Y. Ma**,<sup>†</sup> and **R. Wang**;\* “Solution-Processed PbSe<sub>x</sub>Te<sub>1-x</sub> Thin-Film Thermoelectrics,” MRS Spring Meeting, Oral Presentation, Phoenix, AZ (April 2019)
- CP43. **M. Ralphs**,<sup>§,†,%</sup> **W. Kong**,<sup>†,%</sup> **R. Wang**,\* and K. Rykaczewski;\* “Engineered Particle-Particle Contacts for High Thermal Conductivity Soft Polymer Composites,” MRS Spring Meeting, Oral Presentation, Phoenix, AZ (April 2019)
- CP42. **M. Ralphs**,<sup>§,†,%</sup> **W. Kong**,<sup>†,%</sup> **R. Wang**,\* and K. Rykaczewski;\* “Role of Gallium Oxide on Thermal Performance of Liquid Metal Droplet Based Thermal Interface Materials,” MRS Spring Meeting, Poster Presentation, Phoenix, AZ (April 2019)
- CP41. **W. Kong**,<sup>§,†,%</sup> **M. Ralphs**,<sup>†,%</sup> **R. Wang**,\* and K. Rykaczewski;\* “Mitigation of Point-Contact Thermal Boundary Resistance in Elastomeric Composites Through Liquid Metal-Bridged Tungsten Fillers,” MRS Spring Meeting, Poster Presentation, Phoenix, AZ (April 2019)
- CP40. **W. Kong**,<sup>§,†,%</sup> **M. Ralphs**,<sup>†,%</sup> **R. Wang**,\* and K. Rykaczewski;\* “Gallium-Based Liquid Metal Wetting Behavior of Tungsten Powder Facilitated via Electroless Silver Coatings,” MRS Spring Meeting, Oral Presentation, Phoenix, AZ (April 2019)
- CP39. K. Rykaczewski,\* and **R. Wang**; “Controlling Thermal and Electrical Properties of Composites Using Percolating Networks of Nanowires with Fusible Tips,” MRS Spring Meeting, Poster Presentation, Phoenix, AZ (April 2019)
- CP38. K. Rykaczewski,<sup>§,\*</sup> and **R. Wang**; “Development of Soft Thermal Conductors: Enabling Next Evolutionary Step in Thermal Design,” NSF Workshop on Constructural Theory: 20 Years of Exploration and What the Future Holds, Poster Presentation, Villanova, PA (April 2018)

- CP37. **P. Vartak**,<sup>§,†</sup> **Z. Wang**,<sup>†</sup> and **R. Wang**,<sup>\*</sup> “Tin(IV) Methylselenolate Synthesis and Functionalization on PbSe Colloidal Nanocrystals,” MRS Spring Meeting, Poster Presentation, Phoenix, AZ (April 2018)
- CP36. **Z. Wang**,<sup>§,†</sup> **P. Vartak**,<sup>†</sup> and **R. Wang**,<sup>\*</sup> “Increasing Thermal Conductivity in Nanocrystal Solids by Ligand Cross-Linking,” MRS Spring Meeting, Poster Presentation, Phoenix, AZ (April 2018)
- CP35. **M. Ralphs**,<sup>§,†,%</sup> E. Joseph,<sup>∇,%</sup> **R. Wang**,<sup>\*</sup> and K. Rykaczewski,<sup>\*</sup> “Stretchable, Thermally Conductive Three Phase Elastomeric Composites with Hybrid Liquid-Solid Metal Fillers for Thermal Management of Soft Robotics and Wearable Electronics,” MRS Spring Meeting, Poster Presentation, Phoenix, AZ (April 2018)
- CP34. **Y. Ma**,<sup>†</sup> **P. Vartak**,<sup>†</sup> **Z. Wang**,<sup>†</sup> **P. Nagaraj**,<sup>€</sup> and **R. Wang**,<sup>§,\*</sup> “Thermoelectric Properties of Semiconductor Thin Films and Nanocomposites Synthesized via Solution-Phase Chemistry,” ASME Summer Heat Transfer Conference, Oral Presentation, Bellevue, WA (July 2017)
- CP33. **Y. Ma**,<sup>†</sup> **P. Vartak**,<sup>†</sup> **P. Nagaraj**,<sup>€</sup> and **R. Wang**,<sup>§,\*</sup> “Solution-Phase Processing Routes to Metal Chalcogenide Thermoelectric Thin Films,” MRS Spring Meeting, Oral Presentation, Phoenix, AZ (April 2017)
- CP32. **Y. Ma**,<sup>†</sup> **P. Vartak**,<sup>†</sup> **P. Nagaraj**,<sup>€</sup> **S. Shah**,<sup>€</sup> and **R. Wang**,<sup>§,\*</sup> “Solution-Phase Synthesis Routes to Thermoelectric Thin Films and Nanocomposites,” ASME IMECE, Oral Presentation, Phoenix, AZ (November 2016)
- CP31. **M. Liu**,<sup>†</sup> **Y. Ma**,<sup>†</sup> **S. Sadat**,<sup>†</sup> and **R. Wang**,<sup>§,\*</sup> “Thermal Transport in Colloidal Nanocrystal Solids – The Effects of Ligand Chemistry and Nanocrystal Packing,” MRS Spring Meeting, Oral Presentation, Phoenix, AZ (March 2016)
- CP30. **Y. Ma**,<sup>§,†</sup> **P. Nagaraj**,<sup>€</sup> and **R. Wang**,<sup>\*</sup> “Thermoelectric Properties of Metal Chalcogenide Thin Films Deposited with a Diamine-Dithiol Solvent Mixture,” MRS Spring Meeting, Poster Presentation, Phoenix, AZ (March 2016)
- CP29. K. Rykaczewski,<sup>§,\*</sup> D.G. Mieritz, **M. Liu**,<sup>†</sup> **Y. Ma**,<sup>†</sup> E.B. Iezzi, X. Sun, L.P. Wang, K.N. Solanki, D.-K. Seo, and **R. Wang**; “Far-Reaching Volumetric Artefacts Due to Thermal Decomposition of Polymeric Coatings around Focused Ion Beam Milled Pigment Particles,” MRS Spring Meeting, Oral Presentation, Phoenix, AZ (March 2016)
- CP28. **M. Liu**,<sup>†</sup> **Y. Ma**,<sup>†</sup> and **R. Wang**,<sup>§,\*</sup> “Thermal Transport in Colloidal Nanocrystal-Based Materials,” ASME Micro/Nanoscale Heat and Mass Transfer International Conference, Oral Presentation, Singapore, Singapore (January 2016)
- CP27. **M. Liu**,<sup>†</sup> **Y. Ma**,<sup>†</sup> and **R. Wang**,<sup>§,\*</sup> “Phase Change Nanocomposites as Thermal Energy Storage Materials with Size-Dependent Melting,” ASME Micro/Nanoscale Heat and Mass Transfer International Conference, Oral Presentation, Singapore, Singapore (January 2016)
- CP26. **Y. Ma**,<sup>†</sup> **M. Liu**,<sup>†</sup> and **R. Wang**,<sup>§,\*</sup> “Thermal Transport in Colloidal Nanocrystal-Based Materials,” MRS Fall Meeting, Oral Presentation, Boston, MA (November 2015)

- CP25. **M. Liu**,<sup>†</sup> **Y. Ma**,<sup>†</sup> and **R. Wang**,<sup>§,\*</sup> “Thermal Transport in Colloidal Nanocrystal-Based Materials,” ASME IMECE, Oral Presentation, Houston, TX, (November 2015)
- CP24. **M. Liu**,<sup>§,†</sup> and **R. Wang**,<sup>\*</sup> “Metallic Phase Change Nanocomposites with Tunable Melting Temperature and High Thermal Conductivity,” ASME IMECE, Oral Presentation, Montreal, Canada (November 2014)
- CP23. **M. Liu**,<sup>§,†</sup> and **R. Wang**,<sup>\*</sup> “Designer Thermal Storage Composites Using Monodisperse Colloidal Nanoparticle Ensembles,” MRS Spring Meeting, Poster Presentation, San Francisco, CA (April 2014)
- CP22. **M. Liu**<sup>†</sup> and **R. Wang**,<sup>§,\*</sup> “Designer Thermal Storage Composites Using Size-Dependent Melting and Monodisperse Nanoparticle Ensembles,” ASME IMECE, Oral Presentation, San Diego, CA (November 2013)
- CP21. **M. Liu**<sup>†</sup> and **R. Wang**,<sup>§,\*</sup> “Designer Thermal Storage Composites Using Size-Dependent Melting and Monodisperse Nanoparticle Ensembles,” ASME Summer Heat Transfer Conference, Oral Presentation, Minneapolis, MN (July 2013)
- CP20. **M. Liu**<sup>†</sup> and **R. Wang**,<sup>§,\*</sup> “Designer Thermal Storage Composites using Monodisperse Nanoparticles Ensembles,” MRS Spring Meeting, Oral Presentation, San Francisco, CA (April 2013)
- CP19. **R. Wang**,<sup>§</sup> R. Tangirala, S. Raoux, J. Jordan-Sweet, and D. Milliron;<sup>\*</sup> “Ionic and Electronic Transport in Ag<sub>2</sub>S Nanocrystal – GeS<sub>2</sub> Matrix Composites with Size-Controlled Ag<sub>2</sub>S Nanocrystals,” Gordon Research Conference – Clusters, Nanocrystals, and Nanostructures, Poster Presentation, South Hadley, MA (July 2011)
- CP18. **R. Wang**,<sup>§</sup> R. Tangirala, G. Garcia, S. Raoux, and D. Milliron;<sup>\*</sup> “Ionic and Electronic Transport in Ag<sub>2</sub>S – GeS<sub>2</sub> Nanocomposites with Size-Controlled Ag<sub>2</sub>S Nanoparticles,” MRS Spring Meeting, Oral Presentation, San Francisco, CA (April 2011)
- CP17. **R. Wang**,<sup>§</sup> M. Caldwell, R. Jeyasingh, R. Shelby, H. Wong, and D. Milliron;<sup>\*</sup> “Electronic and Optical Switching of Solution – Phase Deposited SnSe<sub>2</sub> Phase Change Material,” MRS Spring Meeting, Oral Presentation, San Francisco, CA (April 2011)
- CP16. **R. Wang**,<sup>§</sup> R. Tangirala, G. Garcia, and D. Milliron;<sup>\*</sup> “Ionic and Electronic Transport in Silver Chalcogenide – Germanium Chalcogenide Nanocomposites,” ASME IMECE, Oral Presentation, Vancouver, Canada (November 2010)
- CP15. R. Tangirala, **R. Wang**,<sup>§</sup> and D. Milliron;<sup>\*</sup> “Modular Formation of Inorganic Nanocomposites by Conversion of Nanocrystal Superlattices,” ASME IMECE, Oral Presentation, Vancouver, Canada (November 2010)
- CP14. **R. Wang**,<sup>§</sup> J. Feser, X. Gu, K. Yu, R. Segalman, A. Majumdar, D. Milliron,<sup>\*</sup> and J. Urban;<sup>\*</sup> “A Universal and Solution-Processable Precursor to Bismuth Chalcogenide Thermoelectrics,” ASME IMECE, Oral Presentation, Vancouver, Canada (November 2010)

- CP13. R. Wang,<sup>§</sup> M. Caldwell, R. Shelby, H. Wong, and D. Milliron;\* “Solution-Phase Deposition of SnSe<sub>2</sub> Phase Change Material,” European Phase Change and Ovonic Symposium, Poster Presentation, Milan, Italy (September 2010)
- CP12. R. Wang,<sup>§</sup> R. Tangirala, and D. Milliron;\* “Ionic and Electronic Transport in Silver Chalcogenide – Germanium Chalcogenide Nanocomposites,” MRS Spring Meeting, Oral Presentation, San Francisco, CA (April 2010)
- CP11. R. Tangirala,<sup>§</sup> R. Wang, J. Baker, A. Alivisatos, and D. Milliron;\* “Modular Inorganic Nanocomposites by Conversion of Nanocrystal Superlattices,” MRS Spring Meeting, Oral Presentation, San Francisco, CA (April 2010)
- CP10. R. Wang,<sup>§</sup> J. Feser, X. Gu, R. Segalman, A. Majumdar, J. Urban,\* and D. Milliron;\* “Thermoelectric Properties of Solution-Processed Bismuth Chalcogenide Compounds,” MRS Fall Meeting, Oral Presentation, Boston, MA (November 2009)
- CP9. M. Caldwell,<sup>§</sup> J. Urban, S. Raoux, R. Wang, M. Polking, R. Ramesh, A. Alivisatos, D. Milliron,\* and H. Wong;\* “Colloidal Synthesis of Amorphous Germanium Telluride Nanoparticles and Characterization of Structural Phase Stability,” MRS Fall Meeting, Oral Presentation, Boston, MA (November 2009)
- CP8. R. Tangirala, R. Wang, and D. Milliron;<sup>§,\*</sup> “Modular Inorganic Nanocomposites from Nanocrystal Superlattices,” MRS Fall Meeting, Oral Presentation, Boston, MA (November 2009)
- CP7. R. Wang,<sup>§</sup> J. Feser, A. Rey, D. Milliron,\* J. Urban,\* R. Segalman,\* and A. Majumdar;\* “Thermoelectric Properties of Solution-Processed Bismuth Chalcogenides,” MRS Spring Meeting, Oral Presentation, San Francisco, CA (April 2009)
- CP6. J. Feser,<sup>§</sup> R. Wang, J. Lee, D. Talapin,\* A. Majumdar,\* and J. Urban,\* “Solution Processable Routes to Nanostructured Thermoelectric Devices,” MRS Spring Meeting, Poster Presentation, San Francisco, CA (April 2009)
- CP5. J. Feser,<sup>§</sup> R. Wang, A. Majumdar,\* and J. Urban;\* “Solution Processable Routes to Nanostructured Thermoelectric Materials,” APS March Meeting, Oral Presentation, Pittsburgh, PA (March 2009)
- CP4. R. Wang,<sup>§</sup> J. Feser, J. Lee, D. Talapin, R. Segalman,\* and A. Majumdar;\* “Thermopower and Electrical Conductivity of PbSe Nanocrystal Thin Films,” APS March Meeting, Oral Presentation, New Orleans, LA (March 2008)
- CP3. R. Wang,<sup>§</sup> R. Segalman,\* and A. Majumdar;\* “Thermal Conductance Measurements of Aromatic and Aliphatic Self-Assembled Monolayers,” APS March Meeting, Oral Presentation, Denver, CO (March 2007)
- CP2. R. Wang,<sup>§</sup> R. Segalman,\* and A. Majumdar;\* “Thermal Conductance of Molecular Junctions,” SNU – UCB Joint Workshop on Microscale Thermal Engineering, Oral Presentation, Seoul, South Korea (August 2006)
- CP1. R. Wang,<sup>§</sup> R. Segalman,\* and A. Majumdar;\* “Thermal Conductance of Au-Octanedithiol-GaAs Junctions,” 13th International Heat Transfer Conference, Poster Presentation, Sydney, Australia (August 2006)

## Externally Sponsored Research Support

Sponsor	Title, Dates, Award #, and PIs	Funded Amount	R. Wang's Funding Recognition
Semiconductor Research Corporation	Liquid Metal Coated Particles for Thermally Conductive Polymer Composites 11/01/17 – 03/31/21, Contract: 2017-PK-2787 PI: Rykaczewski Co-PIs: <b>R. Wang</b>	\$249,000	\$124,500
Salt River Project	Evaluation of the SolarThermiX Phase Change Material for Load Shifting in SRP's Service Area 08/01/17 – 07/31/18 PI: <b>R. Wang</b>	\$68,097	\$68,097
National Science Foundation	Ultrasonic Enhancement of Heat and Mass Transfer in Sorption Processes 08/01/17 – 07/31/20, Award: CBET-1703670 PI: Phelan Co-PIs: Miner, L. Wang, <b>R. Wang</b>	\$313,369	\$78,342
National Science Foundation	CAREER: Phononic Properties of Colloidal Nanocrystal Superlattices 03/01/17 – 02/28/22, Award: DMR-1654337 PI: <b>R. Wang</b>	\$562,500	\$562,500
National Science Foundation	Colloidal Nanocrystal Routes to Inorganic Nanocomposite Thermoelectric Materials 08/01/15 – 07/31/19, Award: DMR-1506829 PI: <b>R. Wang</b>	\$425,000	\$425,000
Air Force Office of Scientific Research	YIP: Elucidating the Wavelength Dependence of Phonon Scattering in Nanoparticle-Matrix Composites using Phonon Spectroscopy 03/27/13 – 03/31/16, Award: FA9550-13-1-0163 PI: <b>R. Wang</b>	\$359,735	\$359,735
Australian Renewable Energy Agency (Sub-Contract through RMIT)	Micro Urban Solar Integrated Concentrator (MUSIC) 03/04/13 – 09/03/2016, Award: 7516 PI: L. Wang Co-PIs: Bryan, Dai, Phelan, <b>R. Wang</b>	\$237,645	\$47,529

National Science Foundation	High Energy Density, High Thermal Conductivity Latent Heat Storage Using Inorganic Nanocomposites 09/01/12 – 08/31/16, Award: CBET – 1236656 PI: <b>R. Wang</b>	\$292,579	\$292,579
National Science Foundation	BRIGE: Thermal Transport in Single-Domain Three-Dimensional Colloidal Nanocrystal Superlattices 09/01/12 – 08/31/15, Award: CBET – 1227979 PI: <b>R. Wang</b>	\$175,000	\$175,000
National Science Foundation	IGERT: Solar Utilization Network (SUN) 07/01/12 – 06/30/17, Award: DGE – 1144616 PI: Vermaas Co-PIs: Fisher, Ganesh, Ghirlanda, Goodnick, Guston, Henderson, Honsberg, Husman, Jones, Krajmalnik-Brown, Moore, Pasqualetti, Phelan, Rittmann, Torres, <b>R. Wang</b> , Webber, Westerhoff, Williams	\$3,006,642	\$90,199
	<b>Total</b>	<b>\$5,689,567</b>	<b>\$2,223,481</b>

## Research Supervision

### Ph.D. Advisees

12. Shreyas Kanetkar, Chemical Engineering, ASU 2021 –
  - Research topic: Structure-Property-Processing relationships of liquid metal foam composites
  - Co-advised w/ K. Rykaczewski
11. Ashish Rana, Mechanical Engineering, ASU 2019 –
  - Qualifying Exam Passed, 01/2021
  - Research topic: Thermoresponsive Polymers and Ionic Liquids for Water Harvesting
10. Najam Ul Hassan Shah, Mechanical Engineering, ASU 2019 –
  - Qualifying Exam Passed, 10/2019
  - Research topic: Thermal Contact Resistance at Hard-Soft Interfaces
  - Co-advised w/ K. Rykaczewski
9. Aastha Uppal, Mechanical Engineering, ASU 2019 –
  - Qualifying Exam Passed, 3/2020
  - Research topic: Liquid Metal Composites for Thermal Interface Materials
  - Co-advised w/ K. Rykaczewski

8. Yanan Zhang, Mechanical Engineering, ASU 2018 –
  - Comprehensive & Prospectus Exam Passed, 2/2021
  - Research topic: Thermochemical Processes for Long Distance Thermal Transmission and Long Term Thermal Storage
  
7. Wilson Kong, Materials Science and Engineering, ASU Ph.D. 2021
  - Awarded NRC Postdoctoral Fellowship
  - Dissertation: Multiphase Liquid Metal Composites for Soft Thermal Applications
  - Co-advised w/ K. Rykaczewski
  - Job after graduation: Postdoc (Air Force Research Laboratory, Christopher E. Tabor's research group)
  
6. Zhongyong Wang, Materials Science and Engineering, ASU Ph.D. 2021
  - Dissertation: The Intercoupling of Thermal Transport and Mechanical Properties in Colloidal Nanocrystal Assemblies
  - Job after graduation: Postdoc (University of Michigan Ann Arbor, Pramod Reddy's research group)
  
5. Prathamesh Vartak, Materials Science and Engineering, ASU Ph.D. 2020
  - Dissertation: Characterization of Solution-Processed Metal Chalcogenide Precursor, Thin Film, and Nanocomposite for Thermoelectricity
  - Job after graduation: Intel Corp.
  
4. Seid Sadat, Mechanical Engineering, ASU Ph.D. 2020
  - Dissertation: Computational Modeling for Phononic Crystal Property Discovery and Design – From Eigenvalue Analysis to Machine Learning
  - Job after graduation: AV Lab Inc.
  
3. Matt Ralphs, Mechanical Engineering, ASU Ph.D. 2019
  - Dissertation: Enhanced Thermal Conductivity in Soft Composites Through Magnetic Aligned and Contact Engineering
  - Co-advised w/ K. Rykaczewski
  - Job after graduation: Space Dynamics Laboratory
  
2. Yuanyu Ma, Materials Science and Engineering, ASU Ph.D. 2016
  - Dissertation: Solution-Phase Synthesis and Properties of Thin Films and Nanocomposites for Thermoelectricity
  - Job after graduation: CG Max Design Corp.
  
1. Minglu Liu, Mechanical Engineering, ASU Ph.D. 2015
  - Outstanding Dissertation Award Finalist
  - Poster Presentation Award, Materials Research Society Spring Meeting, San Francisco, 2014
  - Dissertation: Thermal Storage and Transport in Colloidal Nanocrystal-Based Materials

- Job after graduation: Postdoc (Arizona State University, Karl Sieradzki's group) and then Intel Corp.

## M.S. Advisees

- |   |           |
|---|-----------|
| 16. Ming-Hsien Sun, Mechanical Engineering, ASU   | 2021 –    |
| - Research topic: Thermal Transport in Assemblies of Magic-Sized Clusters   |           |
| 15. Nathan Casey, Chemical Engineering, ASU   | 2020 –    |
| - Research topic: Thermal Interface Materials Based on Liquid Metals  |           |
| - Co-Advised w/ K. Rykaczewski  |           |
| 14. Jordan Kocher, Mechanical Engineering, ASU  | M.S. 2019 |
| - Research topic: Thermoresponsive Hydrogels for Desiccant Air Conditioning   |           |
| - Job after graduation: Ph.D. student at Georgia Tech   |           |
| 13. Ashish Rana, Mechanical Engineering, ASU  | M.S. 2019 |
| - Research topic: Physical Vapor Deposition for Creating Superconducting Tunnel Junctions   |           |
| - Job after graduation: Ph.D. student at Arizona State University   |           |
| 12. Sanuj Jain, Mechanical Engineering, ASU   | M.S. 2018 |
| - Research topic: Thermal energy storage properties of salt hydrates  |           |
| - Job after graduation: SunTree Snack Foods   |           |
| 11. Ninad Sonje, Mechanical Engineering, ASU  | M.S. 2018 |
| - Research topic: Physical Vapor Deposition for Creating Superconducting Tunnel Junctions   |           |
| - Job after graduation: ASM International N.V.  |           |
| 10. Shrinil Shah, Mechanical Engineering, ASU   | M.S. 2017 |
| - Research topic: Thermoelectric Device Integration into an Internal Combustion Engine for Electricity Generation from Waste Heat |           |
| - Job after graduation: GlobalFoundries   |           |
| 9. Prajwal Nagaraj, Mechanical Engineering, ASU   | M.S. 2017 |
| - Research topic: Thermoelectric Measurements on Thin Films Prepared by Solution-Phase Deposition                                 |           |
| - Job after graduation: ASM International N.V.  |           |
| 8. Sujal Tipnis, Mechanical Engineering, ASU  | M.S. 2017 |
| - Research topic: Measurement of Thermal Conductivity of Polymer Matrix Liquid Metal and Solid Nanoparticle Composites            |           |
| - Co-advised w/ K. Rykaczewski  |           |
| - Job after graduation: ANSYS Fluent  |           |
| 7. Nicholas Kemme, Mechanical Engineering, ASU  | M.S. 2017 |
| - Research topic: Quantifying the Properties of Elastic, Liquid Metal Based Thermal Interface Materials                           |           |
| - Co-advised w/ K. Rykaczewski  |           |

- Job after graduation: General Atomics
- 6. Manish Nayini, Mechanical Engineering, ASU M.S. 2016
  - Research topic: Operational Protocols for Thermal Storage System and High Temperature System Design
  - Job after graduation: GlobalFoundries
- 5. Kunal Parikh, Mechanical Engineering, ASU M.S. 2015
  - Research topic: Prototype Design of a Thermal Storage System
  - Job after graduation: ASM International N.V
- 4. Abbas Jaber, Mechanical Engineering, ASU M.S. 2014
  - Research topic: Construction of a Thermal Conductivity Measurement Platform for Bulk and Thin Film Samples Based on the  $3\omega$  Technique
  - Job after graduation: Arizona Public Service
- 3. Leah Haling, Mechanical Engineering, ASU M.S. 2014
  - Research topic: Target Metrics for a Thermal Energy Storage System on the Rooftop of Commercial and Industrial Buildings
  - Co-advised w/ P. Phelan
  - Job after graduation: Department of Energy
- 2. Benjamin Duong, Chemical Engineering, ASU M.S. 2014
  - Research topic: Metal Redox Reactions for Thermochemical Energy Storage
  - Job after graduation: Intel Corp.
- 1. Norman Fish, Mechanical Engineering, ASU M.S. 2012
  - Research topic: Thermal Analysis of Li-ion Electrochemical Cells
  - Job after graduation: Intel Corp.

## **B.S. Advisees**

- 10. Matthew Hart, Mechanical Engineering, ASU B.S. 2019
  - Barrett Honors Student
  - Research topic: Thermal Interface Materials
  - Co-advised w/ K. Rykaczewski
  - Job after graduation: Apple Inc.
- 9. Chandler Scheitlin, Mechanical Engineering, ASU B.S. 2018
  - Research topic: Measurements of Polymer Composite Thermal Conductivity
  - Co-advised w/ K. Rykaczewski
  - Job after graduation: Ping Golf
- 8. Jordan Kocher, Mechanical Engineering, ASU B.S. 2017
  - Barrett Honors Student
  - Research topic: Operational Protocols for Thermal Storage System and High Temperature System Design
  - Job after graduation: M.S. student at Arizona State University
- 7. Samuel Mokdad, Mechanical Engineering, ASU B.S. 2017

- Research topic: Thermoelectric Device Integration into an Internal Combustion Engine for Electricity Generation from Waste Heat
  - Job after graduation: M.S. student at Arizona State University
6. William Lee, Mechanical Engineering, ASU B.S. 2015
    - Research topic: Prototype Design of a Thermal Storage System
    - Job after graduation: Intel Corp.
  5. Jason Trevithick, Chemical Engineering, ASU B.S. 2014
    - Research topic: Synthesis of Colloidal In Nanocrystals
    - Job after graduation: Ph.D. student at Colorado School of Mines
  4. Kyle Ness, Mechanical Engineering, ASU B.S. 2014
    - Barrett Honors Student
    - Research topic: Creation of a Thin Film Transistor Measurement System for Characterizing Charge Carrier Mobility
    - Job after graduation: Ford Motor Company
  3. Andre Fuentes, Chemical Engineering, ASU B.S. 2013
    - Research topic: Synthesis of Colloidal CdSe Nanocrystals
    - Job after graduation: Frito Lay
  2. Abbas Jaber, Mechanical Engineering, ASU B.S. 2013
    - Research topic: Construction of a Thermal Conductivity Measurement Platform for Bulk and Thin Film Samples Based on the  $3\omega$  Technique
    - Job after graduation: M.S. student at Arizona State University
  1. Xiyang Chen, Materials Science and Engineering, ASU B.S. 2012
    - Research topic: Synthesis of Colloidal Bi Nanocrystals
    - Job after graduation: Ph.D. student at Arizona State University

### Visiting Researchers

1. Emil Joseph 2017-2018
  - Research topic: Thermally Conductive Polymer Composites

### Dissertation/Thesis Committees (excluding committees that R. Wang is chair)

#### Ph.D.

24. Adnan Abdullahi, Mech. Eng., Chair = Jean Andino In Progress
23. Carlos Ortiz, Mech. Eng., Chair = Patrick Phelan In Progress
22. Franky Djutanta, Mech. Eng., Chair = Rizal Haradi In Progress
21. Jiashen Tian, Mech. Eng., Chair = Ryan Milcarek In Progress
20. Rhushikesh Ghotkar, Mech. Eng., Chair = Ryan Milcarek In Progress
19. Hooman Daghooghi Mobarakeh, Mech. Eng., Chair = Patrick Phelan Ph.D. 2021
18. Sydney Taylor, Mech. Eng., Chair = Liping Wang Ph.D. 2020
17. Talal Alqahtani, Mech. Eng., Chair = Patrick Phelan Ph.D. 2020
16. Kartik Venkatraman, Mat. Sci. & Eng., Chair = Peter Crozier Ph.D. 2020
15. Praveen Kotagama, Mech. Eng., Chair = Konrad Rykaczewski Ph.D. 2020

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|---|------------|
| 14. Ky Merrill, Elec. Eng., Chair = Marco Saraniti                      | Ph.D. 2020 |
| 13. Payam Sabbaghi, Mech. Eng., Chair = Liping Wang                     | Ph.D. 2019 |
| 12. Akshay Phadnis, Mech. Eng., Chair = Konrad Rykaczewski              | Ph.D. 2019 |
| 11. Hassan Alsheri, Mech. Eng., Chair = Liping Wang                     | Ph.D. 2018 |
| 10. Vishnu Budama, Mech. Eng., Chair = Nate Johnson                     | Ph.D. 2018 |
| 9. Flavio Sabbati, Elec. Eng., Chair = Marco Saraniti                   | Ph.D. 2018 |
| 8. Jui-Yung Chang, Mech. Eng., Chair = Liping Wang                      | Ph.D. 2017 |
| 7. Viraj Damle, Mech. Eng., Chair = Konrad Rykaczewski                  | Ph.D. 2017 |
| 6. Xiaoda Sun, Mech. Eng., Chair = Konrad Rykaczewski                   | Ph.D. 2017 |
| 5. Yue Yang, Mech. Eng., Chair = Liping Wang                            | Ph.D. 2016 |
| 4. Hao Wang, Mech. Eng., Chair = Liping Wang                            | Ph.D. 2016 |
| 3. Andrey Gunawan, Mech. Eng., Chair = Patrick Phelan                   | Ph.D. 2015 |
| 2. Soochan Lee, Mech. Eng., Co-Chairs = Patrick Phelan & Carole-Jean Wu | Ph.D. 2015 |
| 1. Mengchu Huang, Mat. Sci. & Eng., Chair = Nathan Newman               | Ph.D. 2013 |

#### **M.S.**

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|--|-----------|
| 10. Avinash Singh Nayal, Mech. Eng., Chair = Liping Wang                   | M.S. 2020 |
| 9. Joseph Vlastos, Mech. Eng., Chair = Liping Wang                         | M.S. 2020 |
| 8. Saurabh Prabhu, Mech. Eng., Chair = Konrad Rykaczewski                  | M.S. 2019 |
| 7. Chuyun Guan, Mech. Eng., Chair = Liping Wang                            | M.S. 2019 |
| 6. Adnan Abdullahi, Mech. Eng., Chair = Patrick Phelan                     | M.S. 2019 |
| 5. Jyothis Anand Prem Anand Jayaprabha, Mech. Eng., Chair = Patrick Phelan | M.S. 2018 |
| 4. Yiwen Huang, Mech. Eng., Chair = Owen Hildreth                          | M.S. 2016 |
| 3. Ajay Roopesh Mohan, Mech. Eng., Chair = Konrad Rykaczewski              | M.S. 2015 |
| 2. Tiantian Zhang, MSE, Chair = Nathan Newman                              | M.S. 2012 |
| 1. Tobin Peyton-Levine, Mech. Eng., Chair = Patrick Phelan                 | M.S. 2012 |

#### **B.S. (Barrett Honors Program)**

- |   |             |
|---|-------------|
| 5. Leo Lin, Mech. Eng., Chair = Konrad Rykaczewski      | In Progress |
| 4. Kristina Phillips, Mech. Eng., Chair = Ryan Milcarek | In Progress |
| 3. Nicole Sluder, Mech. Eng., Chair = Liping Wang       | B.S. 2021   |
| 2. William Lee, Mech. Eng., Chair = Patrick Phelan      | B.S. 2015   |
| 1. Scott McCann, Mech. Eng., Chair = Patrick Phelan     | B.S. 2012   |

## **Classroom Teaching Activities**

### **Teaching Evaluations**

Term	Course Name	Course No.	Student Enrollment	Evaluation
Spring 2021	Nanoscale Heat Transfer	MAE 588	10	4.69/5
Fall 2020	Experimental Mechanical Engineering	MEE 491	162	4.56/5
Spring 2020	Experimental Mechanical Engineering	MEE 491	97	4.62/5
Fall 2019	The ASU Experience	ASU 101	20	4.56/5
Fall 2019	Experimental Mechanical Engineering	MEE 491	179	4.55/5
Spring 2019	Experimental Mechanical Engineering	MEE 491	99	3.97/5
Fall 2018	The ASU Experience	ASU 101	19	4.02/5
Fall 2018	Nanoscale Heat Transfer	MAE 598	10	4.54/5
Spring 2018	Experimental Mechanical Engineering	MEE 491	200	4.11/5
Fall 2017	The ASU Experience	ASU 101	19	4.43/5
Fall 2017	Introduction to Thermodynamics	MAE 241	91	3.34/5
Spring 2017	Experimental Mechanical Engineering	MEE 491	147	4.27/5
Spring 2016	Nanoscale Heat Transfer	MAE 598	3	4.61/5
Fall 2015	The ASU Experience	ASU 101	21	4.69/5
Fall 2015	Experimental Mechanical Engineering	MEE 491	98	4.52/5
Spring 2015	Experimental Mechanical Engineering	MEE 491	113	4.58/5
Fall 2014	The ASU Experience	ASU 101	19	4.59/5
Fall 2014	Nanoscale Heat Transfer	MAE 598	24	4.25/5
Fall 2013	Experimental Mechanical Engineering	MAE 491	101	4.63/5
Spring 2013	Experimental Mechanical Engineering	MAE 491	86	4.50/5
Fall 2012	Thermofluids I	MAE 240	43	4.54/5
Fall 2011	Thermofluids I	MAE 240	29	4.60/5

## Professional Activities and Service

### Editorial Boards

- InfoMat – Junior Editorial Board (Wiley) 2020 –
- Scientific Reports (Nature Publishing Group) 2017 –
- Smart Science (Taylor & Francis Group) 2016 –

## **Workshop Organization**

- Thermal Transport at the Nanoscale, Telluride Science Research Center 2022

## **Steering Committee**

- EITA - New Energy and Green Technology Ventures 2017 –

## **Professional Society Activity**

- ASME: K-9 Committee – Nanoscale Thermal Transport 2013 –
- ASME IMECE Topic Organizer, “Fundamentals of Phonon and Electron Transport and Coupling” 2016
- MRS Spring Meeting, Session chair – “Interfacial Thermal Transport II” 2015
- MRS Spring Meeting, Session chair – “Thermal Transport in Organic and Hybrid Materials” 2015
- 228<sup>th</sup> ECS Meeting, Session chair – “Thermoelectrics and Thermal Transport I” 2015
- MRS Spring Meeting, Session chair – “Fluids and Phase Change Materials” 2013
- ASME Member 2001 –
- MRS Member 2008 –
- ACS Member 2011 –
- ECS Member 2015 –

## **Funding Agency Reviewing Activity**

- National Science Foundation (2019, 2018, 2017, 2016, 2014, 2011), Department of Energy (2021, 2019, 2015), Air Force Office of Scientific Research (2014), American Chemical Society Petroleum Research Fund (2011), Leverhulme Trust (2016), Nebraska Center for Energy Sciences Research (2014), Molecular Foundry Proposal Study Panel (2012)

## **Journal Reviewing Activity**

- Advanced Materials (2020, 2018), Matter (2020, 2019), Advanced Energy Materials (2020), Nano Letters (2020, 2017), ACS Nano (2017), ACS Applied Materials & Interfaces (2020), Chemistry of Materials (2018, 2017), NPG Asia Materials (2017), Nanoscale (2016), Applied Energy (2017), Advanced Theory and Simulations (2020) Nanoscale and Microscale Thermophysical Engineering (2017, 2018), Journal of Materials Chemistry C (2016), Scientific Reports (2014), Journal of Electronic Materials (2015), Applied Physics A (2016), Thermochemica Acta (2013), Science of Advanced Materials (2012), Industrial & Engineering Chemical Research (2011), IEEE ITherm (2018), MRS Proceedings (2010)

## **University Service**

- MAE Graduate Affairs Committee 2015 –
- Chair - Faculty Search Committee: “Thermal Energy” 2017 – 2018
- Faculty Search Committee: “Functional Materials” 2015 – 2016
- Faculty Search Committee: “Thermal Energy Systems” 2013 – 2014
- Faculty Search Committee, “Micro- & Nano-Scale Systems & Engineering” 2012 – 2013
- Mechanical Engineering Program Assessment 2012
- Faculty Search Committee: “Solar Thermal Energy Conversion & Storage” 2011 – 2012

### **Outreach Activities**

- Chief Science Officers Program, Arizona 2017 –
- Science is Fun, ASU 2012 –
- Feasting with Faculty, ASU 2011 – 2012
- Cal Day, UC Berkeley 2007
- Community Service Commission, UCLA 2003
- Project Working for Immigrant Literacy Development, UCLA 2000 – 2003