

Sanghamitra Neogi

CONTACT INFORMATION

Smead Aerospace Engineering Sciences
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RESEARCH INTERESTS

Theoretical and Computational Materials Science · Statistical Learning Methods · Nanoscale Heat Transport · Electronic Transport · Electron-Phonon Coupling · Neuromorphic Computing · Nano- and microelectronics · Quantum Materials · Classical and Ab initio Molecular Dynamics Simulations · Dissipative and Nonlinear Dynamics · Metamaterials · Effect of Defects on Transport · Solid-Solid Interfaces · Solid-Fluid Interfaces · Soft Matter · Composite Systems

EDUCATION

Ph.D., Theoretical Condensed Matter Physics, July 2011
The Pennsylvania State University, University Park, Pennsylvania USA

M.Sc., Physics, May 2002
Indian Institute of Technology, Kanpur, India

B.Sc., Physics, December 2000
Jadavpur University, Kolkata, India

PROFESSIONAL EXPERIENCE

University of Colorado Boulder, Boulder, Colorado, USA
Department of Aerospace Engineering Sciences
Assistant Professor **August 2015 to Present**

Max Planck Institute for Polymer Research, Theory Group, Mainz, Germany
Postdoctoral Research Associate **November 2011 to August 2015**

Visiting Research Scientist **September 2015 to August 2016**

The Pennsylvania State University, University Park, Pennsylvania, USA
Graduate Teaching Assistant **January 2003 to August 2011**

Harish-Chandra Research Institute, Allahabad, Uttar Pradesh, India
Visiting Scientist **September 2002 to December 2002**

Indian Association for the Cultivation of Science, Kolkata, West Bengal, India
Visiting Student Fellow **May 2001 to August 2001**

Indian Institute of Science, Bangalore, Karnataka, India
One of 20 recipient of young research fellowship **Summer, 1997 to 2000**

AWARDS AND FELLOWSHIPS

- Women in the Sciences and Engineering Institute Graduate Travel Grant Award, Pennsylvania State University, Spring 2010
- David C. Duncan Graduate Fellowship, Department of Physics, Pennsylvania State University, 2008, 2010
- Graduate Teaching Assistant Award, Department of Physics, Pennsylvania State University, 2009
- Summer School on Renormalization Group Methods for Interacting Electrons, Brasilia, Brazil, 2004 (**travel award**)

- Physics Department Braddock Fellowship, Pennsylvania State University, 2003
- Young Research Fellowship, Indian Institute of Science (IISc.), India, 1997 to 2000 (**1 of 20 recipient chosen from all-over India, 3-yrs full tuition and stipend scholarship**)
- 7th rank (**1st among girls**) in 10+2 level examination conducted by Government of West Bengal Council of Higher Secondary Education, India (among ~ 500,000 students), 1997.
- 13th rank (**1st among girls**) in 10th level Madhyamik Examination conducted by Government of West Bengal Board of Secondary Education, India (among ~ 1 million students), 1995.

TEACHING
EXPERIENCE

University of Colorado Boulder, Boulder, Colorado, USA
Ann And H.J. Smead Department of Aerospace Engineering Sciences

- ASEN 2001-Introduction to Statics, Structures, and Materials, Fall 2016, Fall 2017, Fall 2021
- ASEN 4018-Senior Projects 1: Design Synthesis, Fall 2019, Fall 2020
- ASEN 4028-Senior Projects II: Design Practicum, Spring 2020, Spring 2021
- ASEN 5022-Dynamics of Aerospace Structures, Spring 2016, Spring 2018, Spring 2020, Spring 2022
- ASEN 6519-Molecular Simulation of Materials, Spring 2017, Spring 2019, Spring 2021

The Pennsylvania State University, University Park, Pennsylvania USA
Department of Physics, Graduate Teaching Assistant **January 2003 to August 2011**

REFEREED
JOURNAL
ARTICLES

(^g indicates graduate student; ^p indicates postdoctoral scholar, * indicates principal investigator)

1. M. Settipalli^g, V. S. Proshchenko^p and **S. Neogi*** (2021), “Effect of Electron-Phonon and Electron-Impurity Scattering on Electronic Transport Properties of Silicon/Germanium Superlattices”. (*under review preprint arXiv:2111.12831*)
2. A. Pimachev^p and **S. Neogi***, “First-Principles Prediction of Electronic Transport in Fabricated Semiconductor Heterostructures via Physics-Aware Machine Learning,” *npj Computational Materials* 7, 93 (2021). (Impact Factor: 13.993)

Press Coverage: M. Hutson, “Physicists Teach AI to Simulate Atomic Clusters: Physics-informed machine learning might help verify microchips,” *IEEE Spectrum*, 02 Jul 2021.

3. M. Bathe, R. Hernandez, T. Komiyama, R. Machiraju, **S. Neogi**, (2020), “Autonomous Computing Materials,” *ACS Nano*, **15**(3), 3586-3592 (2021). (Impact Factor: 15.881)
All authors contributed equally to this article.
4. V. S. Proshchenko^p, M. Settipalli^g, A. K. Pimachev^p, **S. Neogi***, “Role of Substrate Strain to Tune Energy Bands-Seebeck Relationship in Semiconductor Heterostructures,” *Journal of Applied Physics*, **129**(2), 025301 (2021). (Impact Factor: 2.546)
Highlighted on journal front page as Editor’s Pick.
5. **S. Neogi*** and D. Donadio, “Anisotropic In-Plane Phonon Transport in Silicon Membranes Guided by Nanoscale Surface Resonators,” *Physical Review Applied* 14, 024004 (2020). (Impact Factor: 4.985)
6. M. Settipalli^g and **S. Neogi***, “Theoretical Prediction of Enhanced Thermopower in *n*-doped Si/Ge Superlattices using Effective Mass Approximation,” *Journal of Electronic Materials* **49**, 4431-4442 (2020). (Impact Factor: 1.938)

7. V. S. Proshchenko^p, M. Settipalli^g, **S. Neogi**^{*}, “Optimization of Seebeck Coefficients of Strain-Symmetrized Semiconductor Heterostructures,” *Applied Physics Letters*, **115**(21), 211602 (2019). (Impact Factor: 3.791)
8. V. S. Proshchenko^p, P. P. Dholabhai^p, T. C. Sterling^g, and **S. Neogi**^{*}, “Heat and charge transport in bulk semiconductors with interstitial defects,” *Physical Review B*, **99**, 014207 (2019). (Impact Factor: 4.036)
9. S. Xiong, D. Selli, **S. Neogi** and D. Donadio, “Native surface oxide turns alloyed silicon membranes into nanophononic metamaterials with ultralow thermal conductivity,” *Physical Review B*, **95**, 180301(R) (2017). (Impact Factor: 5.1)
10. C. Mangold, **S. Neogi** and D. Donadio, “Optimal thickness of silicon membranes to achieve maximum thermoelectric efficiency: a first principles study” *Applied Physics Letters*, **109**(5), 053902 (2016). (Impact Factor: 3.791)
11. S. Volz, J. Ordonez-Miranda, A. Shchepetov, M. Prunnila, J. Ahopelto, T. Pezeril, G. Vaudel, V. Gusev, P. Ruello, E. M. Weig, M. Schubert, M. Hettich, M. Grossman, T. Dekorsy, F. Alzina, B. Graczykowski, E. Chavez-Angel, J. S. Reparaz, M. R. Wagner, C. M. Sotomayor-Torres, S. Xiong, **S. Neogi** and D. Donadio, “Nanophononics: State of the Art and Perspectives” *European Physical Journal B*, **89**(1), 1-20 (2016). (Impact Factor: 1.5)

(Highly cited paper according to Web of Science: As of January/February 2017, this highly cited paper received enough citations to place it in the top 1% of the academic field of Physics based on a highly cited threshold for the field and publication year.)

12. **S. Neogi**, J. S. Reparaz, L. F. C. Pereira, B. Graczykowski, M. R. Wagner, M. Sledzinska, A. Shchepetov, M. Prunnila, J. Ahopelto, C. M. Sotomayor-Torres, and D. Donadio, “Tuning thermal transport in ultra-thin silicon membranes by surface nanoscale engineering” *ACS Nano*, **9** (4), pp 3820-3828 (2015). (Impact Factor: 15.881)
13. **S. Neogi** and D. Donadio, “Thermal transport in free-standing silicon membranes: Influence of dimensional reduction and surface nanostructures” *European Physical Journal B*, **88**(3), 73 (2015). (Impact Factor: 1.5)
14. N. Kumar, **S. Neogi**, P. Kent, A. Bandura, J. Kubicki, D. Cole, D. Wesolowski and J. Sofo, “Hydrogen Bonds and Vibrations of Water on (110) Rutile,” *Journal of Physical Chemistry C*, **113**, 13732-13740 (2009). (Impact Factor: 4.189)
15. **S. Neogi** and G. D. Mahan, “Generation of traveling solitons in one-dimensional monatomic quartic lattices,” *Physical Review B*, **78**(6), 064306 (2008). (Impact Factor: 4.036)

NON-PEER-
REVIEWED JOURNAL
ARTICLES

1. **S. Neogi** and G. D. Mahan (2016), “Lattice dynamics model calculation of Kapitza conductance at solid-fluid interfaces” (arXiv:1601.02999v1).
2. **S. Neogi** and G. D. Mahan (2009), “Pair distribution function of a square-well liquid,” (arXiv:cond-mat/0909.3078v1).

IN-PREPARATION

1. Q. Moore^g, M. Henderson^g and **S. Neogi**^{*} (2022), “Resonance Induced Phonon Localization & Guided Conduction in Silicon Membranes with Surface Nanostructures”.
2. A. Pimachev^p and **S. Neogi**^{*} (2022), “Deep Learning Model for First Principles Prediction of ARPES Spectra and Inverse Design of Fabricated Heterostructures”.

3. **S. Neogi***, A. Pimachev^P and M. Henderson^g (2022), “Thermal Properties of Semiconductor Heterostructures via Physics-Informed Machine Learning”.
4. M. Settippalli^g, V. S. Proshchenko^P and **S. Neogi*** (2022), “Effect of Local and Global Strain on Electronic Transport across Semiconductor Interfaces”.

PRESS COVERAGE M. Hutson, “Physicists Teach AI to Simulate Atomic Clusters: Physics-informed machine learning might help verify microchips,” *IEEE Spectrum*, 02 Jul 2021.

INVITED TALKS

1. “Forward and Inverse Machine Learning Models to Assist Designing Atomic Environments of Semiconductor Heterostructures,” 32nd Annual General Meeting of the Materials Research Society of India (MRSI) and Third Indian Materials Conclave, (virtual) December 20-23, 2021.
2. “Controlling Local Thermal Properties of Nanostructures: Perspective from Atomistic Modeling and Data Driven Techniques,” SOPHOT: Severo Ochoa Workshop on Phononics and Thermal Transport, Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Spain, (Hybrid), October 18-19, 2021.
3. “From Atoms to Devices: Bridging with First-Principles Physics and Data Driven Models”, US National Science Foundation (NSF) and Japanese Science and Technology Agency (JST) joint workshop on Thermal Transport, Materials Informatics and Quantum Computing, (virtual), March 22-24 2021.
4. “Controlling Vibrations at the Quantum Level: Overview and Perspective,” MSE & E (Materials Science Engineering & Energy) seminar series, University of Colorado Boulder, October, 27, 2020.
5. “Phonon Transport in Dimensionally Confined Semiconductor Nanostructures,” Virtual Brainstorming Meeting Series on Nanoscale Thermal Transport, Department of Electrical and Computer Engineering, Stewart Blusson Quantum Matter Institute, The University of British Columbia, Vancouver, Canada, August, 25, 2020.
6. “Phononic Autonomous Computing Materials,” NSF-HDR-PRISM Meet & Greet Meeting, May, 27, 2020.
7. “Deep Learning of Phonon and Electron Properties of Semiconductor Architectures,” NSF-HDR Machine Learning Methods for Multi-Disciplinary Multi-Scale Problems Meet & Greet Meeting, May, 20, 2020.
8. “Phonon and Electron Transport Properties of Defected Nanostructured Semiconductors: An Overview,” Department of Physics seminar, Indian Institute of Science, Bangalore, India, May, 2019.
9. “Phonon and Electron Transport in Defected Nanostructured Semiconductors: An Overview,” Nanoscience and Technology Division, Argonne National Laboratory, Argonne, IL, August, 2018.
10. “Thermal transport at the nanoscale: How to control the quanta of heat energy?,” Department of Electrical Engineering, Henry Samueli School of Engineering and Applied Science, UCLA, CA, March, 2018.
11. “Heat Transport in Nanostructured Semiconductors: Structure-Processing-Property-Relationships,” International Conference on Computational & Experimental Engineering and Sciences (ICCES), Madeira, Portugal, June 26-30, 2017.

12. “Thermal Transport at the Nanoscale: How to Control the Quanta of Energy?,” Physics & Astronomy Colloquium Series, University of Wyoming, Laramie, WY, April, 2017.
13. “Thermal Transport at the Nanoscale: How to Control the Quanta of Heat Energy?,” Computational Mechanics and Physics of Solids Seminar Series and Mechanical Engineering Graduate Seminar, University of Colorado, Boulder, CO, USA, October, 2016.
14. “Thermal Transport in Low-Dimensional Nanostructured Systems: Structure-Processing-Property Relationships,” Mechanical and Aerospace Engineering Research Seminar, University of Colorado, Colorado Springs, CO, USA, August 2016.
15. “Thermal Transport in Low-Dimensional Nanostructured Semiconductors: Structure-Processing-Property Relationships,” National Institute of Standards and Technology: Applied Chemicals and Materials Division Seminar, Boulder, CO, USA, May 2016.
16. “Structure-Processing-Property Relationships: Thermal Transport in Ultrathin Silicon Membranes,” IISER (Indian Institute of Science Education and Research), Pune, India, November, 2015.
17. “Structure-Processing-vibrational Property Relationships: Toward rational design of materials with desired functionality,” IBM Research, Rüschlikon, Switzerland, June, 2015.
18. “Structure-processing-vibrational property relationships: Toward rational design of materials with desired functionality,” IBM T. J. Watson Research Center, Yorktown Heights, NY, USA, May, 2015.
19. “Heat transport across nanostructures and interfaces,” Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA, December, 2014.
20. “Modeling heat transport across nanostructures and interfaces,” Department of Materials Science and Engineering, Rensselaer Polytechnic Institute, Troy, NY, USA, December, 2014.
21. Nanophononics Consultation Workshop (EUPHONON), (Consultation group participant), Lille, France, May, 2014.
22. “Thermal Transport Across Model Interfaces,” Group seminar Theoretical Physics I, Universität Augsburg, Augsburg, Germany, February, 2014.
23. “Theoretical Investigation of Thermal Transport: Across Model Interfaces and Nanostructures,” Sonderseminar des SFB 767, Universität Konstanz, Konstanz, Germany, December, 2013.

CONTRIBUTED
TALKS
PEER-REVIEWED
ABSTRACTS

1. Materials Research Society Spring Meeting, “Dual Crystal- and Glass-Like Heat Transport in Silicon Thin-Films with Nanoscale Surface Substructures,” (Virtual Meeting), April, 2021.
2. Materials Research Society Spring Meeting, “Mapping Nanoscale Thermal Transport Properties with Deep Learning Algorithms,” (Virtual Meeting), April, 2021.
3. American Physical Society March Meeting, “Effect of Electron-Phonon and Electron-Ionized Impurity Interactions on Electronic Transport in Si/Ge Superlattices,” (Virtual Meeting), March, 2021.
4. American Physical Society March Meeting, “First-Principles Prediction of Substrate Induced Changes in Layered Nanomaterials via Physics-Based Machine Learning,” (Virtual Meeting), March, 2021.

5. American Physical Society March Meeting, “Direct and Reverse Structure-Electronic Property Relationship Prediction with Deep Learning and Bayesian Optimization,” Denver, CO, USA, (Virtual Meeting), March, 2020.
6. American Physical Society March Meeting, “Strain Controlled Modulations and Anomalies in the Thermopower of Si/Ge Superlattices: A First-Principles Study,” Denver, CO, USA, (Virtual Meeting), March, 2020.
7. American Physical Society March Meeting, “Phonon Localization in Ultrathin Silicon Membranes with Surface Nanostructures,” Denver, CO, USA, (Virtual Meeting), March, 2020.
8. American Physical Society March Meeting, “Characterization of Phonon Dynamics and Thermal Environments in FinFET Architectures,” Denver, CO, USA, (Virtual Meeting), March, 2020.
9. American Physical Society March Meeting, “Characterization of Spin-Thermal Environment Interaction Leading to Nuclear Quadrupolar Spin Relaxation,” Denver, CO, USA, (Virtual Meeting), March, 2020.
10. American Physical Society March Meeting, “Optimization of Electron-Phonon Coupling and Electronic Transport in Semiconductor Superlattices,” Boston, MA, USA, March, 2019.
11. American Physical Society March Meeting, “Machine Learning Electronic Transport Properties of Multilayered Semiconductor Nanostructures,” Boston, MA, USA, March, 2019.
12. Materials Research Society Spring Meeting, “Heat Transport in Multicomponent Systems with Imperfect Interfaces,” Phoenix, AZ, USA, April, 2018.
13. American Physical Society March Meeting, “Heat and Electron Transport in Multi-Component Nanostructures with Imperfect Interfaces,” Los Angeles, CA, USA, March, 2018.
14. American Physical Society March Meeting, “Defect induced carrier transport in semiconductor junctions,” New Orleans, LA, USA, March13-17, 2017.
15. International Mechanical Engineering Congress & Exposition, “How Surface Resonators Influence Phonon Transport in Nanophononic Metamaterials,” Phoenix, AZ, USA, November, 2016.
16. Materials Research Society Spring Meeting, “Spectral Analysis of Phonon Transport in Nanophononic Metamaterials,” Phoenix, AZ, USA, April, 2016.
17. American Physical Society March Meeting, “Spectral Analysis of Surface Controlled Phonon Transport in Nanophononic Metamaterials,” Baltimore, MD, USA, March, 2016.
18. “Mainz Materials Simulation Days 2015 - Non-Equilibrium Processes in Soft Matter”, “Phononic thermal transport in ultrathin silicon membranes,” Mainz, Germany, June, 2015.
19. “Phononics 2015: 3rd International Conference on Phononic Crystals/Metamaterials, Phonon Transport and Phonon Coupling”, “Phononic thermal transport in nanostructured ultra-thin silicon membranes,” Paris, France, June, 2015.
20. “Towards Reality in Nanoscale Materials VIII” Workshop, “To tune thermal transport in ultrathin silicon membranes by surface nanoscale engineering,” Levi, Finland, February, 2015.
21. Materials Research Society Fall Meeting, “Phononic thermal transport in nanostructured ultrathin silicon membranes,” Boston, MA, USA, December, 2014.

22. Phonons and fluctuations workshop (EUPHONON), “Phononic thermal transport in nanostructured ultra-thin silicon membranes,” Le Mans, France, September, 2014.
23. Materials Research Society Spring Meeting, “Thermal Transport in Nanostructured Silicon Membranes,” San Francisco, CA, USA, April, 2014.
24. DPG Spring Meeting, “Phononic Thermal Transport in Nanostructured Silicon Membranes,” Dresden, Germany, April, 2014.
25. American Physical Society March Meeting, “Thermal Boundary Resistance Across Solid-Fluid Interface,” Baltimore, MD, USA, March, 2013.
26. American Physical Society March Meeting, “Thermal Boundary Resistance at Ideal Gas Solid-Fluid Interfaces,” Dallas, TX, USA. (**Recipient of travel grant award**). March, 2011.
27. American Physical Society March Meeting, “Kapitza Resistance at the Solid-Liquid Interface,” Portland, OR, USA, March, 2010.
28. American Physical Society March Meeting, “Multiple traveling solitons in one-dimensional monatomic quartic lattices,” New Orleans, LA, USA, March, 2008.
29. American Physical Society March Meeting, “Hydrogen Bonds and the Vibrational Modes of Water at Interfaces: ab-initio Molecular Dynamics meets Neutron Scattering,” New Orleans, LA, USA, March, 2008.
30. American Physical Society March Meeting, “Stationary and traveling solitons in one-dimensional quartic lattices,” Denver, CO, USA, March, 2007.

POSTERS
PEER-REVIEWED
ABSTRACTS

1. NSF Workshop: New Frontiers in Thermal Transport, “Characterizing Phonon Dynamics in Nanostructures: Data Driven Approaches,” (virtual) December 14-16 2020.
2. Materials Research Society Fall Meeting, “Statistical Learning and Prediction of Electronic Transport in Multilayered Non-Ideal Semiconductor Architectures,” Boston, MA, USA, November 2018.
3. Materials Research Society Fall Meeting, “Tuning Band Structure and Electronic Transport in Multilayered Semiconductor Nanostructures,” Boston, MA, USA, November 2018.
4. Crystal defects for qubits, single photon emitters and nanosensors workshop, “Characterization of Phonons in Solid-State Spin Systems,” Bremen, Germany, July, 2018.
5. NSF/DOE Quantum Science Summer School (QS³), “Electron and Phonon Transport in Multilayered Materials,” Cornell University, Ithaca NY, USA, (Presented by M. Settipalli^g), June, 2018.
6. Advances in Numerical Methods for Simulation, Optimization, and Uncertainty Quantification of Coupled Physics Problems Workshop, “Electron and Phonon Transport in Multilayered Materials,” CU Boulder, CO, USA. (Presented by group), April, 2018.
7. Advances in Numerical Methods for Simulation, Optimization, and Uncertainty Quantification of Coupled Physics Problems Workshop, “Optimization of Electronic Transport in Defected Semiconductor Superlattices,” CU Boulder, CO, USA. (Presented by V. S. Proshchenko^p), April, 2018.
8. Materials Research Society Spring Meeting, “Optimization of Electronic Transport in Defected Semiconductor Superlattices,” Phoenix, AZ, USA. (Presented by V. S. Proshchenko^p), April, 2018.

9. Materials Research Society Spring Meeting, “Surface Nanoscale Engineering to Tune Phonon Dispersion and Lifetimes in Low-Dimensional Semiconductors ,” Phoenix, AZ, USA, April, 2017.
10. “Heat transfer at small scales” Workshop, “Thermal Transport Across Solid-Fluid Interfaces,” Zaragoza, Spain, October, 2013.
11. “Nanophonics” Workshop, “Thermal Transport Across Solid-Fluid Interface,” Bremen, Germany, August, 2013.
12. “Advanced Workshop on Energy Transport in Low-Dimensional Systems: Achievements and Mysteries” Workshop, “Thermal Boundary Resistance at Solid-Fluid Interface,” Trieste, Italy, October, 2012.
13. International Symposium on Quantum Fluids and Solids, “Ground state properties of ^4He using a Jastrow-type product of two-atom wavefunctions as the many-body wavefunction,” Northwestern University, Evanston, IL, USA, August, 2009.

SERVICE

Symposium Organization, 2022 Materials Research Society Spring Meeting & Exhibit, “Symposium DS03: Phonon Properties of Complex Materials—Challenges in Data Generation, Data Availability and Machine Learning Approaches”; Symposium proposal among 71 selected through peer review process (127 Symposia proposed). Anticipated Meeting attendance: 10,000.

Conference Organization, 11th International Workshop on Combinatorial Materials Science and Technology (Boulder, CO, USA), Summer 2022.

Session Chair, Fall 2021 International Mechanical Engineering Congress & Exposition (IMECE2021) Virtual Conference. Topic: “Modeling and simulation method” (Co-Chair: S. Neogi), November 1 – 5, 2021.

Conference Session Organization, K-9 Committee on Nanoscale Thermal Transport, ASME Heat Transfer Division, Fall 2021 International Mechanical Engineering Congress & Exposition (IMECE) virtual meeting. Topic: “Modeling and simulation method” (Co-Chair: S. Neogi).

Panelist, US National Science Foundation (NSF) and Japanese Science and Technology Agency (JST) joint workshop on Thermal Transport, Materials Informatics and Quantum Computing, (virtual), March 22-24 2021.

Participant, NSF Workshop New Frontiers of Thermal Transport, virtual workshop December 14-16, 2020 and January 4-6, 2021.

Program Faculty, Materials Science & Engineering (MSE) Program, December 2020 – MSE Program serves as a campus-wide resource for materials research and education activities, bringing together faculty from across the UCB campus to leverage expertise and facilities and enhancing Departmental materials research efforts as well as materials-related efforts that are a part of current campus initiatives and programs, create a vibrant materials science research & engineering program that is both highly visible within the UCB community and internationally recognized; recruit, train, and graduate outstanding doctoral students with degrees in MSE; attract outstanding faculty to the MSE Program and its participating departments; and catalyze the pursuit of block funding in the materials research arena through coordination of interdisciplinary materials research themes, and fostering of centers and major collaborations. The MSE community is comprised of faculty affiliates from 9 departments spanning both the College of Engineering & Applied Science and the College of Arts and Sciences. Program faculty have an increased level of service connected with their affiliation. This includes teaching a MSE core or elective course regularly and/or serving on a standing MSE committee, assigned by the Director. Terms are for a period of 3 years, reviewed by a vote of the MSE Program Faculty.

Invited Participant, Virtual Brainstorming meeting series on nanoscale thermal transport, Department of Electrical and Computer Engineering, Stewart Blusson Quantum Matter Institute, The University of British Columbia, Vancouver, Canada, June-August, 2020.

Invited Participant, “NSF HDR PI Meeting & Coordinating Entity Virtual Meeting,” April 28 - 30, 2020.

Invited Participant, “Microelectronics Workshop,” Argonne National Laboratory, Argonne, IL, October 15-16, 2019.

Participant, ReACT Computational Mechanics & Sciences Workshop, October 10-11, 2019. Los Alamos National Laboratory (LANL) launched an initiative called Regional Academic Collaboration (ReACT) to promote collaborative research and education partnerships with regional Universities (University of Utah, the UC system, UT system, TAMU, ASU, UNLV, CSU, CSM, U of Colorado, UNM, NMSU, NMT and BYU) to promote collaborative research and build a sustainable recruitment pipeline for LANL. The program focused on women researchers in these areas.

Invited Member, K-9 Committee on Nanoscale Thermal Transport, within the ASME Heat Transfer Division.

Initiator & Faculty Advisor, Fluids-Structures-Materials Graduate Student Colloquium Series, Ann and H.J. Smead Aerospace Engineering Sciences, University of Colorado Boulder, CO, USA.

Invited Panelist, DOE Office of Science (DOE-SC) workshop for “Basic Research Needs for Microelectronics,” October 23-25, 2018, Bethesda, MD, USA.

Invited Participant, NSF-Harnessing the Data Revolution (HDR): Institutes for Data-Intensive Research in Science and Engineering - Ideas Labs (I-DIRSE-IL), May 20-24, 2019.

Local Organizing Committee Member, 21st International Conference on Ternary and Multinary Compounds (ICTMC 21) (Boulder, CO, USA), September 11-14, 2018.

PI Review Meeting Organizer, DARPA (DSO) Materials for Transduction (MATRIX) program, University of Colorado Boulder, Boulder, CO, USA, June 12-14, 2018.

Event Series Organizer, “Engineering Voices: Listen to CU engineers share their experiences. Share your story. Ask questions. Learn something new,” in collaboration with the BOLD center, University of Colorado Boulder, Boulder, CO, USA, March 16, 2018.

Member, Soft Materials Interdisciplinary College Search Committee, Fall 2017 to Spring 2018.

Member, Nature, Environment, Science & Technology (NEST) Studio for the Arts Search Committee, University of Colorado Boulder, Fall 2017 to Spring 2018.

Session Chair, Symposium: Micro/Nano-Mechanics and Low-Dimensional Materials, 2017 International Conference on Computational & Experimental Engineering and Sciences, (ICCES) Madeira, Portugal, June 26-30, 2017.

Session Chair, Session S36: Energy Conversion, American Physical Society March Meeting, New Orleans, Louisiana, USA, March 13-17, 2017.

Panel Moderator, “Academic Job Search” panel, 2017 CU Boulder-MIT-Stanford Women in Aerospace Symposium, University of Colorado Boulder, Boulder, CO, USA, June 1, 2017.

PI, collaboration with the arts-sciences cross-campus initiative, entitled NEST (Nature, Environment, Science, and Technology) Studio for the Arts. NEST artists to make the research “energy transport pathways in composite materials” more accessible to the broad community through data visualization, projection mapping, and animation. **2018-2019**

Member, Multi-functional Materials Interdisciplinary Research Theme and Quantum Integrated Sensor Systems Interdisciplinary Research Theme at the College of Engineering and Applied Sci-

ences, University of Colorado Boulder, Boulder, CO, USA.

Invited Member, XSEDE Resource Allocation Committee (XRAC), comprised of approximately 40 invited scientific specialists from across the nation. XSEDE, the Extreme Science and Engineering Discovery Environment, is the most advanced, powerful, and robust collection of integrated advanced digital resources and services in the world and is supported by the National Science Foundation, that allocated more than \$7.3M worth of computing time to U.S. researchers in 2018.

Creator of Event Series, “Engineering Voices: Listen to CU engineers share their experiences. Share your story. Ask questions. Learn something new,” Innovative Inclusion Ideas grant provided by College of Engineering & Applied Science and matched by Ann and H.J. Smead Aerospace Engineering Sciences, , \$3,000; 01/09/2019-. (PI: S. Neogi)

Member and Consultation Group Participant, EUPHONON project that amalgamated the activities on phonon science and technology in Europe to establish a strong community in this emerging research field, 2014-2015.

EDITORIAL BOARD MEMBER Associate Editor for European Physical Journal B: Condensed Matter and Complex Systems. August 1, 2021 - December 31, 2023

PROFESSIONAL JOURNAL REFEREE Physical Review E, Journal of Applied Physics, Advanced Science, Journal of Materials Chemistry A, Physical Review Materials, Physical Review Letters, Physical Review B, Science Advances, Nature Communications, ACS Macro Letters, Journal of Physical Chemistry, Scientific Reports, Applied Physics Letters, ASME Journal of Heat Transfer, Physical Chemistry Chemical Physics

PROFESSIONAL AFFILIATIONS American Physical Society (APS); Materials Research Society (MRS); American Society of Mechanical Engineers (ASME).