

# Ankur Jain

Associate Professor  
Department of Mechanical and Aerospace Engineering  
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Internationally recognized educator/researcher with over 16 years' experience in academia and industry. Well-acknowledged research contributions in the fields of heat transfer and energy conversion. Authored 117 high quality journal papers on topics related to heat transfer in Li-ion cells, additive manufacturing, 3D integrated circuits and biological systems. Received ~\$2.5 Million in sponsored research from federal/non-federal sources as PI/co-PI. Recipient of UTA President's Award for Excellence in Teaching (2022), Lockheed Martin Aeronautics Excellence in Teaching Award (2018), College of Engineering Outstanding Early Career Award (2017), NSF CAREER Award (2016) and ASME EPP Division Young Engineer Award (2013). Outstanding and passionate classroom instructor. Demonstrated commitment towards the success of students through effective advisement, teaching and mentorship. Designed innovative curriculum and teaching methods for undergraduate/graduate education. Strong advocate for first-generation college students.

## Education

Ph.D. (2007), Mechanical Engineering, Stanford University, Advisor: Prof. Kenneth Goodson, *Dissertation: "Thermal Phenomena in Free Standing Thin Films and Biological Microsystems"*

M.S. (2003), Mechanical Engineering, Stanford University.

B. Tech. (2001), Mechanical Engineering, Indian Institute of Technology (IIT), Delhi, India. *Highest GPA in the graduating class of the department.*

## Research Interests

Energy Conversion Devices, Microscale Thermal Transport, Microfabricated Sensors and Actuators, Multiscale Thermal Management of Microelectronics, Three-Dimensional Integrated Circuits.

## Appointments

2017-present	Associate Professor, Department of Mechanical and Aerospace Engineering, University of Texas, Arlington, TX
2011-2017	Assistant Professor, Department of Mechanical and Aerospace Engineering, University of Texas, Arlington, TX
2020-present	Associate Editor, Microelectronics Reliability
2018-present	Associate Editor, ASME Journal of Electrochemical Energy Conversion and Storage
2017-2019	Guest Editor, ASME Journal of Electronic Packaging

2013-present	Associate Editor, IEEE Transactions on Components, Packaging and Manufacturing Technologies
Summer, 2013	Visiting Researcher, Aerospace Systems Directorate, Air Force Research Laboratory, Wright-Patterson Air Force Base, OH
Summer, 2012	Visiting Researcher, Materials and Sensors Branch, Naval Research Laboratories, Washington, DC
2011	Member of Technical Staff, Advanced Micro Devices (AMD), Austin, TX
2009-2011	Senior Research Engineer, Molecular Imprints, Austin, TX
2006-2009	Senior Staff Scientist, Freescale Semiconductor, Austin, TX
2005	Summer Intern, Components Research, Intel Corporation, Hillsboro, OR
2001-2006	Graduate Research Assistant, Microscale Heat Transfer Laboratory, Stanford University, Stanford, CA

## Honors and Awards

14. Fellow, American Society of Mechanical Engineers (ASME), 2022.
13. President's Award for Excellence in Teaching (Tenured), University of Texas at Arlington, 2022.
12. Invited participant, 8<sup>th</sup> Arab-American Frontiers of Science, Engineering and Medicine Symposium, organized by U.S. National Academy of Sciences, Nov 1-4, 2021.
11. Lockheed Martin Aeronautics Excellence in Teaching Award, University of Texas at Arlington, 2018.
10. Invited participant, 5<sup>th</sup> Arab-American Frontiers of Science, Engineering and Medicine Symposium, organized by U.S. National Academy of Sciences, Rabat, Morocco, Nov 2-4, 2017.
9. College of Engineering Outstanding Early Career Award, University of Texas at Arlington, 2017.
8. National Science Foundation (NSF) Faculty Early Career Development Program (CAREER) Award, 2016.
7. ASME Electronics & Photonics Packaging Division (EPPD) Young Engineer Award "for Outstanding Contributions as a Young Engineer to the Field of Electronic and Photonic Packaging Demonstrated through Papers, Patents, or Product Development", 2013.
6. AFOSR Summer Faculty Fellow, 2013.
5. ONR Summer Faculty Fellow, 2012. Also selected as AFOSR Summer Faculty Fellow, 2012.
4. Stanford Graduate Fellow, the highest graduate fellowship awarded by Stanford University, 2001-2004.
3. Institute Silver Medal for highest GPA in the graduating class in the department of Mechanical Engineering at IIT, Delhi, 2001.
2. Summer Research Fellow, Indian Institute of Science (IISc), Bangalore, India, May-July 2000.
1. Travel Awards/Grants: NSF Workshop Travel Grant, 2014 (for attending NSF Workshop on Faculty Development Needs for Advanced Manufacturing in the USA), ORAU Travel Award, 2014 (for visiting Oak Ridge National Laboratory), UT Arlington Sustainability Travel Grant, 2013 (for attending ASME IMECE 2013).

## Invited Seminars, Tutorials and Short Courses

67. 'Multiscale Diffusion-Reaction Heat Transfer Analysis for Predicting Thermal Runaway in Li-ion Cells and Battery Packs,' Invited Seminar, Symposium in Honor of Prof. Ralph White, 243<sup>rd</sup> Electrochemical Society Meeting, Boston, MA, May 28, 2023.
66. 'Thermal Transport in Li-ion Batteries,' Keynote Seminar, ASTFE 8<sup>th</sup> Thermal & Fluids Engineering Conference (TFEC), University of Maryland, College Park, MD, March 26-29, 2023.
65. 'Direct and Indirect Heat/Mass Diffusion Problems in Li-ion Batteries and Drug Delivery Devices,' Plenary Seminar, 35<sup>th</sup> International Thermal Conductivity Conference, Boston, MA, Sep 25-28, 2022.
64. 'Thermal Transport in Li-ion Batteries – Challenges and Opportunities,' Invited Seminar, Department of Mechanical and Industrial Engineering, Northeastern University, Boston, MA, Sep 28, 2022.
63. 'Heat Transfer in Li-ion Batteries – Interfaces, Imaginary Eigenvalues and Thermal Runaway,' Invited Seminar, Department of Mechanical Engineering, Amity University, India, August 3, 2022.
62. 'Safety of Li-ion Cells and Battery Packs: A Heat Transfer Perspective,' Invited Seminar, Advanced Automotive Battery Conference (AABC) Europe, Mainz, Germany, June 13, 2022.
61. 'Multiscale Measurements and Characterization of Thermal Transport in Materials and across Interfaces in Li-ion Cells,' Invited Seminar, Symposium on Heterogeneous Functional Materials for Energy Conversion and Storage, 241<sup>st</sup> Electrochemical Society Meeting, Vancouver, BC, May 29, 2022.
60. 'Heat Transfer in Li-ion Batteries – Interfaces, Imaginary Eigenvalues and Thermal Runaway,' Invited Seminar, Department of Mechanical Engineering, University of Minnesota Twin Cities, Minneapolis, MN, April 13, 2022.
59. 'Heat Transfer in Li-ion Batteries – Interfaces, Imaginary Eigenvalues and Thermal Runaway,' Invited Seminar, Department of Mechanical Engineering, Iowa State University, Ames, IA, April 12, 2022.
58. 'Heat Transfer in Li-ion Batteries – Interfaces, Imaginary Eigenvalues and Thermal Runaway,' Department of Mechanical Engineering, Rice University, Feb 23, 2022.
57. 'Thermal Transport in Li-ion Cells and Battery Packs,' Invited Seminar, Automotive Research Association of India, Dec 17, 2021.
56. 'Fundamental Investigation of Thermal and Electrochemical Transport in Li-ion Battery Materials,' Invited Participant, 8<sup>th</sup> Arab-American Frontiers of Science, Engineering, and Medicine Symposium, organized by U.S. National Academy of Sciences, Nov 1-4, 2021.
55. 'Nanoscale Thermal Metrology for Solid Materials in Electronics Packaging,' Invited Tutorial, with R. Warzoha and A. Giri, ASME International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK), October 26-28, 2021.

54. 'Measurements and Modeling of Thermal Transport in Li-ion Battery Materials,' Invited Seminar, Dow Chemicals Corporate R&D, Oct 7, 2021.
53. 'Safety of Li-ion Cells and Battery Packs: A Heat Transfer Perspective,' Invited Seminar, Underwriter Laboratories Battery Safety Science Symposium, August 11, 2021.
52. 'Thermal Management Challenges for High-Density Energy Storage in Li-ion Batteries,' Invited Seminar, Workshop on Thermal Management for Power Electronics and Storage (TMPES-2021), Binghamton University, July 20-22, 2021.
51. 'Multiscale Heat Transfer and Thermal Management in Li-ion Batteries: Challenges and Opportunities,' Invited Tech Talk, IEEE Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (ITherm), June 2, 2021.
50. 'Thermal Conduction in Li-ion Battery Materials,' Invited Seminar, Materials Research Society (MRS) Fall Meeting, 2020, Nov 28, 2020.
49. 'Experimental Investigation of Heat Transfer Processes in Polymer Additive Manufacturing,' Invited Seminar, Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright-Patterson Air Force Base, OH, August 28, 2020.
48. 'Career Paths and Guidance for Student and Early Career Engineers,' Invited Panelist, ASME Summer Heat Transfer Conference, July 13-15, 2020.
47. 'Heat Transfer and Thermal Management in Li-ion Materials, Cells and Battery Packs,' Invited Seminar, Southwest Research Institute, San Antonio, TX, Mar 3, 2020.
46. 'Theoretical and Numerical Methods for Prediction of Li-ion Cell Temperature Distribution During Thermal Runaway,' Invited Seminar, 10<sup>th</sup> Annual Battery Safety Summit, Alexandria, VA, Oct 22-25, 2019.
45. 'Investigation of heat transfer in Li-ion battery pack of a hoverboard,' Invited Seminar, 10<sup>th</sup> Annual Battery Safety Summit, Alexandria, VA, Oct 22-25, 2019.
44. 'Thermo-electrochemical coupling and interactions in Li-ion cells,' Invited Tutorial, with P. Mukherjee, ASME International Technical Conference on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK), Anaheim, CA, Oct 8, 2019.
43. 'Direct and Inverse Heat Transfer Problems in Electrochemical Energy Conversion and Storage in Li-ion Batteries,' Invited Seminar, 32<sup>nd</sup> Inverse Problems Symposium, Purdue University, West Lafayette, IN, May 29-30, 2019.
42. 'Exact and Approximate Methods for Analytical Modeling of Thermal and Electrochemical Transport in Li-ion Cells,' Invited Seminar, Symposium on Multiscale Modeling, Simulation and Design 3: Enhancing Understanding, and Extracting Knowledge from Data, 235<sup>th</sup> Electrochemical Society Meeting, Dallas, TX, May 26-30, 2019.
41. 'Thermal Conduction in Li-ion Battery Materials,' Invited Seminar, Institute for Materials Science and Engineering, Washington University at St. Louis, St. Louis, MO, November 26, 2018.
40. 'Heat Transfer in Electrochemical Energy Conversion and Storage Systems,' Distinguished Seminar, Department of Mechanical Engineering, Amrita University, Amritapuri, India, July 30, 2018.

39. 'Analytical Methods for Understanding Multiscale Thermal Transport in Li-Ion Batteries Towards Improved Safety and Performance,' Invited Seminar, Symposium on Multiscale Modeling, Simulation and Design, 233<sup>rd</sup> Electrochemical Society Meeting, Seattle, WA, May 16, 2018.
38. 'Thermal Transport in Li-ion Cells: Materials, Processes and Metrology,' Invited Seminar, Mechanical Engineering Department, University of Houston, Houston, TX, Feb 16, 2018.
37. 'Fundamental Study of Thermal Transport in a Li-ion Cell for Enhanced Renewable Energy Conversion,' Invited Participant, 5<sup>th</sup> Arab-American Frontiers of Science, Engineering, and Medicine Symposium, organized by U.S. National Academy of Sciences, Rabat, Morocco, Nov 2-4, 2017.
36. 'Industry and Academic Careers for Graduate Students,' Invited Panelist, Graduate Student Careers Workshop, ASME InterPACK, San Francisco, CA, August 29-31, 2017.
35. 'Measurement and Modeling of Thermal Transport Processes in Li-ion Cells for Improved Safety and Performance,' Plenary Talk, ASME 15<sup>th</sup> International Conference on Fuel Cell Science, Engineering and Technology, Charlotte, NC, June 26-30, 2017.
34. 'Leveraging Industry Experience for Success in an Academic Career,' Invited FutureME Mini-Talk, ASME Power & Energy Conference & Exhibition, Charlotte, NC, June 26-30, 2017.
33. 'The Role of Temperature Measurement and Modeling in Battery Diagnostics and Health Management,' Invited Panel Talk, 8<sup>th</sup> IEEE International Conference on Prognostics and Health Management, Dallas, TX, June 19-21, 2017.
32. 'Analytical Methods for Understanding Multiscale Thermal Transport in Li-Ion Batteries,' Invited Seminar, International Symposium on Advances in Computational Heat Transfer, Napoli, Italy, May 28 – June 1, 2017.
31. 'Safety of Li-ion Batteries – A Thermal Engineering Perspective,' Invited Seminar, Energy Storage System Safety Forum, Santa Fe, NM, Feb 22-23, 2017.
30. 'Experimental and Analytical Research on Heat Transfer in Li-ion Cells,' Invited Seminar, Department of Mechanical & Aerospace Engineering, New Mexico State University, Las Cruces, NM, Feb 21, 2017.
29. 'Thermal Transport in Li-ion Cells – Measurements and Modeling,' Invited Seminar, Department of Mechanical Engineering, Indian Institute of Technology, Delhi (IITD), India, Jan 11, 2017.
28. 'Thermal Transport in Li-ion Cells: Materials, Processes and Metrology,' Invited Seminar, NSF Nanosystems Engineering Research Center, University of Texas, Austin, TX, Nov 11, 2016.
27. 'Thermal Transport in Li-ion Cells: Materials, Processes and Metrology,' Invited Seminar, Indo-US Workshop on Recent Advances in Multiscale, Multiphysics Analysis of Energy Conversion in Li-ion Batteries, Indian Institute of Technology Bombay, India, June 17-19, 2016.
26. 'Measurement and Optimization of Thermal Transport in Li-Ion Cells for Improved Performance and Safety,' Invited Seminar, 6<sup>th</sup> Annual Battery Safety Conference, Baltimore, MD, Nov 17-19, 2015.
25. 'Thermal Engineering of Three-Dimensional Integrated Circuits (3D ICs),' Invited Seminar, AMD Research, Austin, TX, June 29, 2015.

24. 'Thermal Phenomena in Biological Microsystems,' Invited Seminar, Conclave on Nano-Biotechnology 2014, Institute of Nano Science and Technology, Chandigarh, India, Dec 22, 2014.
23. 'Thermal Phenomena in Biological Microsystems,' Invited Seminar, Indo-US Workshop on Nanoengineering in Medicine, New Delhi, India, Dec 17-19, 2014.
22. 'Research Careers in Industry and Academia: Transitions from One to the Other,' Invited Seminar, Session 13-20-1: "Preparing for Success - Careers in Industry, Academia and Government", ASME International Mechanical Engineering Congress and Exposition (IMECE), Montreal, Canada, Nov 17, 2014.
21. 'Thermal Transport Phenomena in Engineering and Biomedical Microdevices,' Invited Seminar, Nanotechnology and Integrated Microsystems Student Association (NIMSA), University of Michigan, Nov 6, 2014.
20. 'Thermal Microdevices for Energy and Biomedical Applications,' Invited Seminar, Arlington Technology Association (ATA), Arlington, TX, Oct 1, 2014.
19. 'Thermal Transport Phenomena in Li-ion Batteries,' Invited Seminar, National Transportation Research Center (NTRC), Oak Ridge National Laboratory, Oak Ridge, TN, Sep 25, 2014.
18. 'Thermal and Electrical Modeling of Three-Dimensional Integrated Circuits,' Invited Short Course, co-taught with I. Savidis, 30<sup>th</sup> IEEE SEMI-THERM 2014, San Jose, CA, March 9, 2014.
17. 'Thermal Phenomena in Biological Microdevices,' Invited Seminar, Indo-US Workshop on Micro/Nanoscale Thermal Transport, Indian Institute of Technology (IIT) Ropar, India, Dec 21-22, 2013.
16. 'Experimental and Analytical Characterization of Thermal Transport in Li-ion Batteries,' Invited Seminar, Aerospace Vehicles Directorate, Air Force Research Labs (AFRL), Wright Patterson Air Force Base (WPAFB), OH, July 30, 2013.
15. 'Thermal Modeling and Design of Three-Dimensional Integrated Circuits: Challenges and Opportunities,' Invited Seminar, Information Science Institute (ISI), University of Southern California, Arlington, VA, Feb 6, 2013.
14. 'Temperature Measurement in Semiconductor Devices,' Invited Seminar, Advanced Micro Devices (AMD), Austin, TX, Sep 14, 2012.
13. 'Challenges in Packaging of Three-Dimensional Integrated Circuits,' Invited Seminar, Freescale Semiconductor, Austin, TX, Feb 17, 2012.
12. 'Thermal Management of Advanced Microelectronics,' Invited Seminar, SVTC Technologies, San Jose, CA, Sep 6, 2011.
11. 'Microscale Heat Transfer & Fluid Mechanics: Applications in Energy and Bioengineering,' Invited Seminar, Mechanical and Aerospace Engineering Department, University of Texas at Arlington, Arlington, TX, May 16, 2011.
10. 'Thermal Management of Three-Dimensional Integrated Circuits: Challenges and Opportunities,' Invited Tutorial, IEEE Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems (ITherm), Las Vegas, NV, June 2, 2010.

9. 'Microscale Heat Transfer & Fluid Mechanics: Applications in Energy and Bioengineering,' Invited Seminar, School of Mechanical Engineering, Nanyang Technological University, Singapore, April 19, 2010.
8. 'Microscale Heat Transfer & Fluid Mechanics,' Invited Seminar, Department of Mechanical Engineering, University of Canterbury, Christchurch, New Zealand, January 12, 2010.
7. 'Thermal and Fluidic Microdevices: Applications in Energy and Bioengineering,' Invited Seminar, Department of Mechanical Engineering, Texas A&M University, College Station, TX, July 6, 2009.
6. 'Three-Dimensional Microelectronics Packaging,' Invited Seminar, Austin IEEE CPMT Workshop on 3D Packaging, Austin, TX, March 27, 2009.
5. 'Thermal Phenomena in Thin Films and Biological Microsystems,' Invited Seminar, Mechanical, Materials and Aerospace Department, Illinois Institute of Technology (IIT), Chicago, IL, February 24, 2009.
4. 'Thermal-Electrical-Mechanical Co-Design in 3D Microelectronics,' Invited Seminar, Micron Research Center, Utah State University, Logan, UT, Jan 30, 2009.
3. 'Thermal Challenges and Opportunities in 3D Integrated Circuits,' Invited Seminar, 5<sup>th</sup> International Conference for Semiconductor Integration and Packaging, San Francisco, CA, Nov 17-19, 2008.
2. 'Needs and Opportunities in Thermal Modeling and CAD of Three-Dimensional (3D) Integrated Circuits,' Invited Seminar, Workshop on Integrated CAD Tools for Next Generation Thermal Management Methodologies and Devices: Status and Needs, Georgia Institute of Technology, Atlanta, GA, Nov 17, 2008.
1. 'Three-dimensional (3D) Technology: An Overview of Challenges and Opportunities,' Invited Seminar, 3D Design & Architecture Workshop, National Tsing Hua University, Hsin-Chu, Taiwan, Sep 9, 2008.

## Journal Publications

(Underlined = Graduate student advisee; *Italic* = Undergraduate student advisee)

127. **Jain, A.**, 'Analysis of a diffusion-reaction heat transfer problem in a finite thickness layer adjoined by a semi-infinite medium,' *Int. J. Heat Mass Transfer*, **205**, pp. 123919:11, 2023. (DOI: [10.1016/j.ijheatmasstransfer.2023.123919](https://doi.org/10.1016/j.ijheatmasstransfer.2023.123919)).
126. Farhang, B., Tanrikulu, A., Ganesh-Ram, A., **Jain, A.**, Amerinatanzi, A., 'Electromagnetic Field-Assisted Laser Welding of NiTi to Stainless Steel: Towards a Lightweight, High-Strength Joint with Preserved Properties,' *J. Mater. Proc. Technol.*, **314**, pp. 117888:1-13, 2023. (DOI: [10.1016/j.jmatprotec.2023.117888](https://doi.org/10.1016/j.jmatprotec.2023.117888)).
125. Chaurasiya, V., Singh, J., **Jain, A.**, 'Numerical study of a non-linear porous sublimation problem with temperature-dependent thermal conductivity and concentration-dependent mass diffusivity,' *J. Heat Transfer*, in press, 2023. (DOI:).
124. Chaurasiya, V., Singh, J., **Jain, A.**, 'Analytical study of a moving boundary problem describing sublimation process of a humid porous body with convective heat and mass transfer,' *J. Therm. Analysis & Calorimetry*, in press, 2023. (DOI: [10.1007/s10973-022-11906-3](https://doi.org/10.1007/s10973-022-11906-3)).

123. Salvi, S., **Jain, A.**, McGinty, S., Pontrelli, G., ‘Modeling dual drug delivery from eluting stents: the influence of non-linear binding competition and non-uniform drug loading,’ *Pharm. Res.*, in press, 2022. (DOI: [10.1007/s11095-022-03419-3](https://doi.org/10.1007/s11095-022-03419-3)).
122. Krishnan, G., **Jain, A.**, ‘Theoretical Analysis of a Two-Dimensional Multilayer Diffusion Problem with General Convective Boundary Conditions Normal to the Layered Direction,’ *Int. J. Heat Mass Transfer*, **202**, pp. 123723:1-10, 2023. (DOI: [10.1016/j.ijheatmasstransfer.2022.123723](https://doi.org/10.1016/j.ijheatmasstransfer.2022.123723)).
121. **Jain, A.**, ‘The Role of Thermal Effusivity in Heat Exchange Between Finite-Sized Bodies,’ *Int. J. Heat Mass Transfer*, **202**, pp. 123721:1-9, 2023. (DOI: [10.1016/j.ijheatmasstransfer.2022.12effu3721](https://doi.org/10.1016/j.ijheatmasstransfer.2022.12effu3721)).
120. Krishnan, G., **Jain, A.**, ‘Heat Transfer in a Multi-Layered Semiconductor Device with Spatially-Varying Thermal Contact Resistance between Layers,’ *Int. Communic. Heat Mass Transfer*, **140**, pp. 106482:1-11, 2023. (DOI: [10.1016/j.icheatmasstransfer.2022.106482](https://doi.org/10.1016/j.icheatmasstransfer.2022.106482)).
119. Mishra, D., Zhao, P., **Jain, A.**, ‘Thermal Runaway Propagation in Li-ion Battery Packs Due to Combustion of Vent Gases,’ *J. Electrochem. Soc.*, **169**, pp. 100520:1-10, 2022. (DOI: [10.1149/1945-7111/ac91a7](https://doi.org/10.1149/1945-7111/ac91a7))
118. **Jain, A.**, Subbarao, K., McGinty, S., Pontrelli, G., ‘Optimization of initial drug distribution in spherical capsules for personalized release,’ *Pharm. Res.*, **39**, pp. 2607-2620, 2022. (DOI: [10.1007/s11095-022-03359-y](https://doi.org/10.1007/s11095-022-03359-y))
117. Parhizi, M., **Jain, A.**, ‘Theoretical modeling of solid-liquid phase change in a phase change material protected by a multilayer Cartesian wall,’ *Int. J. Heat Mass Transfer*, **197**, pp. 123330:1-16, 2022. (DOI: [10.1016/j.ijheatmasstransfer.2022.123330](https://doi.org/10.1016/j.ijheatmasstransfer.2022.123330))
116. Krishnan, G., **Jain, A.**, ‘Diffusion and reaction in a two-dimensional multilayer body: Analytical solution and imaginary eigenvalue analysis,’ *Int. J. Heat Mass Transfer*, **194**, pp. 123163:1-11, 2022. (DOI: [10.1016/j.ijheatmasstransfer.2022.123163](https://doi.org/10.1016/j.ijheatmasstransfer.2022.123163)).
115. Patel, P.<sup>1</sup>, Rane, R.<sup>1</sup>, Mrinal, M., Ganesan, V., Taylor, R., **Jain, A.**, ‘Characterization of the Effect of In-process Annealing using a Novel Print Head Assembly on the Ultimate Tensile Strength & Toughness of Fused Filament Fabrication (FFF) Parts,’ *Virtual & Physical Prototyping*, **17**, pp. 989-1005, 2022. (1 = equal contributions). (DOI: [10.1080/17452759.2022.2095288](https://doi.org/10.1080/17452759.2022.2095288)).
114. Krishnan, G.<sup>1</sup>, **Jain, A.**<sup>1</sup>, ‘Derivation of multiple but finite number of imaginary eigenvalues for a two-layer diffusion-reaction problem,’ *Int. J. Heat Mass Transfer*, **194**, pp. 123037:1-7, 2022. (DOI: [10.1016/j.ijheatmasstransfer.2022.123037](https://doi.org/10.1016/j.ijheatmasstransfer.2022.123037)). (1 = equal contributions).
113. Ganesan, V., Ameri, A., **Jain, A.**, ‘Discrete Element Modeling (DEM) simulations of powder bed densification using horizontal compactors in metal additive manufacturing,’ *Powder Technol.*, **405**, pp. 117557:1-11, 2022. (DOI: [10.1016/j.powtec.2022.117557](https://doi.org/10.1016/j.powtec.2022.117557)).
112. Parhizi, M., **Jain, A.**, Kilaz, G., Ostanek, J., ‘Accelerating the numerical solution of thermal runaway in Li-ion batteries,’ *J. Power Sources*, **538**, pp. 231531:1-12, 2022. (DOI: [10.1016/j.jpowsour.2022.231531](https://doi.org/10.1016/j.jpowsour.2022.231531))



111. Krishnan, G., Parhizi, M., Jain, A., ‘Eigenfunction-based solution for solid-liquid phase change heat transfer problems with time-dependent boundary conditions,’ *Int. J. Heat Mass Transfer*, **189**, pp. 122693:1-12, 2022. (DOI: [10.1016/j.ijheatmasstransfer.2022.122693](https://doi.org/10.1016/j.ijheatmasstransfer.2022.122693)).
110. Mostafavi, A., Jain, A., ‘Thermal management effectiveness and efficiency of a fin surrounded by a Phase Change Material (PCM),’ *Int. J. Heat Mass Transfer*, **191**, pp. 122630:1-11, 2022. (DOI: [10.1016/j.ijheatmasstransfer.2022.122630](https://doi.org/10.1016/j.ijheatmasstransfer.2022.122630)).
109. Jain, A., McGinty, S., Pontrelli, G., Zhou, L., ‘Theoretical Modeling of Endovascular Drug Delivery into a Multilayer Arterial Wall from a Drug-Coated Balloon,’ *Int. J. Heat Mass Transfer*, **187**, pp. 122572:1-17, 2022. (DOI: [10.1016/j.ijheatmasstransfer.2022.122572](https://doi.org/10.1016/j.ijheatmasstransfer.2022.122572)).
108. Jain, A., McGinty, S., Pontrelli, G., ‘Drug diffusion and release from a bioerodible spherical capsule,’ *Int. J. Pharmaceut.*, **616**, pp. 121442:1-8, 2022. (DOI: [10.1016/j.ijpharm.2021.121442](https://doi.org/10.1016/j.ijpharm.2021.121442))
107. Qasaimeh, M., Ravoori, D., Jain, A., Adnan, A., ‘Modeling the effect of in situ nozzle-integrated compression on the void reduction and filament-filament adhesion in Fused Filament Fabrication (FFF),’ *Multiscale Sci. Eng.*, **4**, pp. 37-54, 2022. (DOI: [10.1007/s42493-022-00073-0](https://doi.org/10.1007/s42493-022-00073-0))
106. Parhizi, M., Kilaz, G., Ostanek, J., Jain, A., ‘Analytical solution of the Convection-Diffusion-Reaction-Source (CDRS) equation using Green’s function technique,’ *Int. Communic. Heat Mass Transfer*, **131**, pp. 105869:1-6, 2022. (DOI: [10.1016/j.icheatmasstransfer.2021.105869](https://doi.org/10.1016/j.icheatmasstransfer.2021.105869))
105. Krishnan, G., Parhizi, M., Torabi, M., Jain, A., ‘Local Thermal Non-Equilibrium (LTNE) modeling of a partially porous channel with spatial variation in Biot number,’ *J. Heat Transfer*, **144**, pp. 062701:1-10, 2022. (DOI: [10.1115/1.4053676](https://doi.org/10.1115/1.4053676))
104. Jain, A., Parhizi, M., ‘Theoretical analysis of phase change heat transfer and energy storage in a spherical phase change material with encapsulation,’ *Int. J. Heat Mass Transfer*, **185**, pp. 122348:1-12, 2022. (DOI: [10.1016/j.ijheatmasstransfer.2021.122348](https://doi.org/10.1016/j.ijheatmasstransfer.2021.122348))
103. Mostafavi, A., Jain, A., ‘Analytical modeling of conjugate heat transfer between a bed of phase change material and laminar convective flow,’ *Int. J. Heat Mass Transfer*, **183**, pp. 122180:1-10, 2022. (DOI: [10.1016/j.ijheatmasstransfer.2021.122180](https://doi.org/10.1016/j.ijheatmasstransfer.2021.122180)).
102. Parhizi, M., Pathak, M., Ostanek, J., Jain, A., ‘An iterative analytical model for aging analysis of Li-ion cells,’ *J. Power Sources*, **517**, pp. 230667:1-12, 2022. (DOI: [10.1016/j.jpowsour.2021.230667](https://doi.org/10.1016/j.jpowsour.2021.230667)).
101. Zhou, L., Parhizi, M., Pathak, M., Jain, A., ‘Analytical Modeling of Li-ion Diffusion in a Three-Layer Electrode-Separator-Electrode Stack with Time-Dependent Current,’ *Ionics*, **28**, pp. 1143-1155, 2022. (DOI: [10.1007/s11581-021-04332-2](https://doi.org/10.1007/s11581-021-04332-2))
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14. **Choobineh, L., Jain, A.**, ‘Determination of temperature distribution in three-dimensional integrated circuits (3D ICs) with unequally-sized die’, *Appl. Therm. Eng.*, **56**, pp. 176-184, 2013. (DOI: [10.1016/j.applthermaleng.2013.03.006](https://doi.org/10.1016/j.applthermaleng.2013.03.006)).
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3. **Jain, A., Goodson, K.E.**, ‘Measurement of thermal conductivity and heat capacity of free-standing thin films using the 3- $\omega$  method’, *ASME J. Heat Transfer*, **130** (10), pp. 1-7, 2008. (DOI: [10.1115/1.2945904](https://doi.org/10.1115/1.2945904)).
2. **Hu, X., Jain, A., Goodson, K.E.**, ‘Investigation of the natural convection boundary condition in microfabricated structures’, *Int. J. Therm. Sci.*, **47**, pp. 820-824, 2008. (DOI: [10.1016/j.ijthermalsci.2007.07.011](https://doi.org/10.1016/j.ijthermalsci.2007.07.011)).

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## Books

1. **Jain, A.**, Panchal, S., Shah, K., ‘Heat Transfer and Thermal Management for Li-ion Batteries’, Encyclopedia of Thermal Packaging, World Scientific Press. (expected date of completion: Dec 2021).

## Book Chapters and Handbook Sections

(Underlined = Graduate student advisee; *Italic* = Undergraduate student advisee)

3. Parhizi, M., **Jain, A.**, ‘Thermal modeling and analysis for Li-ion cells and battery packs’, in: ‘Microscopy and Microanalysis for Lithium-Ion Batteries’, She, C. (Ed.), CRC Press, 1<sup>st</sup> Ed., 2022. ISBN: 9781032289526.
2. **Jain, A.**, ‘Electrochemical Batteries’, sub-section under ‘Energy Conversion’ in ‘Marks’ Standard Handbook of Mechanical Engineering,’ Sadegh, A. & Worek, W.M. (Ed.), 12<sup>th</sup> Ed., McGraw-Hill Education, 2017. ISBN: 9781259588501.
1. Jha, C.M., Choobineh, L., **Jain, A.**, ‘Microelectronics Thermal Sensing: Future Trends,’ In: ‘Thermal Sensors: Principles and Applications for Semiconductor Industries,’ Jha, C.M. (Ed.), Springer-Verlag, New York, 2015. (ISBN: 978-1-4939-2580-3; DOI: [10.1007/978-1-4939-2581-0](https://doi.org/10.1007/978-1-4939-2581-0)).

## Invited Conference Papers

4. Pozder, S., **Jain, A.**, Jones, R.E., Huang, Z., Chatterjee, R., ‘Reliability considerations in 3D stacked strata systems’, Invited Paper at *10<sup>th</sup> International Workshop on Stress-Induced Phenomena in Metallization*, University of Texas, Austin, TX, Nov 5-7, 2008. (DOI: [10.1063/1.3169262](https://doi.org/10.1063/1.3169262)).
3. Savidis, I., Alam, S.M., **Jain, A.**, Pozder, S., Jones, R.E., Chatterjee, R., ‘Electrical modeling & characterization of through-silicon vias (TSVs) for 3D integrated circuits’, Invited Paper at *Vertical Multi-level Interconnect Conference (VMIC)*, Fremont, CA, Oct 27-30, 2008.
2. Pozder, S., Chatterjee, R., **Jain, A.**, Huang, Z., Jones, R.E., Acosta, E., ‘Progress of 3D integration technologies and 3D interconnects’, Invited Paper at *IEEE International Interconnect Technology Conference (IITC)*, San Francisco, CA, June 2007. (DOI: [10.1109/IITC.2007.382393](https://doi.org/10.1109/IITC.2007.382393)).
1. **Jain, A.**, Goodson, K.E., ‘Thermal phenomena in biological microdevices’, Invited Paper at *ASME-ISHMT Heat & Mass Transfer Conference*, Indian Institute of Technology (IIT), Guwahati, India, Jan 2006.

## Peer-Reviewed Conference Papers

(Underlined = Graduate student advisee; *Italic* = Undergraduate student advisee)

30. Mostafavi, A., **Jain, A.**, 'Modeling and analysis of a thermal management system with thermoelectric cooling for the application in Li-ion batteries,' Proc. ASME Power Conference 2020. (DOI: [10.1115/POWER2020-16769](https://doi.org/10.1115/POWER2020-16769)).
29. Raj, R., Sarkar, D., **Jain, A.**, 'Thermal modeling of memory access operations in microprocessors,' Proc. ASME IMECE 2016, Phoenix, AZ. (DOI: [10.1115/IMECE2016-67697](https://doi.org/10.1115/IMECE2016-67697)).
28. Choobineh, L., Jones, J., **Jain, A.**, 'Experimental measurement of inter-die thermal resistance in a two die 3D IC,' Proc. ASME IMECE 2016, Phoenix, AZ. (DOI: [10.1115/IMECE2016-65543](https://doi.org/10.1115/IMECE2016-65543)).
27. Sarkar, D., Haji-Sheikh, A., **Jain, A.**, 'Theoretical analysis of transient bioheat transfer in multi-layer tissue,' Proc. ASME IMECE 2015, Houston, TX. (DOI: [10.1115/IMECE2015-53392](https://doi.org/10.1115/IMECE2015-53392)).
26. Vishwakarma, V., **Jain, A.**, 'Measurement of thermal conductivity of a flexible substrate,' Proc. ASME IMECE 2014, Montreal, Canada. (DOI: [10.1115/IMECE2014-39236](https://doi.org/10.1115/IMECE2014-39236)).
25. Parhizi, M., Merrikh, A.A., **Jain, A.**, 'Investigation of two-phase, vapor chamber based thermal management of multiple microserver chips,' Proc. ASME IMECE 2014, Montreal, Canada. (DOI: [10.1115/IMECE2014-39928](https://doi.org/10.1115/IMECE2014-39928)).
24. Drake, S.J., Martin, M., Robinson, M., **Jain, A.**, Wetz, D.A., Ostaneck, J.K., Miller, S.P., Heinzel, J.M., Hoffman, D., 'Experimental thermal characterization of various high power cylindrical Li-ion energy storage devices', Proc. Elec. Machines Technol. Symp. 2014, Philadelphia, PA.
23. Choobineh, L., Vo, N., Uehling, T., **Jain, A.**, 'Experimental Measurement of the Thermal Performance of a Two-Die 3D Integrated Circuit (3D IC)', Proc. ASME/IEEE InterPACK 2013, San Francisco, CA. (DOI: [10.1115/IPACK2013-73167](https://doi.org/10.1115/IPACK2013-73167)).
22. Choobineh, L., Agonafer, D., **Jain, A.**, 'Analytical modeling of temperature distribution in interposer-based microelectronic systems', Proc. ASME/IEEE InterPACK 2013, San Francisco, CA. (DOI: [10.1115/IPACK2013-73166](https://doi.org/10.1115/IPACK2013-73166)).
21. Banait, A., Vishwakarma, V., Choobineh, L., **Jain, A.**, 'Growth of patterned micropores in polydimethylsiloxane (PDMS) using the thermocapillary effect', Proc. ASME IMECE 2013, San Diego, CA. (DOI: [10.1115/IMECE2013-65865](https://doi.org/10.1115/IMECE2013-65865)).
20. Sarkar, D., Haji-Sheikh, A., **Jain, A.**, 'Analytical temperature distribution in a multi-layer tissue structure in the presence of a tumor', Proc. ASME IMECE 2013, San Diego, CA. (DOI: [10.1115/IMECE2013-63275](https://doi.org/10.1115/IMECE2013-63275)).
19. Mirza, F., Naware, G., Raman, T., **Jain, A.**, Agonafer, D., 'Effect of TSV Joule heating on device performance', Proc. ASME/IEEE InterPACK 2013, San Francisco, CA. (DOI: [10.1115/IPACK2013-73228](https://doi.org/10.1115/IPACK2013-73228)).
18. Vishwakarma, V., Singhal, N., Khullar, V., Tyagi, H., Taylor, R.A., Otanicar, T.P., **Jain, A.**, 'Space cooling using the concept of nanofluids-based direct absorption solar collectors', ASME Intl Mech Engg Conf Expo (IMECE), Houston, TX, 2012. (DOI: [10.1115/IMECE2012-87726](https://doi.org/10.1115/IMECE2012-87726)).
17. **Jain, A.**, 'Thermal characteristics of multi-die, three-dimensional integrated circuits with unequally sized die', IEEE ITherm, Las Vegas, 2010. (DOI: [10.1109/ITHERM.2010.5501261](https://doi.org/10.1109/ITHERM.2010.5501261)).

16. **Jain, A.**, Alam, S., Pozder, S., Jones, R.E., ‘Thermal-electrical co-optimization of block-level floorplanning in 3D integrated circuits’, IEEE/ASME Interpack, San Francisco, 2009. (DOI: [10.1115/InterPACK2009-89017](https://doi.org/10.1115/InterPACK2009-89017)).
15. Alam, S., Jones, R.E., Pozder, S., **Jain, A.**, ‘Die/Wafer stacking with reciprocal design symmetry (RDS) for mask reuse in three-dimensional (3D) integration technology’, IEEE ISQED, San Jose, CA, 2009. (DOI: [10.1109/ISQED.2009.4810357](https://doi.org/10.1109/ISQED.2009.4810357)).
14. **Jain, A.**, Jones, R.E., Chatterjee, R., Pozder, S., Huang, Z., ‘Thermal modeling and design of 3D integrated circuits’, IEEE ITherm, Lake Buena Vista, FL, 2008. (DOI: [10.1109/ITHERM.2008.4544389](https://doi.org/10.1109/ITHERM.2008.4544389)).
13. Pozder, S., **Jain, A.**, Chatterjee, R., Huang, Z., Jones, R.E., Hillmann, G., Sobczak, M., Kriendl, G., Kanagavel, S., Kostner, H., Pargfrieder, S., ‘3D die on wafer Cu/Sn microconnects formed simultaneously with an adhesive dielectric bond using thermal compression bonding’, IEEE IITC, San Francisco, CA, 2008. (DOI: [10.1109/IITC.2008.4546921](https://doi.org/10.1109/IITC.2008.4546921)).
12. Huang, Z., Chatterjee, R., Justison, P., Gajewski, D., Hernandez, R., Pozder, S., **Jain, A.**, Acosta, E., Jones, R.E., ‘Electromigration of Cu-Sn-Cu micropads in 3D interconnect’, IEEE ECTC, Lake Buena Vista, FL, 2008. (DOI: [10.1109/ECTC.2008.4549943](https://doi.org/10.1109/ECTC.2008.4549943)).
11. Kodama, T., **Jain, A.**, Goodson, K.E., ‘Nonmetallic conduction property of a DNA templated Gold Nanowire’, ASME InterPACK, Vancouver, Canada, July 2007. (DOI: [10.1115/IPACK2007-33422](https://doi.org/10.1115/IPACK2007-33422)).
10. Oh, D., **Jain, A.**, Eaton, J.K., Goodson, K.E., Lee, J.S., ‘Thermal Conductivity Measurement of Aluminum Oxide Nanofluids using the 3-Omega Method’, ASME-IMECE, Chicago, Nov 2006. (DOI: [10.1115/IMECE2006-14196](https://doi.org/10.1115/IMECE2006-14196)).
9. **Jain, A.**, Ramanathan, S., ‘Theoretical investigation of sub-ambient on-chip microprocessor cooling’, IEEE ITherm, San Diego, 2006. (DOI: [10.1109/ITHERM.2006.1645423](https://doi.org/10.1109/ITHERM.2006.1645423)).
8. **Jain, A.**, Hu, X., Goodson, K.E., ‘A new formulation for thermal transport property measurement of a two-dimensional thin film using the 3-Omega method’, ASME-ISHMT Heat & Mass Transfer Conference, Guwahati, India, Jan 2006.
7. **Jain, A.**, Goodson, K.E., ‘Measurement of Thermophysical Properties of Thin Film Shape Memory Alloys using the 3-Omega Method’, ASME-IMECE, Orlando, FL, Nov 2005. (DOI: [10.1115/IMECE2005-81902](https://doi.org/10.1115/IMECE2005-81902)).
6. **Jain, A.**, Goodson, K.E., ‘A Theoretical Model for Temperature Gradient Effects on Cells’, ASME Summer Heat Transfer Conference, San Francisco, 2005.
5. Hu, X., **Jain, A.**, Goodson, K.E., ‘Investigation of the Natural Convection Boundary Condition in Microfabricated Structures’, ASME Summer Heat Transfer Conference, San Francisco, 2005. (DOI: [10.1115/HT2005-72698](https://doi.org/10.1115/HT2005-72698)).
4. **Jain, A.**, Ness, K., Fishman, H.A., Goodson, K.E., ‘Investigation of Temperature Gradient Effects on Neurite Outgrowth in Nerve Cells using a Microfabricated Heater Structure’, 3<sup>rd</sup> International IEEE-EMBS Conference on Microtechnologies in Medicine and Biology, Oahu, HI, 2005. (DOI: [10.1109/MMB.2005.1548487](https://doi.org/10.1109/MMB.2005.1548487)).

3. **Jain, A.**, Upadhyay, R.R., Chandra, S., Saini, M., Kale, S., 'Experimental investigation of the flow field of a ceiling fan', ASME Heat Transfer/Fluids Engineering Summer Conference, Charlotte, NC, 2004. (DOI: [10.1115/HT-FED2004-56226](https://doi.org/10.1115/HT-FED2004-56226)).
2. **Jain, A.**, Ness, K., Mehenti, N., Fishman, H., Goodson, K.E., 'A Microheater Device for Study of Temperature Gradient Effects on Neurite Outgrowth in Retinal Ganglion Cells', ARVO Annual Meeting, Ft. Lauderdale, FL, 2004.
1. **Jain, A.**, Ness, K., McConnell, A., Jiang, L., Goodson, K.E., 'Design, fabrication and thermal characterization of a MEMS device for control of nerve cell growth', ASME-IMECE, Washington DC, 2003. (DOI: [10.1115/IMECE2003-41590](https://doi.org/10.1115/IMECE2003-41590)).

## Teaching Experience

1. MAE3310 – Thermodynamics I (undergraduate)

Semester	Enrollment	Average Student Feedback Survey Rating (out of 5.0)
Spring 2021	56	4.8
Spring 2020	72	4.7
Spring 2019	73	4.8
Spring 2018	71	4.8
Spring 2017	69	4.9
Spring 2016	48	4.8
Spring 2015	53	4.8
Spring 2014	54	4.8
Spring 2013	82	4.7
Spring 2012	78	4.6

2. MAE3314 – Heat Transfer (undergraduate)

Semester	Enrollment	Average Student Feedback Survey Rating (out of 5.0)
Spring 2022	72	N/A
Spring 2022	44	4.9

3. ME5316 – Thermal Conduction (graduate) (includes remote student enrollment indicated in brackets)

Semester	Enrollment	Average Student Feedback Survey Rating (out of 5.0)
Fall 2022	22 (3)	4.9
Fall 2021	40 (9)	4.7
Fall 2020	25 (9)	4.8
Fall 2019	25 (9)	4.9
Fall 2018	43 (11)	4.9
Fall 2017	69 (9)	4.9
Fall 2016	67 (10)	4.8
Fall 2015	64 (8)	4.7
Fall 2014	60 (10)	4.6
Fall 2013	60 (7)	4.9
Fall 2012	44 (6)	4.9

4. ME4301-007 – Power Plant Engineering (undergraduate)

Semester	Enrollment	Average Student Feedback Survey Rating (out of 5.0)
Spring 2019	26	4.5
Spring 2016	11	4.9
Fall 2013	40	4.5

5. ME5390-007 – Thermal Phenomena in Microsystems (graduate)

Semester	Enrollment	Average Student Feedback Survey Rating (out of 5.0)
Spring 2018	10	4.9
Spring 2017	17	4.9
Spring 2015	7	5.0

5. ME5390-007 – Power Plant Engineering (graduate)

Semester	Enrollment	Average Student Feedback
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		Survey Rating (out of 5.0)
Spring 2016	12	4.9

## Professional Service

83. Technical Program Co-Chair, ASTFE 7<sup>th</sup> Thermal & Fluids Engineering Conference, Las Vegas, May, 2022.
82. Technical Program Chair, ASTFE 5<sup>th</sup>-6<sup>th</sup> Thermal & Fluids Engineering Conference, New Orleans (Virtual), May 27-29, 2021.
81. General Co-Chair, ASME International Technical Conference on Packaging and Integration of Electronic and Photonic Microsystems Conference and Exhibition (InterPACK), 2020.
80. Program Chair, ASME International Technical Conference on Packaging and Integration of Electronic and Photonic Microsystems Conference and Exhibition (InterPACK), 2019.
79. Chair (2021-present), Vice Chair (2019-2021), Secretary (2017-19), K-16 Committee on Heat Transfer in Electronics Equipment, Heat Transfer Division, American Society of Mechanical Engineers (ASME).
78. Member-at-Large, Executive Committee, Electronics and Photonics Packaging Division (EPPD), American Society of Mechanical Engineers (ASME), 2022-present.
77. Associate Editor, *Microelectronics Reliability*, 2020-present.
76. Associate Editor, *IEEE Transactions on Components, Packaging and Manufacturing Technologies*, 2013-present.
75. Associate Editor, *ASME Journal of Electrochemical Energy Conversion and Storage*, 2018-present.
74. Guest Editor, *ASME Journal of Electronic Packaging*, 2017-2019.
73. Editor, Special Issue on Heat transfer and thermal management in Li-ion cells and battery packs, *ASME Journal of Electrochemical Energy Conversion and Storage*, 2019.
72. Co-Organizer, Indo-US Workshop on Recent Advances in Multiscale, Multiphysics Analysis of Energy Conversion in Li-ion Batteries, June 2016.
71. Co-Organizer, Indo-US Workshop on Recent Advances in Micro/Nanoscale Thermal Transport, Dec. 2013.
70. Member, ASME HTD K-16 Committee on Heat Transfer in Electronic Equipment, ASME BED/HTD K-17 Committee on Heat and Mass Transfer in Biotechnology, and ASME Electrochemical Energy Conversion and Storage Technical Committee.
69. External Evaluator for Tenure and Promotion, University of \*confidential\*, 2022

68. External Evaluator for Ph.D. Dissertation, Department of Mechanical Engineering, Indian Institute of Technology Ropar, India, 2021.
67. External Evaluator for Tenure and Promotion, University of \*confidential\*, 2020.
66. External Evaluator for Tenure and Promotion, Department of Mechatronics, University of Engineering and Technology, Pakistan, 2020.
65. Member, Board of Examiners, Ph.D. Dissertation, Department of Mechanical Engineering, Indian Institute of Technology Delhi, India, 2022.
64. External Evaluator for Ph.D. Dissertation, Department of Mechanical Engineering, Indian Institute of Technology Ropar, India, 2018.
63. External Examiner for the Department of Mechanical and Aerospace Engineering, University of Pretoria, South Africa, 2013.
62. Member of Working Group for Modeling, Simulation and Design Tools for the 2015 Roadmap for iNEMI (International Electronics Manufacturing Initiative).
61. Track Chair, 'Heterogeneous Integration: Micro-Systems with Diverse Functionality,' ASME InterPACK 2018, San Francisco, CA.
60. Track Co-Chair, 'Heterogeneous Integration: Micro-Systems with Diverse Functionality,' ASME InterPACK 2017, San Francisco, CA.
59. Track Chair, 'Micro- and Nano-Systems Engineering and Packaging (EPPD),' ASME IMECE, Houston, TX, 2015.
58. Track Co-Chair, 'Micro and Nano Systems Engineering and Packaging (EPPD)', ASME IMECE, Montreal, 2014.
57. Proposal Reviewer, National Science Foundation, 2021, 2019, 2018, 2017 (four times), 2016 (thrice), 2015, 2014, 2013.
56. Proposal Reviewer, US Department of Energy, 2022.
56. Proposal Reviewer, US Department of Energy ARPA-E, 2012.
55. Proposal Reviewer, US Department of Energy Bonneville Power Administration, 2015.
54. Proposal Reviewer, National Aeronautics and Space Administration (NASA), 2018, 2017.
53. Proposal Reviewer, American Chemical Society Petroleum Research Fund (ACSPRF), 2018, 2015.
52. Proposal Reviewer, Indo-US Science & Technology Forum (IUSSTF), 2016.
51. Proposal Reviewer, Center for Transportation Equity, Decisions and Dollars (C-TEDD), 2019, 2018.
50. Proposal Reviewer, National Center for Science and Technology Evaluation, Kazakhstan, 2014.
49. Proposal Reviewer, Research Grants Council of Hong Kong, 2016.
48. Reviewer of manuscripts for *Nature Electronics*, *Nature Communications*, *Sensors & Actuators B*, *IEEE Transactions on Components and Packaging Technologies*, *ASME Journal of Heat Transfer*,



*ASME Journal of Electronics Packaging, ASME Journal of Bioengineering, ASME Journal of Electrochemical Energy Conversion & Storage, Journal of Applied Physics, Applied Energy, Energy for Sustainable Development, International Journal of Heat & Mass Transfer, International Journal of Energy Research, International Journal of Thermal Sciences, Applied Thermal Engineering, Energy Conversion & Management, International Communications in Heat and Mass Transfer, Frontiers in Heat and Mass Transfer, Experimental Thermal and Fluid Sciences, IEEE Transactions on Industrial Electronics, Journal of Applied Electrochemistry, Journal of Manufacturing Processes, Frontiers in Heat and Mass Transfer, Electrochimica Acta, Journal of Energy Resources Technology, Journal of Microelectromechanical Systems, IET Computer & Digital Techniques, Joule, Journal of Physical Chemistry, Additive Manufacturing, Microelectronics Journal, Journal of Molecular Structure, Mathematical Problems in Engineering, Journal of Hazardous Materials, Journal of Microlithography, Microfabrication and Microsystems, Nanoscale and Microscale Thermophysical Engineering, Journal of Power Sources, IEEE Transactions on Electron Devices, IEEE Transactions on Nanotechnology, Journal of Energy Storage, Journal of Energy Engineering, Energies, Materials & Design, Materials Today, Energy, Bioelectrochemistry, Journal of Medical Devices, Journal of Electrochemical Society, Virtual and Physical Prototyping, Energy Technology, International Journal of Electrical Power & Energy Systems, ASME Journal of Thermal Science, Engineering & Applications, Mathematical Problems in Engineering, and numerous leading international conferences.*

47. Co-Organizer, Mentoring Workshop, ASME International Technical Conference on Packaging and Integration of Electronic and Photonic Microsystems Conference and Exhibition (InterPACK), 2020.
46. Co-Organizer, Professional Development Workshop, ASME International Technical Conference on Packaging and Integration of Electronic and Photonic Microsystems Conference and Exhibition (InterPACK), 2019.
45. Topic Organizer, ‘Symposium on Emerging Technologies,’ ASME IMECE, Phoenix, AZ, 2016.
44. Topic Co-Organizer, ‘Panel: Novel interfacial materials (2D, graphene, CNT) and their characterization,’ ASME IMECE, Phoenix, AZ, 2016.
43. Member, InterPACK Achievement Award Committee, ASME International Technical Conference on Packaging and Integration of Electronic and Photonic Microsystems Conference and Exhibition (InterPACK), 2020.
42. Member, ASME EPP Division Awards Committee, 2021.
41. Member, Awards Committee, ASME Heat Transfer Division K16 Committee on Heat Transfer in Electronic Equipment, 2021.
40. Member, Awards Committee, ASME Heat Transfer Division K16 Committee on Heat Transfer in Electronic Equipment, 2020.
39. Member, Best Paper Awards Committee, IEEE ITherm, San Diego, CA, 2018 and IEEE ITherm, Las Vegas, NV, 2019.
38. Symposium Co-Organizer, ‘A06 – Battery Safety and Failure Modes’, 235<sup>th</sup> Electrochemistry Society (ECS) Meeting, Dallas, TX, May, 2019.

37. Symposium Co-Organizer, 'F04 - Multiscale Modeling, Simulation and Design', 235<sup>th</sup> Electrochemistry Society (ECS) Meeting, Dallas, TX, May, 2019.
36. Session Chair, 'Characterizing Cell Faults and Failure Modes,' 235<sup>th</sup> Electrochemistry Society (ECS) Meeting, Dallas, TX, May, 2019.
35. Session Chair, 'Session 2: F04 - Multiscale Modeling, Simulation and Design,' 235<sup>th</sup> Electrochemistry Society (ECS) Meeting, Dallas, TX, May, 2019.
34. Moderator, 'Track 1 Panel: Challenges in Advanced Packaging for Harsh Environments,' ASME InterPACK San Francisco, CA, 2018.
33. Session Co-Organizer, 'Additive Manufacturing,' ASME InterPACK San Francisco, CA, 2018.
32. Session Co-Organizer, 'Fundamentals of Thermal Transport - 2,' ASME InterPACK San Francisco, CA, 2018.
31. Session Chair, '3D Packaging and Embedded Cooling,' IEEE ITherm, Orlando, FL, 2017.
30. Session Co-Chair, 'Embedded Microfluidic Cooling,' IEEE ITherm, Orlando, FL, 2017.
29. Session Co-Chair, 'Immersion Cooling/Refrigeration,' IEEE ITherm, Orlando, FL, 2017.
28. Session Co-Chair, 'Thermal Materials and Thermoelectrics,' IEEE ITherm, Orlando, FL, 2017.
27. Session Co-Chair, 'Mobile: Internet of Things,' IEEE ITherm, Orlando, FL, 2017.
26. Session Co-Chair, 'Automotive / RF Electronics / Power Electronics I,' IEEE ITherm, Orlando, FL, 2017.
25. Session Organizer, 'Electrochemical Energy Conversion and Storage – 3,' ASME IMECE, Phoenix, AZ, 2016.
24. Session Co-Organizer, 'Electrochemical Energy Conversion and Storage – 1,' ASME IMECE, Phoenix, AZ, 2016.
23. Session Organizer, 'Advanced Packaging: Sensors and 3D/2.5D Packaging,' ASME IMECE, Phoenix, AZ, 2016.
22. Session Co-Organizer, 'Thermal Transport,' IEEE ITherm, Las Vegas, NV, 2016.
21. Session Chair, 'Plenary Session: Electronics & Photonics Packaging,' ASME IMECE, Houston, TX, 2015.
20. Topic Organizer, 'Stacked Die and Multi-Chip-Module and Packaging,' ASME InterPACK, San Francisco, CA, 2015.
19. Session Chair, 'Thermal Management of Stacked Die and Packages,' ASME InterPACK, San Francisco, CA, 2015.
18. Topic Co-Organizer, 'Manufacturing, Materials and Processes', ASME IMECE, Montreal, 2014.
17. Topic Organizer, 'Heat and Mass Transfer in Biotechnology and Biodevices', ASME IMECE, Montreal, 2014.

16. Session Co-Organizer, 'Advanced Electrochemical Storage Concepts,' ASME IMECE, Montreal, 2014.
15. Session Co-Organizer, 'Preparing for Success - Careers in Industry, Academia and Government,' ASME IMECE, Montreal, 2014.
14. Session Chair, '3D: Back-Side & Interlayer Two-Phase Cooling,' IEEE ITherm, Orlando, FL, 2014.
13. Session Co-chair, 'Electric, Magnetic and Thermal Phenomena in Micro and Nano Scale Systems II,' ASME IMECE 2013, San Diego, CA, 2013.
12. Session Co-chair, 'Micro/Nano-Scale Heat Transfer', ASME InterPACK 2013, San Francisco, CA, 2013.
11. Member, Technical Program Committee, ASEE GSW Conference, Arlington, TX, 2013.
10. Session Chair, '3D Chips – Stacked Die Cooling,' IEEE ITherm 2012, San Diego, 2012.
9. Topic Organizer, 'Heat and Mass Transfer in Biotechnology,' ASME IMECE, Houston, 2012.
8. Session Chair, 'Nanoscale Phenomena in Biological Systems,' ASME IMECE, Houston, 2012.
7. Member, Technical Program Committee, Design, Automation & Test in Europe (DATE), 2011.
6. Session Chair, 'Micro- and Nano-Scale Heat Transfer,' ASME InterPack, 2011, Portland, OR.
5. Session Chair, 'Data Center Thermal Management,' IEEE ITherm, 2010, Las Vegas, NV.
4. Session Chair, 'Advanced Packaging,' ASME InterPack, 2009, San Francisco, CA.
3. Session Chair, 'Thermal Modeling and Experimental Characterization (IV),' IEEE ITherm, 2008, Lake Buena Vista, FL.
2. Session Chair, 'Microchannel Heat Sinks - Topics of recent interest: dielectric fluids, microscale characterization, novel materials,' IEEE ITherm, Lake Buena Vista, FL, 2008.
1. Session Co-chair, 'Micro- and Nano-Scale Heat Transfer,' ASME IMECE, Seattle, WA, 2007.