C. Chandraprakash

Contact Information

211, Northern Laboratories I
Department of Mechanical Engineering
Indian Institute of Technology Kanpur

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Research Interests

Instrumentation: Computer vision, soft robots.
Metamaterials: Acoustic metamaterials, sound absorption, biomimetic design
Non-destructive evaluation: Thermography, ultrasonics, soft robots, computer vision
Multifunctional biodegradable materials for electromagnetic, acoustic, and thermal insulation.
My approach is holistic. I apply numerical techniques, build mathematical models, and perform experiments towards building products.

Education

Doctor of Philosophy in Engineering Science and Mechanics — Aug 2011 - Feb 2017
Pennsylvania State University, University Park, PA, USA

- Dissertation: Multifunctional Parylene-C microfibrous thin films
- Advisors: Prof. Osama O. Awadelkarim and Prof. Akhlesh Lakhtakia

Bachelor and Master of Technology in Mechanical Engineering — Aug 2005 - May 2010
Specialization: Product Design Minor: Industrial Engineering
Indian Institute of Technology Madras, Chennai, India

- Dissertation: Modeling thermomechanical response of stainless steel subjected to monotonic tensile and cyclic loading
- Advisors: Prof. Krishnan Balasubramaniam and Prof. Krishnamurthy Chitti Venkata

Academic and Research Experience

Assistant Professor, Mechanical Engineering — Dec 2017 - present
Indian Institute of Technology Kanpur

Visiting Assistant Professor, Mechanical Engineering — Oct 2017 - Dec 2017
Indian Institute of Technology Kanpur

Distinguished Teaching Fellow, Research and Teaching Assistant — Aug 2012 - Apr 2017
College of Engineering & Center for Nanotechnology Education and Utilization
Pennsylvania State University

Project Officer & Research Assistant — May 2008 - Jul 2010
Center for Non-Destructive Evaluation, Indian Institute of Technology Madras

Sponsored research

1. Multisensor characterization of solid materials for non-destructive evaluation. ₹22 Lakhs. Sponsor: IIT Kanpur (under Initiation grant). 2018-2021. (PI)
2. Soft acoustic metamaterials: Fabrication, computation, and instrument development. ₹36 Lakhs. Sponsor: SERB (under ECRA scheme). 2019-2022. (PI)
3. Practical modeling aspects of thermomechanical NDE and vibrothermography ₹6 Lakhs. Sponsor: SERB (under MATRICS scheme). 2023-2026. (PI)
4. Development of UHMWPE fibers and disentangled melt for impact mitigation ₹65 Lakhs. Sponsor: NTTM, Ministry of Textiles. 2023-2025. (Co-PI)

Consultancy

1. Consultancy for finite element-based design optimization and testing of extruder frame and godet stand. Sponsor: Lohia Corp Limited, Kanpur, ₹10 Lakhs. India 2021-22 (Co-PI)
2. Study and validation of technical task 227 & 214 recommended by OEM & identification of alternate methods. ₹35 Lakhs. Sponsor: 11 BRD, Air Force. 2019-2021. (Co-PI)
3. Silicon carbide coating on the carbon-fiber fabric. ₹3.5 Lakhs. Sponsor: L & T Defense. 2018. (Co-PI)
4. Mechanical and thermal properties of enclosure materials of an optical cable. ₹1 Lakh. Sponsor: Sterlite. 2018. (Co-PI)

Facilities Developed at IITK

Acoustic impedance tube

- Built per ASTM standards. Suitable for measurement of sound absorption and transmission loss in $100 - 2000$-Hz regime

Resonant ultrasound spectroscopy

- Used for identifying all the possible 21 elastic constants of a solid

Journal Publications from IITK

ORCID: 0000-0002-5222-0932

1. A Kumar and C Chandraprakash, Computer vision-based on-site estimation of contact angle from 3D reconstruction of droplets, Accepted in *IEEE Transactions on Instrumentation and Measurement* (2023).
2. V Sharma and C Chandraprakash, Fabrication and bandgaps of microscale metallic phononic crystals, *International Journal of Advances in Engineering Sciences and Applied Mathematics* 1–8 (2023).
3. B M Bharti, T Bhuvana, and C Chandraprakash. Burst characteristics of glycerol-added chitosan films for food packaging, *ACS Food Science & Technology*, 3 (4), 772-780 (2023)
4. S Kumar, K Jahan, A Verma, M Agarwal, and C Chandraprakash, Agar-based composite films as effective biodegradable sound absorbers, *ACS Sustainable Chemistry & Engineering*, 10 (26), 8242–9253 (2022). Article picked by ACS Editors for media coverage and ACS news.
5. V Sharma and C Chandraprakash. Quasi-superhydrophobic microscale two-dimensional phononic crystals of stainless steel 304, *Journal of Applied Physics*, 131 (18), 184901 (2022).
6. C Chandraprakash, V C Venugopal, A Lakhtakia, and O O Awadelkarim. Long-wavelength infrared characteristics of multifunctional microfibrous thin films of Parylene C, *Microwave Optics and Technology Letters*, 61 (9), 2206–2209 (2019).
7. C Chandraprakash, C V Krishnamurthy, and K Balasubramaniam. Thermomechanical phenomenon – A non-destructive evaluation perspective, *Transactions of the Indian Institute of Metals*, 72 (11), 2905–2915 (2019).

Submitted for publication

1. Riyaj Ramjan Attar and C Chandraprakash. A Hall-Petch-like relation for thermoelastic effect on grain size, Submitted to *Material Science & Engineering A*.
2. J S Rahim and C Chandraprakash, Band diagrams of Cosserat mediums I: Solid-solid and fluid-fluid phononic crystals, Manuscript ready. To be submitted to *Physical Review E*
3. J S Rahim and C Chandraprakash, Band diagrams of Cosserat mediums II: Fluid-solid and solid-fluid phononic crystals, Manuscript ready. To be submitted to *Physical Review E*
4. J S Rahim and C Chandraprakash, Transmittance and reflectance characteristics of a Cosserat slab, Reviewed and under preparation for resubmission to *International Journal of Mechanical Sciences*

5. V Jain, S S Gupta, and C Chandraprakash, Thermal response of tensile specimens towards thermomechanical NDE, Submitted to *International Journal of Heat & Mass Transfer* .
6. Sidharth Beniwal, Kartikeya Dixit, Niraj Sinha, and C. Chandraprakash, Comprehensive investigation of woodpile-kind alumina phononic crystals fabricated by direct ink writing Submitted to *Journal of Applied Physics*
7. Sidharth Beniwal and C Chandraprakash. Alumina-copper woodpile-kind locally resonant phononic crystal, Submitted to *Applied Physics A*.
8. T Bhuvana, R Tiwari, M Manohar, K Balani and C Chandraprakash. Improved air and moisture barrier properties of chitosan- and kombucha-coated papers, Submitted to *Langmuir*.
9. K Bikumalla, T Bhuvana, A Tiwari, and C Chandraprakash, Binder-free, surfactant-based bagasse cellulose foams as acoustic boards, Submitted to *Cellulose*.
10. T Bhuvana, A Tiwari, and C Chandraprakash, Cellulose-rich agricultural residue-based scalable, biodegradable, and green acoustic boards, Submitted to *Industrial Crops and Products*.
11. B Yaswanth Sandeep and C Chandraprakash, Computer vision-based estimation of prestress in beams, Submitted to *Measurement Science and Technology*.
12. A Kumar and C Chandraprakash, Fast estimation of planar angles from non-orthogonal imaging by a smartphone, Submitted to *IEEE Sensors*.

Journal publications before IITK

1. I H Khawaji, C Chandraprakash, O O Awadelkarim, and A Lakhtakia. Selectablity of mechanical and dielectric properties of Parylene-C columnar microfibrous thin films by varying deposition angle, *Flexible and Printed Electronics*, 2 (4), 045012 (2017).
2. C Chandraprakash, A Lakhtakia, and O O Awadelkarim. Parylene-C microfibrous thin films as phononic crystals, *Journal of Micromechanics and Microengineering*, 27 (7), 075012 (2017).
3. I H Khawaji, C Chandraprakash, O O Awadelkarim, and A Lakhtakia. Dielectric properties of and charge transport in columnar microfibrous thin films of Parylene C, *IEEE Transactions on Electron Devices*, 64 (8), 3360-3367 (2017).
4. C Chandraprakash, A Lakhtakia, N R Brown, W Orfali, and O O Awadelkarim. Temperature-dependent dynamic mechanical moduli of microfibrous columnar thin films of Parylene C, *Polymer Testing*, 53, 89–97 (2016).
5. C Chandraprakash, A Lakhtakia, and O O Awadelkarim. Reply to comment on surface energy of Parylene C, *Materials Letters*, 166, 325–326 (2016).
6. C Chandraprakash, A Lakhtakia, O O Awadelkarim, and W Orfali. Relative permittivity of bulk Parylene-C in the infrared regime, *Journal of Electromagnetic Waves and Applications*, 29 (16), 2139–2146 (2015).
7. C Chandraprakash, A Lakhtakia, and O O Awadelkarim. Surface energy of Parylene C, *Materials Letters*, 153, 18–19 (2015).
8. C Chandraprakash, N M Wonderling, A Lakhtakia, O O Awadelkarim, and W Orfali. Microfiber inclination, crystallinity, and water wettability of microfibrous thin-film substrates of Parylene C in relation to the direction of the monomer vapor during fabrication, *Applied Surface Science*, 345, 145–155 (2015).
9. Y Xie, C Chandraprakash, N Nama, S Yang, M Lu, Y Zhao, J D Mai, F Costanzo, and T J Huang. Exploring bubble oscillation and mass transfer enhancements in acoustic-assisted liquid-liquid extraction with a microfluidic device, *Scientific Reports*, 5 (12572), (2015).

10. C Chandraprakash, A Lakhtakia, N R Brown, W Orfali, and O O Awadelkarim. Frequency- and temperature-dependent storage and loss moduli of microfibrous thin films of Parylene C, *Materials Letters*, 116, 296–298 (2014).
11. C Chandraprakash, A Lakhtakia, O O Awadelkarim, and W Orfali. Acoustic scattering from microfibers of Parylene C, *Journal of Applied Physics*, 116 (13), 134905 (2014).
12. C Chandraprakash, N Nama, M I Lapsley, F Costanzo, and T J Huang. Theory and experiment on resonant frequencies of liquid-air interfaces trapped in microfluidic devices, *Journal of Applied Physics*, 114 (19), 194503 (2013).
13. C Chandraprakash, C V Krishnamurthy, K Balasubramaniam, and R V Prakash. Thermomechanical response of metals: Maxwell vs. Kelvin–Voigt models, *Materials Science and Engineering: A*, 560, 54–61 (2013).

Refereed Conference Proceedings from IITK

1. S. Kumar, V. Sharma, C. Chandraprakash, and J. Ramkumar. Plasma electrolytic polishing process: Mechanism and characteristics, 10$^{\text{th}}$ *International Conference on Processing and Fabrication of Advanced Materials*, IIT Tirupati, India (September 2023)
2. C Chandraprakash, A Vashisth, T Bhuvana, and C E Bakis. Optical characterization of nanosilica-filled bisphenol-F epoxy and carbon fiber composites, *ASC* 35$^{\text{th}}$ *Technical Conference & ASTM D-30 Committee Meeting*, New York, USA (September 2020).

Refereed Conference Proceedings before IITK

1. I H Khawaji, C Chandraprakash, W Orfali, A Lakhtakia, and O O Awadelkarim. Electrical studies on Parylene-C columnar microfibrous thin films, *The Electrochemical Society*, Phoenix, USA, 69 (5), 113–119 (October 2015).
2. M I Lapsley, D Ahmed, C Chandraprakash, F Guo, M Lu, L Wang, and T J Huang. Monitoring acoustic bubble oscillations with an optofluidic interferometer, 16$^{\text{th}}$ *International Conference on Miniaturized Systems for Chemistry and Life Sciences*, Okinawa, Japan, 1906–1908 (October 2012).
3. R V Prakash, K Thiyagarajan, C Chandraprakash, and K Balasubramaniam. Thermographic evaluation of SS 304 material during monotonic loading, *ASME 2009 International Mechanical Engineering Congress and Exposition: Processing and Engineering Applications of Novel Materials*, Florida, USA, 14, 183–187 (November 2009).

Conference Presentations from IITK

1. C. Chandraprakash. Bandgaps and scattering calculations of phononic crystals using COMSOL Multiphysics 10$^{\text{th}}$ Webinar at *COMSOL Multiphysics Users Meet 2023* (Aug 2023) — Invited Talk
2. C. Chandraprakash. Soft biodegradable acoustic materials, 10$^{\text{th}}$ *Soft Matter Young Investigators Meet 2023 (SMYIM)*, Uttarakhand, India (June 2023) — Invited Talk
3. S. Beniwal, K Dixit, N Sinha, and C. Chandraprakash. Direct-ink based manufacturing of ceramic phononic crystals, 4$^{\text{th}}$ *Structural Integrity Conference and Exhibition (SICE 2022)*, Indian Institute of Technology Hyderabad, India (Dec 2022) — Invited Talk
4. V. Sharma and C. Chandraprakash. Fabrication of microscale metallic phononic crystals using wire electric discharge micromachining process, 12$^{\text{th}}$ *International Conference on Precision, Micro, Meso and Nano Engineering (COPEN 12)*, Indian Institute of Technology Kanpur (Dec 2022).
5. S. Kumar, C. Chandraprakash, and J. Ramkumar. Integration of roughness measurement in plasma electrolytic polishing, 12$^{\text{th}}$ *International Conference on Precision, Micro, Meso and Nano Engineering (COPEN 12)*, Indian Institute of Technology Kanpur (Dec 2022).

6. V. Sharma and C. Chandraprakash. On the fabrication and analysis of microscale metallic phononic crystals using wire electrochemical micromachining, 5$^{\text{th}}$ *Indian Conference On Applied Mechanics (INCAM 2022)*, National Institute of Technology Jamshedpur (Nov 2022).
7. V. Sharma and C. Chandraprakash. Pulse thermography for corrosion detection in a multilayer structure, *NDE - 2022*, Ahmedabad, India (Nov 2022).
8. MZA. Khan and C. Chandraprakash. Ultrasonic TOFD for corrosion detection in a multilayer structure, *NDE - 2022*, Ahmedabad, India (Nov 2022).
9. V Sharma, VRS Raju, S Amit, and C Chandraprakash. Ultrasonic TOFD and guided waves for corrosion detection in a multilayer structure, 20$^{\text{th}}$ *Accepted for World Conference on NDT (WCNDT)*, Seoul, South Korea (June 2020).

Conference Presentations before IITK

1. I H Khawaji, C Chandraprakash, O O Awadelkarim, and A Lakhtakia. Engineering the dielectric and mechanical properties of Parylene-C columnar microfibrous thin films by controlling the deposition angles, *Materials Science & Technology: Advances in Dielectric Materials and Electronic Devices*, Pittsburgh, USA (October 2017).
2. C Chandraprakash, A Lakhtakia, and O O Awadelkarim. Charge-storage and absorption characteristics of Parylene-C columnar thin films, *Center for Dielectric and Piezoelectrics, Spring Meeting*, University Park, USA (April 2017).
3. C Chandraprakash, N M Wonderling, A Lakhtakia, O O Awadelkarim, and W Orfali. Columnar multifunctional microfibrous Parylene-C thin films: Microfiber inclination, crystallinity, and water wettability, *Materials Research Symposium: Multifunctionality in Polymer-Based Materials, Gels and Interfaces*, Boston, USA (December 2015).
4. I H Khawaji, C Chandraprakash, W Orfali, A Lakhtakia, and O O Awadelkarim. The effects of morphology on the dielectric and mechanical properties of Parylene-C microfibrous thin films, *The Electrochemical Society*, Cancun, Mexico, no. 11, 683–683 (October 2014).
5. C Chandraprakash, N R Brown, O O Awadelkarim, W Orfali, and A Lakhtakia. Mechanical properties of microfibrous films of Parylene C for acoustic applications, *Materials Science & Technology: Mechanical Behavior of Technological Coatings and Thin Films – Relating Synthesis, Structure, and Mechanical Property Relationships*, Pittsburgh, USA (October 2014).

Other publications

1. Ph.D. thesis: Multifunctional Parylene-C microfibrous thin films, Pennsylvania State University (February 2017).
2. Book review: Fourier modal method and its applications in computational nanophotonics, Journal of Nanophotonics, 7 (1), 9898 (2013).

Invited Talks/Guest Lectures

1. Plane-wave expansion method for multifunctional metamaterials, QIP Short Course on "Electromagnetic Metamaterials: Microwave-Infrared-Optical Applications" in IIT Kanpur, Uttar Pradesh, India, August 2019.
2. Multifunctional metamaterials of Parylene C, Millersville University, Pennsylvania, USA, March 2017.

Media Coverage

Acoustic absorbers

- Work by Surendra Kumar et al. has been picked by the ACS editors for the ACS News. The work is also highlighted in the international and national science news: Phys.org, ScienceDaily, Technologynetworks, Eurekalert, Natureworld, Swifttelecast, Chemistryviews, New Atlas, ScienMag, Bioengineer.org, and Miragenews. It also attracted attention to the seaweed and music communities.

Teaching at IITK

Lab coordinator, Mechanical Engineering, IIT Kanpur — May 2021 - present

- ME222A – UG – Nature and properties of materials

Instructor, Mechanical Engineering, IIT Kanpur — Jan 2018 - present

- ME698E – PG & UG – Fabrication and mechanics of thin films (new course developed)
- ME683A – PG & UG – Techniques in non-destructive evaluation (new course developed)

- ME621A – PG – Introduction to solid mechanics (Theory of elasticity)
- ME723A – PG – Wave propagation in solids
- ME321A – UG – Advanced mechanics of solids (Theory of elasticity: Lab and lectures)
- ME222A – UG – Nature and properties of materials (Lab and lectures)

Tutor, Mechanical Engineering, IIT Kanpur — Jan 2018 - present

- ME351A – UG – Design of machine elements
- ESO202A – UG – Mechanics of solids (Strength of materials)
- ESO209A – UG – Dynamics

Training for HAL employees, IIT Kanpur

- Materials selection and characterization – Labs and lectures — Summer 2022 & Spring 2023

Teaching before IITK

Distinguished Teaching Fellow, College of Engineering, Penn. State

- E MCH 211 – Statics — Spring 2016

Teaching Assistant, Engineering Science and Mechanics, Penn. State

- E SC 211, 212, 213, & 214 – Nanotechnology — Summer 2016
- E MCH 315 – Mechanical response of materials — Fall 2011 and Spring 2012
- E MCH 211 – Statics — Spring 2015
- E MCH 212 – Dynamics — Fall 2016
- E SC 400, 404H – Electromagnetics & Engg. Math. (Part time) — Spring 14 - Spring 2016

Thesis supervision

Name	Thesis	Program	Year	Position
Surendra Kumar	Investigation of agar-based biodegradable films as sound absorbers	M. Tech	2019	Forbes
Pushpendra Singh	Study on the effect of load for ultrasonic inspection of rail using EMAT	B. Tech & M. Tech	2019	EXL Services
Tarun Sharma (co-adviser: Prof. Nalinaksh Vyas)	Primary suspension redesign of railway bogie for improved fatigue life	B. Tech & M. Tech	2020	Jaguar Land Rover
Jishal S. Rahim	Wave propagation in periodic Cosserat medium	M. Tech	2021	ATC
Ayush Rai (co-adviser: Prof. Sameer Khandekar)	Modeling of monomer flux for metamaterial fabrication	B. Tech & M. Tech	2021	HSBC
Vishal Sharma	Corrosion detection in multi-layered structure using UT-oFD and guided waves	M. S.	2021	TATA Advanced Material Systems

Name	Thesis	Program	Year	Position
Mohd. Zishan Ali Khan	Corrosion detection in multilayered structure using pulsed-phased and vibro-thermography	M. S.	2021	Mahindra & Mahindra Ltd.
Akash Kumar	Computer vision-based estimation of angles from 3D reconstruction	B. Tech & M. Tech	2022	VMock
Vishal Jain (co-adviser: Prof. Shakti Gupta)	Green's functions for thermomechanical NDE.	M. Tech	2022	Eaton Technologies
Swaraj Singh	Long-arm soft robot for non-destructive evaluation	M. Tech	2022	Algo8 AI
Venkatesh S. Bakale	Porous and locally resonant acoustic metamaterials	M. Tech	2022	Mahindra & Mahindra Ltd.
B. Yaswanth Sandeep	Beams: Biomimetic phononic crystals and computer vision-based measurement of pre-stress	M. Tech	2023	Decimal Point Analytics
Vigneswar O V	Forward and inverse problems in acoustic microperforated panels	M. Tech	2023	(Self employed)
Riyaj Attar Rahman	Theory and experiments for thermomechanical phenomenon in tensile tests	M. Tech	2023	Quest Global
Sidharth Beniwal	Additively manufactured phononic and locally resonant crystals for high-temperature applications of alumina	M.S.	2023	(Submitted) PhD Candidate at Univ. Groningen
Sohan Singh Bhatt (co-adviser: Prof. Venkatanarayanan)	Mechanical, chemical, and elastic characteristics of porcupine quills	M. Tech		
Sushil Kumar (co-adviser: Prof. J. Ramkumar)	Development of instrumentation for in-situ measurement of roughness in plasma electrolytic polishing	PhD	-	
Vikram Anand	Thermal conductivity of thin films and thermomechanical phenomenon in wire ropes	M. Tech		
Atul Chandak (co-adviser: Prof. Ishan Sharma)	Machine learning for damage estimation in the plates using guided waves	M. Tech		

Non-thesis supervision

- Manan Agarwal – Project Associate – SERB ECRA (Sep 2019 - March 2022)
- Karan Ahuja – Research Assistant – Soft robots for rescue operations – TEQIP (Jan 2020 - June 2020)
- Vinoba Pandey – B. Tech – Investigation of a surface energy constant (Dec 2020 - present)
- Faizan Ahmed – B. Tech – Solution of Airy stress function using polar Fourier Transform (Jan 2022 - Aug 2022)

- Kousar Jahan – Project Scientist – SERB ECRA (March 2021 - Jan 2022)
- Nitisha Mehrotra – Project Scientist – SERB ECRA (March 2022 - July 2022)
- Keerthy Bikumalla – Project Associate – PDA (Aug 2022 - May 2023)
- Anjali Tiwari – Project Associate - SERB ECRA (Sep 2022 - present)
- Prajwal Konchada – B. Tech – Soft robot for the rescue of a child trapped in a borewell (May 2023 - present)

B. Tech Projects: ME451 & ME452

- 2018-19: Rahul Shekar, Abhinav Thakur, and Rajesh Mishra.
  Title: Design and development of a street sweeping machine
- 2019-20: Pinaki Shaw and Prateek Sharma.
  Title: A growable soft robot to clench and move weights

Computational Skills

MATLAB, Shell scripting, COMSOL, C, Scheme, Mathematica

Technical Skills

Fabrication: Fibrous and conventional Parylene C chemical vapor deposition, 4 years experience in class 1000/100 cleanroom and dealing with vacuum systems

Characterization: SEM imaging, Profilometry, C-D and dielectric breakdown, Dynamical mechanical analysis, Infrared spectroscopy – ATR and Transmission, X-Ray diffraction – WAXS, Contact angle measurements, Bulk mechanical testing, Infrared thermography, Energy dispersive spectroscopy

Hands-on experience in laboratory and field

Awards and Honors

1. Paul A. Lester Memorial Award for best PhD research in microelectronics in Department of Engineering Science and Mechanics, Penn State University 2017
2. Distinguished Teaching Fellow in College of Engineering, Penn State for 2015-16
3. Won 3rd prize for poster presentation in *ESM Today*, graduate research symposium of Department of Engineering Science and Mechanics, Penn State University 2017
4. Won 2nd prize for poster presentation in *ESM Today* 2013
5. Won Project-X, a hands-on design competition in *WAVES* – Technical festival of Department of Naval Architecture and Ocean Engineering, IIT Madras 2008
6. Recipient of Merit cum Means award from IIT Madras 2005-09
7. Secured 132nd rank among 2,00,000 students in Graduate Aptitude Test Examination 2008
8. Secured 143rd rank among 4,50,000 students in All-India-Engineering-Entrance-Examination 2005

Co-curricular activities

1. Member, Mechanical Engineering Division, The Institution of Engineers (India) from 2020
2. Life Member, Indian Society of Applied Mechanics from 2022
3. Life Member, The Indian Society for Theoretical and Applied Mechanics from 2022
4. Life Member, Indian Society for Non-Destructive Testing from 2022
5. Outreach: Demonstrated acoustic measurements and presented poster to high school students as part of Science Open House, IITK 2020 – with Manan Agarwal

6. Reviewer for journals: Review of Scientific Instruments, Journal of Applied Physics, Materials Characterization, ACS Applied Nano Materials, Experimental Mechanics, Journal of Applied Polymer Science, Materials Letters, Sadhana, Applied Surface Science, Physical Chemistry Chemical Physics, International Journal of Systems Science, International Journal of Adhesion and Adhesives, and IEEE Transactions on Instrumentation and Measurement
7. Member of 'The Materials Research Society' for 2015–17
8. Student member of 'Material Advantage Program (TMS, ACerS, AIST, ASM)' for 2014–17

Key Administrative activities

1. Executive Committee member from IITK in Indian Society of Applied Mechanics, 2022-23
2. Website coordinator in Mechanical Engineering IITK, 2020-23
3. Seminar coordinator in Mechanical Engineering IITK, 2019-20
4. Anchor for Diamond Jubilee Institute Foundation day, IITK, 2018
5. Co-organized EC Subbarao lecture in MSE, IITK, 2018
6. Judge for: Student awards (2018), Techkriti competitions (2018 & 19), Smart India Hackathon (2018 & 19), and Project Scientist (2018 & 19) – IITK
7. President (Aug'13 - May'14) and Vice-President (Aug'14 - May'15) Engineering Science and Mechanics Graduate Student Council, Penn State

Industrial Experience

Technical Manager in Noise Vibration Harshness department — Sep 2010 - Jul 2011
Engineering Research Center, Tata Motors Ltd., Pune, India

- Quantitative analysis for noise and vibration characteristics of small commercial vehicles
- Developed technical reports, presentations, and proposals for field and external collaborations

Internship Trainee — May 2008 - Jul 2008
Engineering Design Centre, Caterpillar India Private Ltd., India

- Designed anti-toppling mechanisms and developed stability criteria for shop floor structures
- Performed 'Value Stream Mapping' for the Virtual Manufacturing Engineering group