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EDUCATION

2017-2021	Ph.D. in School of Mechanical and Materials Engineering Indian Institute of Technology Mandi, Himachal Pradesh, India
2014-2016	M.Tech. in Manufacturing Technology (CGPA: 8.52 with distinction) Dr. B.R. Ambedkar National Institute of Technology Jalandhar, Punjab, India B.Tech. in Mechanical Engineering (Marks: 75.12% with honors)
2009-2013	Noida Institute of Engineering and Technology, Greater Noida, Uttar Pradesh, India

PROFESSIONAL EXPERIENCE

- Research Scientist at *King Mongkut's University of Technology North Bangkok*, Thailand. (2 August 2023 to till date)
- Postdoctoral fellow at Bioproducts Discovery and Development Centre, *University of Guelph*, Canada. (18 May 2022 to 30 June 2023)
- Assistant Professor in the Department of Mechanical Engineering at *Chandigarh University*, Punjab, India. (25 Oct 2021 to 28 Feb 2022)

ACHIEVEMENTS/RECOGNITIONS

- Special Issue Editor of “*Development in Recyclable Polymers*”, **Polymers**, MDPI. (IF: 4.9, Q1)
- Visiting Lecturer in the Department of Mechanical Engineering, Brawijaya University. (March 2025 to March 2026)
- Topic Editor of “*Biocomposites for Sustainability: Innovations and Applications in Modern Industries*”, **Frontiers in Materials**. (IF: 2.6, Q2)
- Guest Editor of **International Journal on Interactive Design and Manufacturing**, Springer. (IF:2.1, Q2) (Feb 2023 to Till date)
- Associate Editor of **Heliyon (Materials Science Section)**, Elsevier. (IF:3.4, Q1) (Oct 2023 to Dec 2024)
- Editorial Board member of **Discover Sustainability**, Springer. (IF:2.4, Q2) (Sept 2024 to Till date)
- Editorial Board member of **Discover Applied Sciences**, Springer. (IF:2.8, Q2) (Oct 2024 to Till date)
- Guest Editor of “*Mechanics of Advanced Fiber-Reinforced Composite Structures*” in **Mechanics of Advanced Composite Structures**. (CS:1.2, Q3) (Feb 2024 to Oct 2024)
- Section Editor of “*Polymer Processing and Engineering*” in **Journal of Polymer Science and Engineering**, EnPress. (May 2023 to Till date)
- Made substantial contributions in establishing “**Composite Design and Manufacturing Lab**” at IIT Mandi.
- Published work “Development and mechanical characterization of [microwave-cured thermoplastic](#) based natural [fiber reinforced](#) composites” appreciated in national [newspapers](#) and [LinkedIn](#).
- Appreciated for teaching assistantship in National Workshop on “**Composite Materials in Engineering Applications: Design and Manufacturing Perspective**”.
- Author survey award from Taylor & Francis Impact Assessment of the Earth & Environmental Sciences, 2020.
- M.Tech. & Ph.D. Fellowship, MHRD, Government of India.
- Qualified in GATE 2013, 2014, 2015.

RESEARCH FOCUS & INTERESTS

- **Composites manufacturing:** Compression molding, microwave-assisted curing, vacuum bagging, extrusion and injection molding, 3D printing
 - **Mechanical testing:** Static and dynamic UTM, impact testing, hardness testing, and DMA
 - **Other testing:** Wear test, environmental degradation test, flammability test, and electrical conductivity test
 - **Machining:** Abrasive water jet machining and laser machining
 - **Miscellaneous:** Plastic waste recycling, biomass pyrolysis, smart materials
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POSITIONS OF RESPONSIBILITY

- Co-chair “**International Conference on Robotics, Automation and Manufacturing**” at *King Mongkut’s University of Technology North Bangkok*, 19-20 February 2026.
 - Convenor “**2nd International Conference on Sustainable Technologies, Energies and Materials**” at *King Mongkut’s University of Technology North Bangkok*, 19-21 February 2025.
 - Organizing chair “**3rd International Symposium on Sustainable Fibers and Polymeric Materials**” at *King Mongkut’s University of Technology North Bangkok*, 25 October 2024. (Jointly organized by *University of Portsmouth, UK*)
 - Organizing chair “**International Symposium on Advanced Manufacturing for Polymeric Materials**” at *King Mongkut’s University of Technology North Bangkok*, 24 May 2024.
 - Convenor “**International conference on Eco-friendly Fibers and Polymeric Materials**” at *King Mongkut’s University of Technology North Bangkok*, 19-20 February 2024.
 - Managed weekly functions organized by **ISKCON**, Kamand, Mandi, Himachal Pradesh, India, 2018-2021.
 - Volunteered in “**National Workshop on Advanced Composites for Aerospace: Design, Manufacturing and Condition Monitoring Perspective**” at *IIT Mandi*, India, 11-15 February 2020.
 - Volunteered in “**4th International & 19th National Conference on Machines and Mechanisms**” at *IIT Mandi*, India, 5-7 December 2019.
 - Volunteered in “**4th International Conference on Production and Industrial Engineering (CPIE-2016)**” at *NIT Jalandhar*, India, 19-21 December 2016.
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COURSE TAUGHT/ASSISTED

- Manufacturing Engineering
 - Smart Materials and MEMS
 - Product Realization
 - Marketing and Project Management
 - Machine Design
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PROJECTS

- **Lead Principal Investigator** in ASEAN project on “*Shape memory polymer nanocomposites for 4D printing applications*”. (Grant: INR 33.3 Lacs, Tenure: January 2025 – December 2026)
- **Lead Investigator** in KMUTNB’s KNOW project on “*flame Retardant Sustainable Composites for Various Applications*”. (Grant: THB 4.5 Lacs, Tenure: October 2024 – September 2025)
- **Two projects** submitted to Saudi Applied Research & Technology, Technology Development Grant. (Grant: Rs. 10 cr & 12 cr, Duration: 3 & 5 Yr)
- Project proposal granted on “*green flame-retardant polymer composites for automobile and electronics industries*” funded by **Ontario Ministry of Agriculture, Food and Rural Affairs**, Gov of Ontario, Canada. (Grant: CAD 20 Lacs, Duration: 3 Yr)
- Development, characterizations and mathematical modeling of microwave cured porous composites for biomedical applications; funded by **IIT Mandi**, India.
- Development of carbon fiber reinforced polymer composites using microwave curing; funded by **AR&DB-DRDO**, India.

TEAMWORK EXPERIENCES

- Exploring UL-94 flammability behavior of composites manufactured from different biocarbons and engineering plastics.
 - **Lead editor** in three books.
 - Lead the **patent filing** process (**Patent No.: 202011008147**)
 - Supervised **M.Tech. students** to execute their projects for the fulfilment of the thesis.
 - Worked as a **lead team member** for completion of B.Tech. project.
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PROFESSIONAL MEMBERSHIP

- International Association of Engineers (IAENG:301459)
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PATENT

P1. Method for manufacturing thermoplastic composite from microwave-assisted compression moulding, Indian Patent Office.
(Application No.: 202011008147; **Granted**)

RESEARCH/INTERNSHIP/PROJECT GUIDANCE

S.No.	Name of student (s)	Institute	Research Area	Session
1.	Mr. Aditya Pratap Singh	IIT Mandi, Kamand, Himachal Pradesh -175005, India	Flame-retardant BioHDPE/PALF composites manufacturing and characterizations	Nov 2023 to Feb 2024
2.	Mr. Sharon Paul	Sacred Heart College (Autonomous), Kochi, Kerala - 682013, India	Extraction and characterization of nanocellulose from Salacca Zalacca (Snake Fruit) and Salvinia Molesta	April 2024 to July 2024
3.	Mr. Muralidharan K	Department of Mechanical Engineering, Amrita School of Engineering, Coimbatore, Tamil Nadu - 641112, India	Synthesis and tribological performance of sustainable lubricants with nanophase additives	July 2024 to Oct 2024
4.	Dr. Gopal Pudhupalayam Muthukutti	Department of Mechanical Engineering, Karpagam Academy of Higher Education	Sustainable valorisation of e-waste CRT glass in polymer composites	Sept 2024 to Sept 2025
5.	Ms. Akhila Raman	Department of Chemistry, Amrita Vishwa Vidyapeetham, Amritapuri, Kerala -690525, India	2D nanostructures decorated natural fibre composites for smart applications	Oct 2024 to Jan 2025
6.	Ms. Aparna Asok	Department of Chemistry, Amrita Vishwa Vidyapeetham, Amritapuri, Kerala - 690525, India	Hybrid nanofiller reinforced chlorobutyl rubber foams for multifunctional applications	Oct 2024 to Jan 2025
7.	Mr. Suhas Kumaraswamy	Department of Mechanical and Industrial Engineering, Manipal Institute of Technology, Manipal, Karnataka - 576104, India	Mechanical and thermal analysis of filler-reinforced bioHDPE and UHMWPE composites	Nov 2024 to Jan 2025
8.	Mr. Erhan Baysal	Department of Mechanical	Joining of 3D printed multi-materials through friction stir spot welding	Nov 2024 to Jan 2025

		Engineering, Bülent Ecevit Üniversitesi, Zonguldak - 67100, Turkey		
9.	Ms. Anu K Biju	Mahatma Gandhi University, Kottayam, Kerala-686560, India	Functionalized cellulose for various applications	March 2025 to May 2025

PUBLICATIONS (<https://scholar.google.co.in/citations?user=yHZziwkAAAAJ&hl=en>)

Publication Metrics

S.No.	Metrics	Value
1.	Citations on Google Scholar	1027
2.	h-index on Google Scholar	18
3.	i10-index on Google Scholar	26

[1] Book Publications

- B1. M. K. Singh, G. Arora, S. Zafar, S. M. Rangappa, S. Siengchin; *Composite Materials Processing Using Microwave Heating Technology*, Springer, 2024. <https://doi.org/10.1007/978-981-97-2772-8> (Published) [Edited Book](#)
- B2. M. K. Singh, S. M. Rangappa, S. Siengchin, M. Misra, A. K. Mohanty; *Mechanical Behavior of Fiber-reinforced Polymer Composites: Fundamental and Advanced Studies*, Elsevier, 2026. (Under Preparation) [Edited Book](#)
- B3. S. M. Rangappa, S. K. Palaniappan, M. K. Singh, S. Siengchin; *Proceedings of 2nd International Conference on Sustainable Technologies, Energies and Materials – STEM 2025*, Springer 2025. (Under Preparation) [Edited Book](#)
- B4. M. K. Singh, G. Arora, M. H. Kumar, S. M. Rangappa, S. Siengchin; *FRP Composites through Experimental and Computational Methods: From Theory to Practice*, Elsevier, 2027. (Under Preparation) [Authored Book](#)
- B5. M. Kumar, M. K. Singh, S. M. Rangappa, S. Siengchin, A. Sharma; *Harnessing Fiber-based Natural Biomaterials: For Tissue Engineering and Regeneration*, Elsevier, 2026. (Under Preparation) [Edited Book](#)
- B6. M. Kumar, M. K. Singh, S. M. Rangappa, S. Siengchin; *How to Engineer Strong Connections: Exploring Mechanical, Adhesive, and Hybrid Joints in FRP Composites*, Elsevier, 2026. (Under Preparation) [Edited Book](#)
- B7. M. K. Singh, S. K. Palaniappan, L. F. Dutra, S. M. Rangappa, S. Siengchin; *Advanced Polymer Composites for Construction Industry: Properties, Techniques, and Future Trends*, Elsevier, 2026. (Under Preparation) [Edited Book](#)
- B8. G. P. Muthukutti, M. K. Singh, S. K. Palaniappan, S. M. Rangappa, S. Siengchin; *Non-Conventional Machining of Polymer Matrix Composites*, Elsevier, 2026. (Under Preparation) [Edited Book](#)
- B9. K. Vijayananth, S. K. Palaniappan, M. K. Singh, S. M. Rangappa, S. Siengchin; *Optimization and Simulation Techniques for Advanced Polymer Composites*, Elsevier, 2026. (Under Preparation) [Edited Book](#)
- B10. G. Arora, M. K. Singh, H. Pathak, S. M. Rangappa, S. Siengchin; *Computational Mechanics of Nano-composites: Multi-scale Failure Modelling*, Elsevier, 2026. (Under Preparation) [Edited Book](#)
- B11. R. Madan, M. K. Singh, S. M. Rangappa, S. Siengchin; *Modelling and Analysis of Functionally Graded Polymer Composites*, Elsevier, 2026. (Under Preparation) [Edited Book](#)
- B12. G. Arora, M. K. Singh, H. Pathak, S. M. Rangappa, S. Siengchin; *Data Driven Modelling of Fiber Reinforced Composites: Fundamentals and Applications*, Elsevier, 2026. (Under Preparation) [Edited Book](#)

[2] Editorial Corners

- EC1. M. K. Singh, S. Siengchin, S. M. Rangappa*; Recent Advances of Sustainable Composites in Manufacturing Sector, *Journal of Applied Science, Engineering, Technology and Management*, 2023, 1(2). <https://doi.org/10.61779/jasetm.v1i2.1>
- EC2. S. K. Palaniappan, M. K. Singh, S. M. Rangappa*, S. Siengchin; Eco-friendly Biocomposites: A Step Towards Achieving Sustainable Development Goals, *Applied Science and Engineering Progress*, 2024, 14(4). <https://doi.org/10.14416/j.asep.2024.02.003>

[3] Journal Publications

- J1. P. Mohan, G. Arora, P. Bhowmik, **M. K. Singh***, S. M. Rangappa, S. Siengchin; Integrating Nanotechnology with Mechanics: Challenges and Future Directions in Composite Materials, *Discover Applied Sciences*, 2025. **(Under Preparation)**
- J2. M. Kumar, **M.K. Singh**, R. Kumar, V. Ayyappan, S. M. Rangappa, S. Siengchin; Sustainable PLA Biocomposites reinforced with surface treated continuous sisal fibers via FDM for automotive applications, 2026. **(Under Preparation)**
- J3. G. Arora, **M. K. Singh***, S. M. Rangappa, S. Siengchin; The Emerging Role of Machine Learning in Understanding Bio-Composites Wear and Friction: A Review, *Journal of Materials: Design and Applications*, 2025. **(Under Preparation)**
- J4. **M. K. Singh***, G. Arora, S. M. Rangappa, S. Siengchin; Sustainable Evolution in Composite Manufacturing: Ten Years of Microwave Processing Insights, *Discover Sustainability*, 2025. **(Under Preparation)**
- J5. **M. K. Singh**, M. P. Mudoi, S. K. Palaniappan, G. Arora, M. Kumar, V. Ayyappan, G. P. Muthukutti, K. Vijayanath, S. M. Rangappa*, S. Siengchin; Multifunctional Polymer Composites for Smart Applications: A new era towards replacement of nano fibres and their products, *Composites Part A*, 2025. **(Under Preparation)**
- J6. **M. K. Singh**, S. K. Palaniappan, S. M. Rangappa*, L. F. Dutra, D. M. Nguyen, S. Siengchin; Transforming the construction industry via advanced polymer composites: A comprehensive review, 2026. **(Under Preparation)**
- J7. A. Raman, A. Asok, **M. K. Singh**, S. K. Palaniappan, S. M. Rangappa*, S. Siengchin*, A. Saritha; 2D Nanofillers in Natural Fiber Composites: Bridging Sustainability and High-Performance Materials, *Advanced Sustainable Systems*, 2025. **(Submitted)**
- J8. **M. K. Singh***, S. K. Palaniappan, G. Arora, S. M. Rangappa, S. Siengchin; Recent Advances in Applications of Nanocomposites: A Brief Overview, *Discover Materials*, 2025. **(Submitted)**
- J9. M. Dagadi, J. Singh, A. VS, A. Gupta*, **M. K. Singh**, G. Arora, S. M. Rangappa, S. Siengchin; Mechanical Property Improvement of 3D Printed rPP and vPP Through Heat Treatment and Sustainable Filament Reuse, *ACS Omega*, 2025. **(Revision Submitted)**
- J10. H. Sharma, G. Arora*, **M. K. Singh**, V. Ayyappan, P. Bhowmik, S. M. Rangappa, S. Siengchin; Recent Advances in Sustainable and Bio-Based Composite Materials: A Review of Development, Properties, and Applications, *Journal of Polymer Research*, 2025. **(Submitted)**
- J11. H. Sharma, G. Arora*, **M. K. Singh**, V. Ayyappan, P. Bhowmik, S. M. Rangappa, S. Debnath, S. Siengchin; Comparative Analysis of Tensile Strength in Polymer/Carbon Nanotubes Composites via Artificial Neural Network, *Polymer Composites*, 2025. **(Submitted)**
- J12. M. Saha, H. Singh, **M. K. Singh***, K. Yorseng, S. M. Rangappa, S. Siengchin; Microwave-cured pineapple leaf fiber based Low density polyethylene biocomposites: Multi-criteria optimization using ANOVA and Grey relational analysis, *Next Materials*, 2025. **(Under Review)**
- J13. A. Gupta, R. Vaishya*, R. Kumar, K. L. A Khan, R. S. Walia, M. Tyagi, **M. K. Singh**, S. Siengchin; Process Optimization and Property Enhancement of Glass Fiber-Reinforced Polymer Composites Using Hybrid Bio-Fillers via Pultrusion, *The International Journal of Advanced Manufacturing Technology*, 2025. **(Under Review)**
- J14. A. Krishnan, S. Paul, R. Phiri, R. Srisuk, **M. K. Singh**, S. K. Palaniappan, M. Dominic C D*, S. M. Rangappa, T. G. Ajithkumar, S. Siengchin; Extraction and Characterization of Cellulose Nanofibers from Salacca zalacca Peels: Effect of Chlorine Free Treatment and Acid Hydrolysis, *Chemical Papers*, 2025. **(Under Review)**
- J15. G. Arora*, H. Sharma, P. Bhowmik, **M. K. Singh**, V. Ayyappan, S. M. Rangappa, S. Siengchin; Recent Studies on Multiscale Modeling of Natural Fiber-Reinforced Composites, *Archives of Computational Methods in Engineering*, 2025. <https://doi.org/10.1007/s11831-025-10454-x> **(Q1, IF: 12.1)**
- J16. G. P. Muthukutti, **M. K. Singh**, S. K. Palaniappan, K. Vijayananth, S. M. Rangappa*, S. Siengchin; Valorisation of e-waste CRT glass in polymer composites: Sustainable Material Development and Waste Reduction, *Journal of Material Cycles and Waste Management*, 2025. **(Accepted, Q2, IF:2.7)**
- J17. Suhas K, Murthy BRN*, A Hiremath, **M. K. Singh**, S. K. Palaniappan, S. M. Rangappa, S. Siengchin; Investigation of thermal stability in zirconia-coated MWCNTs reinforced HDPE composites, *Construction and Building Materials*, 2025. <https://doi.org/10.1016/j.conbuildmat.2025.143830> **(Q1, IF: 8)**
- J18. M. Kumar*, **M. K. Singh**, G. Arora, S. K. Palaniappan, V. Ayyappan, G. P. Muthukutti, K. Vijayanath, S. M. Rangappa, S. Siengchin; A comprehensive review on next-gen electrospun nanofibers for multidirectional applications from energy storage to precise medicine, *Macromolecular Research*, 2025. <https://doi.org/10.1007/s13233-025-00452-0> **(Q2, IF: 3.4)**
- J19. S. Debnath*, P. Bhowmik, G. Arora, **M. K. Singh**; Solar Collectors for a Sustainable Future: Innovations and Energy Efficiency Trends, *Discover Applied Sciences*, 2025. <https://doi.org/10.1007/s42452-025-07590-1> **(Q2, CS: 6.5)**

- J20. H. Sharma, G. Arora*, **M. K. Singh**, S. M. Rangappa, P. Bhowmik, S. Siengchin; Review of Machine Learning Approaches for Predicting Mechanical Behavior of Composite Materials, *Discover Applied Sciences*, 2025. <https://doi.org/10.1007/s42452-025-07616-8> (Q2, CS: 6.5)
- J21. K. Vijayananth, S. K. Palaniappan, **M. K. Singh**, G. P. Muthukutti, S. M. Rangappa, S. Siengchin*; Advances in MXene-Polymer Composites: Enhancing Thermal Stability and Flame Retardancy, *International Journal of Precision Engineering and Manufacturing*, 2025. (Accepted, Q2, IF:3.6)
- J22. **M. K. Singh**, A. Rodriguez-Urbe, N. Tripathi, T. Wang, A. Kiziltas, S. Prevoir, A. K. Mohanty*, M. Misra*; Upcycling of recycled polycarbonate: Effect of different types of biocarbon on performance of sustainable composites, *Composites Part A*, 2025. <https://doi.org/10.1016/j.compositesa.2025.109231> (Q1, IF:8.9)
- J23. K. Vijayananth, S. K. Palaniappan, **M. K. Singh**, G. P. Muthukutti, S. M. Rangappa, S. Siengchin*; Mo₂C-reinforced UHMWPE composites: Improved mechanical and tribological properties for outdoor environmental applications, *Journal of Polymer Research*, 2025. <https://doi.org/10.1007/s10965-025-04520-y> (Q2, IF: 2.8)
- J24. K. Vijayananth, S. K. Palaniappan, **M. K. Singh**, G. P. Muthukutti, S. M. Rangappa, S. Siengchin*; Exploring MXene-polymer composites for mechanical, tribological and EMI shielding applications, *Polymer Composites*, 2025. <https://doi.org/10.1002/pc.70084> (Q1, IF:4.8)
- J25. H. Sharma, G. Arora, **M. K. Singh***, S. M. Rangappa, P. Bhowmik, R. Kumar, S. Debnath, S. Siengchin; From Composition to Performance: Structural Insights into Polymer Composites, *Next Materials*, 2025. <https://doi.org/10.1016/j.nxmate.2025.100852> (Q1, CS:1.9)
- J26. G. P. Muthukutti, **M. K. Singh**, S. K. Palaniappan, K. Vijayananth, S. M. Rangappa*, S. Siengchin; Sustainable Polymer Composites from Agro and Municipal Wastes: A Comprehensive Review of Materials, Properties, and Applications, *Journal of Material Cycles and Waste Management*, 2025. <https://doi.org/10.1007/s10163-025-02319-z> (Q2, IF:2.7)
- J27. M. Saha, H. Singh, **M. K. Singh***, S. M. Rangappa, S. Siengchin; Recent research on advanced production processes and applications of natural fibre hybrid composites, *Sustainable Chemistry for Climate Action*, 2025, 6, 100081. <https://doi.org/10.1016/j.scca.2025.100081> (Q1, CS:5.7)
- J28. G. Verma, R. Goel, N. Kaur, **M. K. Singh***, S. Siengchin; Graphene-based natural fibre composites: Detailed review of recent developments and applications, *European Polymer Journal*, 2025, 232, 113959. <https://doi.org/10.1016/j.eurpolymj.2025.113959> (Q1, IF:5.8)
- J29. **M. K. Singh**, S. K. Palaniappan, I. Suyambulingam, S. M. Rangappa*, S. Siengchin; Sustainable composite materials for electric vehicle applications: A comprehensive review, *Facta Universitatis, Series: Mechanical Engineering*, 2024. <https://doi.org/10.22190/FUME240828014S> (Q1, IF:10.1)
- J30. **M. K. Singh**, S. M. Rangappa*, M. Misra, A. K. Mohanty, S. Siengchin; Nanostructured Flame Retardants and their Application, *Nano-Structures and Nano-Objects*, 2025, 42, 101468. <https://doi.org/10.1016/j.nanoso.2025.101468> (Q2, CS:5.4)
- J31. G. P. Muthukutti, **M. K. Singh**, S. K. Palaniappan, K. Vijayananth, S. M. Rangappa*, S. Siengchin; Value-added polymer composites using non-metallic industrial waste: A concise review, *Chemical Engineering Journal*, 2025, 512, 162344. <https://doi.org/10.1016/j.cej.2025.162344> (Q1, IF:13.4)
- J32. **M. K. Singh**, S. K. Palaniappan, S. M. Rangappa*, S. Siengchin; Emerging trends in nano filler composites for aerospace and automobile performance enhancement, *Journal of Engineering and Applied Sciences*, 2025, 12, 7. <http://dx.doi.org/10.5455/jeas.2025010602> (Google Scholar Indexed)
- J33. S. K. Palaniappan, **M. K. Singh**, S. M. Rangappa*, S. Siengchin; Impact of Micro- and Nano-Plastics on Environment and Food Chain: A Brief Overview, *Journal of Engineering and Applied Sciences*, 2025, 12, 8. <http://dx.doi.org/10.5455/jeas.2025010601> (Google Scholar Indexed)
- J34. R. Madan, P. Khobragade, E. K. Mussada, **M. K. Singh***, S. M. Rangappa, S. Siengchin; A Novel Two-Step Finite Element Approach to Estimate the Thermo-Mechanical Properties of Two-Phase and Three-Phase Hybrid Composites, *Composites Communications*, 2025, 53, 102213. <https://doi.org/10.1016/j.coco.2024.102213> (Q1, IF:6.5)
- J35. A.P. Singh, **M.K. Singh***, S.M. Rangappa, S. Siengchin, H. Pathak, S. Zafar*; Addition of ammonium polyphosphate for simultaneous enhancement of flame retardancy, mechanical, and viscoelastic properties of PALF-reinforced bio-HDPE composite, *Journal of Vinyl and Additive Technology*, 2024. <https://doi.org/10.1002/vnl.22185> (Q2, IF:3.8)
- J36. B. Devarajan, S. K. Palaniappan, V. Bhuvaneshwari, R. Lakshminarasimhan*, **M. K. Singh***, S. M. Rangappa, S. Siengchin; A review on effect of nanoparticle addition on thermal behavior of natural fiber-reinforced composites, *Heliyon*, 2025, 11, e41192. <https://doi.org/10.1016/j.heliyon.2024.e41192> (Q1, IF:3.4)
- J37. R. Gupta, **M.K. Singh**, S.M. Rangappa*, S. Siengchin, H.N. Dhakal, S. Zafar; Recent progress in additive inorganic flame retardants polymer composites: Degradation mechanisms, modeling and applications, *Heliyon*, 2025, 10, e39662. <https://doi.org/10.1016/j.heliyon.2024.e39662> (Q1, IF:3.4)

- J38.** S. Narayanaperumal, D. Divakaran, I. Suyambulingam*, **M. K. Singh***, S. M. Rangappa, Suchart Siengchin; Extraction of microcrystalline cellulose from *Ficus benghalensis* leaf and its characterization Sunesh, *International Journal of Biological Macromolecules*, 2024, 227(3), 134394. <https://doi.org/10.1016/j.ijbiomac.2024.134394> (Q1, IF:8.2)
- J39.** M. Saha*, H. Singh, V. Srivastava, **M. K. Singh**; Analysis and optimization of delamination factor for microwaved cured pineapple leaf fiber polymer composite through ANOVA analysis, *Applied Science and Engineering Progress*, 2024, 17(4), 7531. <https://doi.org/10.14416/j.asep.2024.08.010> (Q2, CS:3.1)
- J40.** S. S. Chandraraj, I. Suyambulingam, N. Edayadulla, D. Divakaran, **M. K. Singh***, S. M. Rangappa, S. Siengchin; Characterization of *Calotropis gigantea* plant leaves biomass-based bioplasticizers for biofilm applications, *Heliyon*, 10(13), 2024. <https://doi.org/10.1016/j.heliyon.2024.e33641> (Q1, IF:4)
- J41.** J. J. Rino, I. Suyambulingam*, D. Divakaran, N. P. Sunesh, **M. K. Singh**, M. Vishnuvarthanan, S. M. Rangappa, S. Siengchin; Facile exfoliation and physicochemical characterization of *Thespesia populnea* plant leaves based bioplasticizer macromolecules reinforced with polylactic acid biofilms for packaging applications, *International Journal of Biological Macromolecules*, 2024, 261, 129771. <https://doi.org/10.1016/j.ijbiomac.2024.129771> (Q1, IF:8.2)
- J42.** **M. K. Singh**, A. K. Mohanty, M. Misra*; Upcycling of waste polyolefins in natural fiber and sustainable filler-based biocomposites: A study on recent developments and future perspectives, *Composites Part B: Engineering*, 2023, 110852. <https://doi.org/10.1016/j.compositesb.2023.110852> (Q1, IF:13.1)
- J43.** **M. K. Singh***, R. Tewari, S. Zafar, S. M. Rangappa, S. Siengchin; A comprehensive review of various factors for application feasibility of natural fiber-reinforced polymer composites, *Results in Materials*, 2023, 17, 100355. <https://doi.org/10.1016/j.rinma.2022.100355> (Q2, CS:4.7)
- J44.** **M. K. Singh***, S. Zafar, S. M. Rangappa, S. Siengchin; Mechanical performance study of kenaf/HDPE composite for structural applications under wet or outdoor environments, *Journal of Natural Fibers*, 2022, 19(16). <https://doi.org/10.1080/15440478.2022.2116519> (Q2, IF:3.5)
- J45.** **M. K. Singh***, S. Zafar, S. M. Rangappa, S. Siengchin; Influence of microwave power and HDPE blend ratio on thermal and mechanical properties of kenaf reinforced PLLA/HDPE blended composites, *Journal of Polymer Research*, 2022, 29(7), 1-11. <https://doi.org/10.1007/s10965-022-03120-4> (Q2, IF:2.8)
- J46.** R. Tewari, **M. K. Singh***, S. Zafar; Utilization of forest and plastic wastes for composite manufacturing using microwave-assisted compression molding for low load applications, *Journal of Polymer Research*, 2021, 28, 409. <https://doi.org/10.1007/s10965-021-02778-6> (Q2, IF:2.8)
- J47.** **M. K. Singh**, S. Zafar*; Wettability, absorption and degradation behavior of microwave-assisted compression molded kenaf/HDPE composite tank under various environments, *Polymer Degradation and Stability*, 2021, 185, 109500. <https://doi.org/10.1016/j.polymdegradstab.2021.109500> (Q1, IF:5.9)
- J48.** G. Arora, **M. K. Singh**, H. Pathak*, S. Zafar; Micro-scale analysis of HA-PLLA bio-composites: Effect of the interpenetration of voids on mechanical properties. *Materials Today Communications*, 2021, 28, 102568. <https://doi.org/10.1016/j.mtcomm.2021.102568> (Q2, IF:3.8)
- J49.** N. Verma, **M. K. Singh**, S. Zafar*, H. Pathak; Comparative study of in-situ temperature measurement during microwave-assisted compression-molding and conventionally compression-molding process. *CIRP Journal of Manufacturing Science and Technology*, 2021, 35, 336-345. <https://doi.org/10.1016/j.cirpj.2021.07.005> (Q1, IF:4.8)
- J50.** **M. K. Singh***, R. Trehan, A. Gupta; Application of Grey approach to enhance the surface properties during AWJ machining of marine grade Inconel, *Advances in Materials and Processing Technologies*, 2021, 7(3). <https://doi.org/10.1080/2374068X.2020.1785206> (Q2, IF:2.1)
- J51.** **M. K. Singh**, S. Zafar*; Abrasive wear mechanism of microwave-assisted compression molded kenaf/HDPE composite, *Journal of Tribology-Transactions of the ASME*, 2020, 142(10), 101702. <https://doi.org/10.1115/1.4046858> (Q2, IF:2.5)
- J52.** **M. K. Singh**, S. Zafar*; Effect of layering sequence on mechanical properties of woven kenaf/jute fabric hybrid laminated microwave processed composites, *Journal of Industrial Textiles*, 2020. 51(2S) 2731S-2752S. <https://doi.org/10.1177/1528083720911219> (Q2, IF:2.7)
- J53.** R. Tewari, **M. K. Singh**, S. Zafar*, S. Powar; Parametric optimization of laser drilling of microwave processed kenaf/HDPE composite, *Polymers and polymer composites*, 2020, 29(3), 176-187. <https://doi.org/10.1177/0967391120905705> (Q3, IF:2.3)
- J54.** **M. K. Singh**, S. Zafar*, M. Talha; Development and characterisation of poly-L-lactide based foams fabricated through microwave assisted compression moulding, *Journal of Cellular Plastics*, 2019, 55(5), 523- 541. <https://doi.org/10.1177/0021955X19850728> (Q1, IF:2.7)
- J55.** **M. K. Singh**, S. Zafar*; Development and mechanical characterisation of microwave cured thermoplastic based natural fibre reinforced composites, *Journal of Thermoplastic Composite Materials*, 2019, 32, 1427-1442. <https://doi.org/10.1177/0892705718799832> (Q2, IF:3.2)

- J56. M. K. Singh, S. Zafar***; Influence of microwave power on mechanical properties of microwave-cured polyethylene/coir composites, *Journal of Natural Fibers*, 2018, 17(6), 845-860. <https://doi.org/10.1080/15440478.2018.1534192> (**Q2, IF:3.5**)
- J57. M. K. Singh***, D. Chauhan, M. Gupta, A. Diwedi; Optimization of Process Parameters of Aluminum Alloy (Al-6082 T-6) Machined on CNC Lathe Machine for Low Surface Roughness, *Journal of Material Sciences & Engineering*, 2015 4(202), 2169-0022. <https://doi.org/10.4172/2169-0022.1000202> (**Google Scholar Indexed**)

[4] Conference Proceedings

- C1. M. K. Singh***, G. Arora, R. Tewari, S. Zafar, H. Pathak, A. K. Sehgal, Effect of pine cone filler particle size and treatment on the performance of recycled thermoplastics reinforced wood composites, *Materials Today: Proceedings*, 2022, 62, 7358-7363. <https://doi.org/10.1016/j.matpr.2022.02.022>
- C2. M. K. Singh***, N. Verma, N. Pundhir, S. Zafar, H. Pathak; Optimization of Microwave Power and Reinforcement in Microwave-Cured Coir/HDPE Composites, *Advances in Mechanical Engineering: Select Proceedings of ICRIDME 2018*, 2020, 159-170. https://doi.org/10.1007/978-981-15-0124-1_16
- C3. M. K. Singh***, S. Zafar, M. Talha; Development of porous bio-composites through microwave curing for bone tissue engineering, *Materials Today: Proceedings*, 2019, 18, 731-739. <https://doi.org/10.1016/j.matpr.2019.06.478>
- C4. M. K. Singh***, N. Verma, S. Zafar; Optimization of process parameters of microwave processed PLLA/coir composites for enhanced mechanical behaviour, *Journal of Physics: Conference Series*, 2019, 1240, 1p. 012038. <https://doi.org/10.1088/1742-6596/1240/1/012038>
- C5. M. K. Singh***, S. Zafar; Tribological characteristics of microwave processed kenaf/HDPE composites under dry sliding wear, *Proceedings of the 22nd International Conference on Composite Materials 2019 (ICCM 2019)*, Melbourne Convention and Exhibition Centre (MCEC), Melbourne, Australia, August 2019.
- C6. R. Tewari, M. K. Singh, S. Zafar***; Application of laser energy for hole drilling in microwave fabricated kenaf/polypropylene composites, *Proceedings of the International Conference on Innovative Applied Energy (IAPE 2019)*, University of Oxford, Oxford, United Kingdom, March 2019.
- C7. M. K. Singh, N. Pundhir, S. Zafar***, H. Pathak; Development of Green Polymer Composites through Microwave Energy, *Proceedings of the International Conference on Composite Materials and Structures (ICCMS 2017)*, IIT Hyderabad, Hyderabad, India, December 2017.

[5] Book Chapters

- BC1. B. Dhiman, M. Kumar*, M. K. Singh, G. Arora, S. M. Rangappa, S. Siengchin**; Effect of aging on mechanical properties, *Mechanical Behavior of Fiber-reinforced Polymer Composites*, Elsevier, 2026. (**Under Preparation**)
- BC2. M. K. Singh*, S. K. Palaniappan, S. M. Rangappa, S. Siengchin**; *Hybrid biobased composites based on seed fibres*, Elsevier, 2027. (**Under Preparation**)
- BC3. A. Mukhtiar, Y. Khan*, K. Arooj, A. Sattar, S. Aminullah, M.K. Singh**; Current trends and future perspectives for fiber-reinforced composites, *Mechanical Behavior of Fiber-reinforced Polymer Composites*, Elsevier, 2026. (**Submitted**)
- BC4. G. Arora*, P. Bhowmik, M. K. Singh, V. Ayyapan, M. Kumar, B. Dhiman, S. M. Rangappa, S. Siengchin**; Numerical analysis of mechanical properties of fiber-reinforced polymer composites, *Mechanical Behavior of Fiber-reinforced Polymer Composites*, Elsevier, 2027. (**Submitted**)
- BC5. M. Kidanu, G. Arora, P. Shukla, S. Debnath, M. K. Singh***; Energy and Storage Materials: Striking a Balance Between Sustainability and Performance, *Life Cycle Assessment of Environmental Impact in Natural Materials*, Elsevier, 2025. (**Submitted**)
- BC6. P. Bhowmik, G. Arora*, M. K. Singh, S. M. Rangappa, S. Siengchin**; Graphene-Based Nanocomposites, Carbon-Based Nanocomposites for Sustainable Applications, Springer, 2025. https://doi.org/10.1007/978-3-031-95306-4_2
- BC7. M. K. Singh*, S. M. Rangappa, S. Siengchin**; Nano filler-based composites: Insights into manufacturing and mechanical performance, *Advanced Functional and Composite Materials*, CRC Press, 2025. <https://doi.org/10.1201/9781003656333>
- BC8. G. Arora, M. K. Singh*, S. Zafar, S. M. Rangappa, S. Siengchin**; Introduction to microwave heating and its applications in the composite industry, *Composite Materials Processing Using Microwave Heating Technology*, Springer, 2024, 1-35. https://doi.org/10.1007/978-981-97-2772-8_1
- BC9. M. K. Singh, N. Verma, R. Kumar, S. Zafar*, H. Pathak**; Microwave Processing of Polymer Composites, *Handbooks on Advanced Manufacturing: Advanced Welding and Deforming*, Elsevier, 2021, 351-377. <http://dx.doi.org/10.1016/B978-0-12-822049-8.00013-X>

- BC10.** S. Zafar*, N. Verma, **M. K. Singh**, H. Pathak; Advances in the processing of composites biomaterials for bone grafting and other biomedical applications, *Encyclopedia of Materials: Plastics and Polymers*, Elsevier, 4, 614-634, 2022. <http://dx.doi.org/10.1016/B978-0-12-820352-1.00100-0>
- BC11.** **M. K. Singh**, N. Verma, S. Zafar*; Conventional Processing of Polymer Matrix Composites, *Lightweight Polymer Composite Structures*, CRC Press, 2020, 21-66. <https://doi.org/10.1201/9780429244087>
- BC12.** N. Verma, **M. K. Singh**, S. Zafar*; Development of Porous Bio-Nano-Composites Using Microwave Processing, *Biofibers and Biopolymers for Biocomposites*, Springer, 2020, 209-228. https://doi.org/10.1007/978-3-030-40301-0_10

COMMITTEE MEMBER

S.No.	Details	Sponsorship	Dates	Role
1.	International Workshop and Conference on Robotics, Automation and Manufacturing	King Mongkut's University of Technology North Bangkok, Thailand	17-20 February 2026	Conference co-chair
2.	2nd International Conference on Sustainable Technologies, Energies and Materials	King Mongkut's University of Technology North Bangkok, Thailand	19-21 February 2024	Conference convenor
3.	3rd International Symposium on Sustainable Fibers and Polymeric Materials	King Mongkut's University of Technology North Bangkok, Thailand & University of Portsmouth, UK	25 Oct 2024	Organizing chair
4.	International Symposium on Advanced Manufacturing for Polymeric Materials	King Mongkut's University of Technology North Bangkok, Thailand	24 May 2024	Organizing chair
5.	International conference on Eco-friendly Fibers and Polymeric Materials	King Mongkut's University of Technology North Bangkok, Thailand	19-20 February 2024	Conference convenor
6.	International symposium on lightweight and sustainable polymeric materials	King Mongkut's University of Technology North Bangkok, Thailand	17 Feb 2023	Scientific committee member
7.	International Conference on Materials Advancements and Technology Research for Leading-edge Science	Maharaja Agrasen University, India	9-10 Feb 2024	Advisory board member

RESOURCE PERSON

S.No.	Role	Title	Dates	Event	Place
1.	Invited Speaker	Natural Fibers and Future Biocomposites: Enhancing Performance and Integrating Smart Technologies for Applications and Sustainability	11-12 September 2024	1 st International Conference on Natural Fiber and Biocomposite (ICONFIB 2024)	Universitas Padjadjaran, Bandung, Indonesia (Onsite)
2.	Distinguished Speaker	Advanced Manufacturing of Polymer Composites using Microwave Assisted Compression Molding	23-27 September 2024	2 nd International 5-Day Faculty Development Programme on Sustainability and Research in Modern Mechanical Engineering	Madanapalle Institute of Technology & Science, Andhra Pradesh, India (Virtual)
3.	Invited Speaker	How to Write the Book Proposals and Perform the Task of Book Editor	08 May 2025	Book Proposals Preparation Workshop	King Mongkut's University of Technology

					North Bangkok, Thailand
4.	Distinguished Speaker	Advancements in Non-Conventional Machining Technologies	02-06 June 2025	3 rd International 5-Day Faculty Development Programme on Sustainability and Research in Modern Mechanical Engineering	Madanapalle Institute of Technology & Science, Andhra Pradesh, India (Virtual)

WORKSHOPS/SEMINARS/CONFERENCES

- Attended a one-day workshop on “**Sustainable Composites: Making Electric Vehicles Lighter & Safer**” organized by *BDDC*, University of Guelph, Ontario, Canada, 29 September 2022.
- Attended “**Faculty Development Programme on Implementation of National Education Policy 2020: Role of Faculty in Higher Education Institutions**” organized by Chandigarh University, India, 20-24 December 2021.
- Presented a paper at international conference “**AFTMME**” organized by *IIT Ropar*, India, 9-11 December 2021.
- Attended a workshop on “**Additive Manufacturing: Current Trends and Prospects Towards Developing AM Research**” organized by *IIT Kanpur*, India, 22-26 August 2021.
- Attended a workshop on “**Manufacturing: Hindsight to Foresight**” organized by *BITS Pilani*, India, 16-20 July 2021.
- Presented a poster at international conference “**22nd ICCM**” held at *MCEC*, Melbourne, Australia, 11-16 August 2019.
- Presented a paper at international conference “**NFEST 2019**” organized by *NIT Kurukshetra*, India, 18-22 February 2019.
- Presented a paper at international conference “**IC-RIDME**” organized by *NIT Meghalaya*, India, 8-10 November 2018.
- Attended a workshop on “**Technical Writing**” organized by the Teaching and Learning Committee at *IIT Mandi*, India, 13-14 October 2018.
- Attended a workshop on “**Microwave Processing of Materials: Challenges and Opportunities**” at *IIT Roorkee*, India, 22-23 May 2018.
- Attended a one-day workshop on “**Effective Teaching and Learning**” organized by the Teaching and Learning Committee at *IIT Mandi*, India, 28 April 2018.
- Attended a national workshop on “**Composite Materials in Engineering Applications: Design and Manufacturing Perspective**” at *IIT Mandi*, India, 15-19 January 2018.
- Presented a paper at international conference “**ICN3I**” organized by *IIT Roorkee*, India, 6-8 December 2017.
- Attended one-week short term course on “**CAD-CAM and Pro/E software**” at *NIT Jalandhar*, India, 22-26 September 2014.
- Attended National Seminar on “**Advanced manufacturing processes**” sponsored by AICTE at *Noida Institute of Engineering and Technology*, Greater Noida, India, 20-21 February 2010.

REVIEWER FOR JOURNALS

S. No.	Name of Journal	Publishers
1.	Composites Part A	Elsevier
2.	Smart Materials in Manufacturing	
3.	Composite Part C	
4.	Polymer Degradation and Stability	
5.	Heliyon	
6.	Carbohydrate Polymer Technologies and Applications	
7.	Case Studies in Chemical and Environmental Engineering	

8.	Materials Today: Proceedings	
9.	ACS Omega	American Chemical Society
10.	Scientific Reports	Springer Nature
11.	Biomass Conversion and Biorefinery	
12.	Chemical Papers	
13.	Discover Materials	
14.	International Journal on Interactive Design and Manufacturing	
15.	Journal of Materials Science	
16.	Mechanics of Composite Materials	
17.	Multiscale and Multidisciplinary Modeling, Experiments and design	
18.	Polymer Bulletin	
19.	Polymer Research	
20.	Journal of Polymers and the Environment	
21.	Journal of Materials Engineering and Performance	
22.	Materials Circular Economy	
23.	Journal of Natural Fibers	Taylor & Francis
24.	Lubrication Science	Wiley
25.	International Journal for Numerical Methods in Engineering	
26.	Engineering Research Express	IOPScience
27.	Journal of Industrial Textile	Sage
28.	International Polymer Processing	De Gruyter
29.	International Journal of Environmental Technology and Management	Inderscience
30.	Polymers	MDPI
31.	Waste	
32.	Coatings	
33.	Computer Modeling in Engineering and Sciences	Tech Press
34.	International Journal of Vehicle Systems Modelling and Testing	
35.	International Journal of Materials Engineering Innovation	
36.	Current Materials Science	Bentham Science
37.	Current Applied Polymer Science	
38.	International Journal of Energy for a Clean Environment	Begell House
39.	Applied Science and Engineering Progress	KMUTNB, Thailand
40.	Evergreen Journal	Kyushu University
41.	Mechanics of Advanced Composite Structures	Semnan University
42.	Acta Periodica Technologica	University of Novi Sad, Serbia

43.	Matéria (Rio de Janeiro)	Federal University of Rio de Janeiro
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PROJECT/INTERNSHIP

- M.Tech. project from **IIT Kanpur** (March 2016). Topic- “Investigation of process parameters for improvement of surface roughness & MRR on abrasive water jet machine for Inconel 625”.
- B.Tech. project from **IIT Delhi** (Feb 2013). Topic- “Optimization of Process Parameters of Aluminum Alloy (Al-6082 T-6) Machined on CNC Lathe Machine for Low Surface Roughness”.
- Summer training from **BSN Industries Pvt. Ltd.**, Noida (June to July, 2012). Topic- “Crankshaft manufacturing”.
- Six weeks summer training on CATIA from **CETPA Infotech Pvt. Ltd.**, Lucknow (June to August, 2011).

EXTRACURRICULAR ACTIVITIES

- Presented posters in “**Research Fair Anusandhan 2018 & 2019**” at *IIT Mandi*, India.
- Participated in **inter-hostel badminton tournament** at *IIT Mandi*, India, 2019.
- Participated and appreciated in the “**book distribution marathon 2013**” organized by *ISKCON New Delhi*, India.

REFEREES (in alphabetical order)

Dr. Amar K Mohanty, Professor & OAC Distinguished Research Chair in Sustainable Biomaterials (**Postdoc Supervisor**)
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PERSONAL DETAILS

Father’s name: Ram Narayan Singh

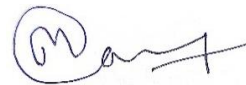
Mother's name: Late Gita Devi

Wife's name: Sapana Singh

Date of birth: 5 Oct 1991

DECLARATION

I affirm that the information provided above is true to the best of my knowledge, and I take full responsibility for its accuracy.



Manoj Kumar Singh

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