

Dr. Abhishek Kumar
Professor
Department of Applied Mechanics
Motilal Nehru National Institute of Technology Allahabad, Prayagraj

A. Patent(s):

1. **A shape memory polymer composite (SMPC) based hinge with self-locking mechanism.**
Inventors: *Avadesh Yadav, Satish Kumar, and Abhishek Kumar*; Status: **Filed** (Application No.: 202511097848, Filed on 09-10-2025).

B. International Journal

1. **Mechanical Behavior of 3D Printed ABS and TPU: Effect of Infill pattern and Layer Height**
Mohit Kumar Pandey, Renganathan Sujithra, Avadesh Yadav and Abhishek Kumar
Journal of Materials Engineering and Performance, Accepted (2026). (SCIE: Impact factor- 2.2)
2. **Viscoelastic and Stiffness Modelling of CF Dispersed Shape Memory Epoxy Composites: A Deployable Solar Concept**
Avadesh Yadav, Satish Kumar, and Abhishek Kumar
Journal of Polymer Research, 33, 78 (2026). (SCIE: Impact factor- 2.9)
<https://doi.org/10.1007/s10965-026-04772-2>
3. **Improved Microwave Absorption Behaviour of Fe-Dispersed B₄C Composites**
Deeksha Gupta, Ashish Dubey and Abhishek Kumar
Ceramics International, 52 (5), 6184-6196 (2025). (SCIE: Impact factor- 5.1)
<https://doi.org/10.1016/j.ceramint.2025.12.377>
4. **Performance Enhancement of Bio-Epoxy via rGO Reinforcement: Mechanical, Thermal, Morphological, and Spectroscopic Insights**
Vivekanand Singh, Sanjay Mishra, Sanjeev Kumar Singh Yadav, Abhishek Kumar, Sushil Kumar Singh, Avadesh Yadav
Polymers for Advanced Technologies, 36 (12), e70463, (2025). (SCIE: Impact factor- 3.4)
<https://doi.org/10.1002/pat.70463>
5. **Thermo-mechanical behavior and shape memory performance of graphene nanoplatelet-reinforced epoxy nanocomposites**
Rushikethu Badardinni, Ravindra Singh, Avadesh Yadav, Satish Kumar, Renganathan Sujithra and Abhishek Kumar
Polymers for Advanced Technologies, 36 (12), e70443, (2025). (SCIE: Impact factor- 3.4)
<https://doi.org/10.1002/pat.70443>
6. **Experimental Investigation of 3D Printing Parameters on Mechanical Properties of TPU-87A and TPU-95A**
Mohit Kumar Pandey, Abhishek Kumar & R. Sujithra
Journal of Materials Engineering and Performance, Accepted (2025). (SCIE: Impact factor- 2.2)
<https://doi.org/10.1007/s11665-025-12653-w>
7. **Microstructure, Erosion, and Corrosion studies on Laser NiCoCr-Cladded EN8 Steel**
B. Kranthi Kumar, Amit Kumar Singh Chauhan, and Abhishek Kumar
Journal of Process Mechanical Engineering, Accepted (2025). (SCIE: Impact factor- 2.2)
<https://doi.org/10.1177/09544089251382974>
8. **Synergistic Impact of Multi-layering, MWCNT Dispersion and Ball Milling on the Enhanced Microwave Absorption of Boron Carbide**

- Deeksha Gupta, Ashish Dubey and **Abhishek Kumar***
Journal of Materials Science: Materials in Electronics, 36, 1074 (2025). (SCIE: Impact factor- 2.8)
<https://doi.org/10.1007/s10854-025-15132-z>
9. **Comparative analysis of build direction in SLA-printed parts based on optical, quasi-static, fracture, and dynamic experiments**
*Chahare Sandhya, Renganathan Sujithra and **Abhishek Kumar***
Journal of Materials Engineering and Performance, 35, 181–198 (2025). (SCIE: Impact factor- 2.2)
<https://doi.org/10.1007/s11665-025-11579-7>
10. **Development and characterization of SWCNT reinforced bio-epoxy (EcoPoxy) nanocomposites**
*Vivekanand, Sanjay Mishra Singh, Sanjeev Kumar Singh Yadav, **Abhishek Kumar**, Avadesh Yadav*
Polymer Bulletin, 82, 8609–8631 (2025). (SCIE: Impact factor- 4.0)
<https://doi.org/10.1007/s00289-025-05835-y>
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*Avadesh Yadav, Satish Kumar, and **Abhishek Kumar***
Journal of Materials Science, 60, 9374–9395 (2025). (SCIE: Impact factor- 3.5)
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Polymer Composites, 46, 1647–11683 (2025). (SCIE: Impact factor- 4.8)
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14. **Enhancement of Mechanical and Viscoelastic Properties of Epoxy and Epoxy-Nano Silica Composites using Self-Healing Microcapsules**
*Sushil Kumar Singh, Avadesh Yadav, Samarjit Singh, Anuj Jain and **Abhishek Kumar***
Materials Today Communications, 43, 111741 (2025). (SCIE: Impact factor- 3.7)
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15. **Insights into microstructure and mechanical properties of 3D printed Ti-6Al-4V alloy at different layer thicknesses**
*Amit Kumar Singh Chauhan, Mukul Shukla, **Abhishek Kumar***
Materials Letters, 138047 (2025). (SCIE: Impact factor- 2.7)
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16. **Effect of NiAl and NiCr Coatings on High Cycle Fatigue and Corrosion Behavior of Direct Metal Laser Sintered Ti-6Al-4V Alloy**
*Amit Kumar Singh Chauhan, Mukul Shukla, **Abhishek Kumar***
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17. **Development of metamaterial using waste materials for microwave absorption**

- Deeksha Gupta, Prabhakar Kumar, Ashish Dubey and **Abhishek Kumar***
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18. **Effect of Laser Sintering Parameters on the Microstructure, Mechanical Properties and Corrosion Behaviour of Titanium Grade 5 Alloy**
*Amit Kumar Singh Chauhan, Mukul Shukla, **Abhishek Kumar***
Journal of Materials Engineering and Performance, 33, 12806–12818 (2024). (SCIE: Impact factor-2.2)
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 19. **Effect of dual dispersion of carbon fiber and silica nanoparticles on recovery performance of shape memory epoxy**
*Avadesh Yadav, Sreetam Das, Rushikethu Badardinni, Satish Kumar and **Abhishek Kumar***
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 20. **Development of silicon carbide (SiC)-based composites as microwave-absorbing materials (MAMs): a review**
*Samarjit Singh, Rakesh Bhaskar, Kannan Badri Narayanan, **Abhishek Kumar**, Kishore Debnath*
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*Samarjit Singh, Sushil Kumar Singh, **Abhishek Kumar** & Biplab Das*
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Smart Materials and Structures, 32 (9) 095016 (2023) (SCIE: Impact factor-3.7)
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 24. **Nano material coatings for bio implant applications: A re-analysis**
*Naveen Kumar, Ajaya Bharti, **Abhishek Kumar**, Ritesh Kumar Kushwaha, Kunvar Kant Patel*
Materials Physics and Mechanics, 51(6):92-106 (2023). (Scopus Indexed, ESCI)
DOI: [10.18149/MPM.5162023_9](https://doi.org/10.18149/MPM.5162023_9)
 25. **3D Thermal Simulation of Powder Bed Fusion Additive Manufacturing of Stainless Steel**
*Amit Kumar Singh Chauhan, Mukul Shukla, **Abhishek Kumar***
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27. **Investigation on the effect of Fe impurity pickups during ball milling and Ni dispersion on the microwave absorption performance of ball milled Fe impurities-Ni/SiC composites**
*Samarjit Singh, Sushil Kumar Singh, Pappu Kumar Harijan, Sunil Kumar Yadav, **Abhishek Kumar***
Journal of Materials Science: Materials in Electronics, 33, 17828-17841 (2022). (SCI: Impact factor-2.8)
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28. **Studies on microstructure evolution, mechanical and corrosion behaviors of cryo-rolled 316L steel**
*Rahul Singh, Sunkulp Goel, R. Jayaganthan and **Abhishek Kumar***
Journal of Materials Engineering and Performance, 31, 9660–9669, 2022. (SCIE: Impact factor-2.2)
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*Sushil Kumar Singh, Dheeraj Gunwant, Ajitanshu Vedrtnam, **Abhishek Kumar** and Anuj Jain*
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*Sunkulp Goel, Dharmendra Singh, Nikhil Kumar, **Abhishek Kumar** Chauhan, & Punit Singh*
Indian Journal of Engineering & Materials Sciences; Vol: 29, 432-436, 2022 (SCI: Impact factor-0.9)
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*Rahul Singh, Surya Deo Yadav, Biraj Kumar Sahoo, Sandip Ghosh Chowdhury and **Abhishek Kumar***

- Defence Science Journal, 71(3), 383-389, 2021. (SCIE: Impact factor- 0.8)
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*Abir Roy and **Abhishek Kumar***
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*Naveen Kumar, Ajaya Bharti, **Abhishek Kumar** and Abhishek Nigam*
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*Rahul Singh, Shubham Agrahari, Surya Deo Yadav and **Abhishek Kumar***
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*Sushil Kumar Singh, **Abhishek Kumar** and Anuj Jain*
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*Rahul Singh, Deepak Sachan, Deepak Singh, Surya Deo Yadav, **Abhishek Kumar***
Journal of Materials Engineering and Performance, 30, 290-301, 2020. (SCIE: Impact factor-2.2)
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*Abir Roy, Manish Tiwari, Sandeep Sahu, Sumeet Mishra and **Abhishek Kumar***
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 50. **A comparative screening of abiotic stress tolerance in early flowering rice mutants**
*Shadma Afzal, Preeti Sirohi, Alok Kumar Yadav, Manish Pratap Singh, **Abhishek Kumar**, Nand K.Singh*
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International Conference

63. **Design and Analysis of Shape Memory Polymer Based Self Expandable Biocompatible Stent**
Akanksha Singh, Avadesh Yadav, Abhishek Kumar and Satish Kumar
10th International and 31st All India Manufacturing Technology, Design & Research (AIMTDR 2025) Conference organized by IIT Indore, India held on 11th-13th December 2025.
64. **Microwave Absorption Behavior of Graphene Dispersed Boron Carbide**
Deeksha Gupta, Ashish Dubey, Abhishek Kumar
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65. **Deep Learning-Based Prediction of Dynamic Mechanical Behavior in Epoxy-Based Shape Memory Polymers**
Avadesh Yadav, Sourabh Kumar Singh, Satish Kumar and Abhishek Kumar
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66. **Effect of ball milling on microwave absorption properties of B₄C**
Deeksha Gupta, Ashish Dubey, Abhishek Kumar
4th Global Ceramic Leadership Roundtable Ceramics for Frontier Sectors: Emerging Advances and Prospects (CerAP2024) organized by Indian Institute of Technology Roorkee during March 11-12, 2024.
67. **Design modification of cooling channel for improved cooling of lithium-ion batteries**
Zainab Momin, A. Mishra and Abhishek Kumar
The 64th Battery Symposium in Japan, Osaka, Japan held during 28-30, November 2023.
68. **Temperature-Step/Hold Multi-Frequency Dynamic Mechanical Analysis to Study Viscoelastic Behaviour of Shape Memory Epoxy for Space Structure and Component**
Avadesh Yadav, Rushikethu Badardinni, Ratnesh Kumar Yadav, Satish Kumar and Abhishek Kumar
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69. **Crystallographic Study of Solid Solutions in The Mg-Ca-Nd Ternary System at 400 °C**
Yogesh Iyer Murthy, Sumit Gandhi and Abhishek Kumar
The *International Conference on Advancements in Interdisciplinary Research (AIR-2022)* organized by MNNIT Allahabad, Prayagraj, held during 6-7 May 2022. Proceedings-AIR2022, River Publishers (ISSN: 2794-2333)
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70. **Finite Element Analysis of a Shape Memory Polymer for Space Actuator Applications**
*Sreetam Das, Sourabh Kumar Singh, Avadesh Yadav, Satish Kumar and **Abhishek Kumar***
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71. **Dispersion of Zn in waste material for microwave absorption property**
*Prabhakar Kumar, Deeksha Gupta and **Abhishek Kumar***
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72. **Finite Element Analysis of Re-entrant and modified curved re-entrant auxetic structure for energy-absorption**
*Prabhakar Kumar, Prashant Singh, Nigatu D. Tilahun, R. Sujithra, **Abhishek Kumar***
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73. **Influence of SiO₂ nanoparticle reinforcement on the thermo-mechanical behavior of two different epoxy composite systems: A comparative study**
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75. **Mechanical behaviour and corrosion study of 304L austenitic steel processed by constrained groove pressing**
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108. **An experimental comparative study of cyclic creep behavior on different commercially available Al alloys**
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111. **Enhancing the working life of Industrial components by Laser Cladding Technology**
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112. **Effect of high-pressure torsion on microstructure and microhardness of Magnesium AZ91**
*Saurabh, Ratnesh Kumar Yadav, Sandeep Sahu, Deepak Kumar and **Abhishek Kumar***
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113. **Analysis of Copper Reinforcement Effect on Epoxy-Based Shape Memory Polymer for Smart Actuators**
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*Sourabh Kumar Singh, Avadesh Yadav, Satish Kumar, and **Abhishek Kumar***
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115. **Improved Microwave Absorption Response of Ball Milled Ni Dispersed SiC Composites**
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116. **Corrosion Behaviour of Multiaxial Compressed AlMgSi Alloy**
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117. **Modelling of Tensile Flow and Work Hardening Behaviour of Stainless Steel Using a Dislocation Density-Based Model**
*Harikesh, S. D. Yadav and **Abhishek Kumar***
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118. **Study of Mechanical and Corrosion Behaviour of Constrained Groove Pressed Austenitic Steel-304L**
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119. **Impact of SiO₂ Nanoparticle Weight Fraction on Mechanical Properties of Two Epoxy Polymers**
*Sushil Kumar Singh, **Abhishek Kumar** and Anuj Jain*
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120. **Phase transformation, mechanical properties and corrosion behavior of 304L austenitic stainless steel rolled at room and cryo temperature**

- Rahul Singh, Surya Deo Yadav, Biraj Kumar Sahoo, Sandip Ghosh Chowdhury and **Abhishek Kumar***
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121. **Effect of nanoparticles dispersion in High entropy alloys: A brief review**
*B. Kranthi Kumar, Rahul Singh and **Abhishek Kumar***
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122. **Synthesis and Anti-bacterial Study of Zinc Oxide Doped Hydroxyapatite Nanocomposites with Potential Biomedical Applications**
*Sushma Yadav, Samarjit Singh, **Abhishek Kumar***
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123. **Parameter optimization of sliding wear of Cryogenically-rolled Austenitic steel using Taguchi method**
*Rahul Singh, Gaurav Rajan and **Abhishek Kumar***
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124. **Effect of nanoparticle dispersion on single lap shear strength of epoxy resin**
*Deepak Kumar, Kushagra Gupta, Sumit Soni, Virendra Kumar Gond, Rishi Tiwari and **Abhishek Kumar***
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125. **Effect of Ni microspheres on the dielectric behavior and microwave absorption performance of ZnO composites**
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126. **Selection of Core-shell Material-based Electromagnetic Wave Absorbers in 2-18 GHz using TOPSIS and VIKOR Ranking Methods**
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*Sushil Kumar Singh, **Abhishek Kumar** and Anuj Jain*
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129. **Impact of deformation route over Mechanical and magnetic behavior of austenitic stainless**

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130. **Material selection for nickelbased microwave absorbing materials in 2-18 GHz frequency range using different Multi-Criteria Decision-Making Methods**
Samarjit Singh, Sushil Kumar Singh and Abhishek Kumar
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131. **Mechanical behavior of Al 1xxx processed by Torsion**
Abir Roy, Rishi Shukla and Abhishek Kumar
NMD-ATM 2016 held at Indian Institute of Technology Kanpur during 11-14 November, 2016.
(Best Poster Award)
132. **Mechanical behavior of Al 5083 processed by Constrained Groove Pressing**
Abir Roy, Abhishek Kumar, Shashank Shekhar
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133. **Design and Simulation of thin film based self-biased Coplanar Isolator**
Z. Vakil, Abhishek Kumar, Anuj Jain, K. M. Gupta
RAECE-2015 held at Indian Institute of Technology Roorkee, during February 13-15, 2015.
134. **Microwave Absorbing Properties of Metal-Particle Dispersed Al₂O₃**
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135. **Radar Cross Section Measurements and Simulations of a regular shapes in the X-band**
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136. **Preparation of nanocrystalline ZnCuMg ferrite powders synthesized by Sol-Gel method**
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E. Book(s)/ Proceeding(s) published:

1. Edited a Proceeding of the 2022 International Conference on “*Advancements in Interdisciplinary Research towards Smart and Sustainable Society*” (AIR2022). e-ISBN: 9788770228282, doi: <https://doi.org/10.13052/rp-978-87-7022-828-2>.

F. Book Chapter published:

1. **Selection of spinel ferrite-based electromagnetic wave absorbing composites using AHO-based TOPSIS and VIKOR approaches**
Samarjit Singh, Abhishek Nigam, Bilab Das, Thozhuvur Govindaraman Loganathan and Abhishek Kumar
Spinel Ferrite Materials: Fundamentals, Progress, and Applications, (2024) 1st Edition; Woodhead Publishing Series in Electronic and Optical Materials; Publisher: Elsevier, Paperback ISBN: 9780443217425, eBook ISBN: 9780443217432.

<https://doi.org/10.1016/B978-0-443-21742-5.00007-3>

2. **Investigating the Effectiveness of Reinforced Ice on the Mechanical Properties**
Yadav, R.K., Saurabh, Goel, S., **Kumar, A**
In: Raghavendra, G., Deepak, B.B.V.L., Gupta, M. (eds) Recent Advances in Mechanical Engineering, (2024) Volume 1. ICMech-REC 2023. Lecture Notes in Mechanical Engineering. Springer, Singapore. Print ISBN: 978-981-97-0917-5 and Online ISBN: 978-981-97-0918-2
https://doi.org/10.1007/978-981-97-0918-2_33.
3. **Effect of Nanoparticles Dispersion in High Entropy Alloys: A Brief Review**
*B. Kranthi Kumar, Rahul Singh, and **Abhishek Kumar***
Industrial Application of Nanoscience and Nanotechnology, Volume-1, Chapter -10, Pages 127-135, December 2020. (ISBN: 978-93-89947-256-7)