

PUBLICATIONS

Journal Publications

- Siddharth Kumar, Shrushti Maheswari, Sarthak S Singh, Patrick Rozycki; Dynamic mechanical analysis of epoxy composites: Master curve construction and prony series fitting to investigate filler shape effects on viscoelastic properties, *Emergent Materials* (Springer), 2025. DOI: [10.1007/s42247-024-00992-8](https://doi.org/10.1007/s42247-024-00992-8)
- Ranjan Kumar Mishra and Sarthak S. Singh; Comprehensive review of biological response, alloy design, strengthening mechanisms, performance evaluation, and surface modifications of titanium alloys for biomedical applications, *Multiscale and Multidisciplinary Modeling, Experiments and Design* (Springer), 8(1), 67, 2025.
- Ranjan Kumar Mishra and Sarthak S. Singh; Interfacial crack analysis in piezoelectric bi-material using coupled FE-XEFG approach, *Mechanics of Advanced Materials and Structures* (Taylor & Francis), 2024. DOI: [10.1080/15376494.2024.2438904](https://doi.org/10.1080/15376494.2024.2438904).
- Annada Prasad Moharana, Sarthak S. Singh, Amit Rai Dixit; Dynamic mechanical and viscoelastic properties of glass fiber reinforced photopolymer composite fabricated using vat-photopolymerization additive technique: Influence of filler volume fraction, *Journal of Manufacturing Processes* (Elsevier), 130, 72-86, 2024.
- Siddharth Kumar, Saurav Ranjan Sahay, Sarthak S. Singh, Patrick Rozycki; Exploring the filler morphology and temperature-dependent compressive response of glass-filled epoxy composites: Insights from experiments and viscoplastic simulations, *Polymer Composites* (Wiley), 45(18), 17001-17016, 2024.
- Sarthak S. Singh and R. Kitey; Investigating the spall phenomena in glass filler embedded epoxy composites using laser-induced stress wave, *Materials Today Communications* (Elsevier), 40, 110047, 2024.
- Shrushti Maheshwari, Anand Kumar, Pyaarjit S. Chaurasia, T. Niranjana, Zafar Alam, Sarthak S. Singh; Temperature and Strain Rate Dependent Compression Properties of 3D-Printed PLA: An Experimental and Modeling Analysis, *Rapid Prototyping Journal* (Emerald), 30(7), 1462-1475, 2024.
- Siddharth Kumar and Sarthak S. Singh; Concurrent Predictions of Tension, Compression, and Shear Characteristics of Epoxy Using Three-Network Viscoplastic Model, *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science* (Sage), 238(21), 10480-10489, 2024
- Asish Siddharth, Ajay Bhandari, Sarthak S. Singh, Arun Dayal Udai; Effect of twisting of intravitreal injections on ocular bio-mechanics: a novel insight to ocular surgery, *Biomechanics and Modeling in Mechanobiology* (Springer), 23, 1013–1030, 2024.
- Manohar Kumar, Kesavan Ravi, Sarthak S. Singh; Temperature and strain rate effects on ultra-high-molecular-weight-polyethylene compression: An experimental and modeling approach, *Polymer Engineering and Science* (Wiley), 64(5), 2214-2229, 2024.
- Shrushti Maheshwari, Zafar Alam, Sarthak S. Singh; Investigating the large strain compression properties of PLA parts manufactured by FDM using experiments and constitutive modeling, *Rapid Prototyping Journal* (Emerald), 30(3), 555-570, 2024.
- Annada P. Moharana, Siddharth Kumar, Ratnesh Raj, Sarthak S. Singh, Amit Rai, Dixit; Effect of glass fiber reinforcement on compressive strength of photopolymer composite fabricated using vat-photopolymerization additive technique: An experimental and modeling approach, *Polymer Composites* (Wiley), 45(1), 193-214, 2024.
- Manohar Kumar, Kesavan Ravi, Sarthak S. Singh; Predicting the double-yield phenomenon in low-density polyethylene film using three-network viscoplastic model, *Mechanics of Materials* (Elsevier) 184, 104736, 2023.
- Sudepto Paul and Sarthak S. Singh; Modeling the strain-softening behavior of glass-filled epoxy composites using a hyperelastic–viscoplastic model, *Mechanics of Time-Dependent Materials* (Springer), 27(03), 929-947, 2023.

- Ratnesh Raj, Amit Rai Dixit, Sarthak S. Singh, Sudepto Paul; Print parameter optimization and mechanical deformation analysis of alumina-nanoparticle doped photocurable nanocomposites fabricated using vat-photopolymerization based additive technology, *Additive Manufacturing* (Elsevier), 60, 103201, 2022.
- Siddharth Kumar, Sarthak S. Singh, Patrick Rozycki; Numerical simulation of strain-softening behavior of glass-filled polymer composites: Comparison of two-dimensional and three-dimensional analyses using Arruda-Boyce and Three-Network viscoplastic models, *Mechanics of Materials* (Elsevier) 175, 104481, 2022.
- K. Kathiresan, Sarthak S. Singh, R. Kitey; Investigating the role of filler shape on the dynamic mechanical properties of glass-filled epoxy composites, *Polymer Composites* (Wiley), 43(10), 6912-6925, 2022.
- Sarthak S. Singh and R. Kitey; Spall characterization in epoxy via laser spallation technique, *Experimental Mechanics* (Springer), 60(7), 969-985, 2020.
- Sarthak S. Singh, P. Chakraborty and R. Kitey; Deformation characteristics of glass-filled epoxy under compression: Role of filler shape and volume fraction, *Polymer Composites* (Wiley), 40(12), 4726-4741, 2019.
- Sarthak S. Singh, P. Venkitanarayanan and R. Kitey; Dynamic compression behavior of glass-filled epoxy composites: Influence of filler shape and exposure to high temperature, *Composites Part B: Engineering* (Elsevier), 164, 103-115, 2019.
- Sarthak S. Singh and R. Kitey; Effect of interface profile and incident wave characteristics on aluminum/epoxy dynamic adhesion strength, *International Journal of Adhesion and Adhesives* (Elsevier), 79, 8-17, 2017.

Conference Proceedings

- Parth Dev Bundela, Ajay Bhandari and **Sarthak S. Singh**, Convection enhanced drug delivery in deformable human tumors, *AIP Conference Proceedings*, 2863, 020003 (2023).
- David Kumar and **Sarthak S. Singh**, Static and Dynamic Mechanical Characterization of Polydimethylsiloxane (PDMS) under Uniaxial Tensile Loading, *IOP Conference Series: Materials Science and Engineering*, 1225 (2022) 012041, 2022.
- Sarthak S. Singh, P. Chakraborty and R. Kitey, Quasi-static compression behavior of glass-filled epoxy composites, *Procedia Structural Integrity* (Elsevier), 14, 915-921, 2019.
- Sarthak S. Singh, R. Kitey and P. Venkitanarayanan, Filler shape and volume fraction effect on dynamic compression behavior of glass filler reinforced epoxy composites, *International Journal of Materials and Structural Integrity* (Indersciences), 13(1-3), 81-92, 2019.
- Sarthak S. Singh, R. Kitey and P. Venkitanarayanan, Effect of post cure temperature cycle on dynamic compression behavior of glass filled epoxy composites, *Mechanics of Advanced Materials and Structures* (Taylor and Francis), 26(1), 100-105, 2019.
- Sarthak S. Singh and R. Kitey, Measuring spallation strength of epoxy by laser spallation technique, *Advancement of Optical Methods & Digital Image Correlation in Experimental Mechanics* (Springer Cham), 3, 53-57, 2019.
- Sarthak S. Singh and R. Kitey, Effect of surface asperity on thin film adhesion using laser induced stress waves, *AeroNDT*, 22(1), 2016.

CONFERENCE PRESENTATIONS

- Sarthak S. Singh, K. Kathiresan and R. Kitey, Influence of filler shape on the dynamic mechanical properties of glass reinforced epoxy composites, ICRACM-2019, 6th *International Conference on Recent Advances in Composite Materials*, IIT BHU, Feb 25-28, 2019, Varanasi, India

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- Sarthak S. Singh and R. Kitey, Laser spallation: A novel technique to evaluate thin film interface strength, ICTACEM-2017, 7th ***International Conference on Theoretical, Applied, Computational and Experimental Mechanics***, IIT Kharagpur, Dec. 28-30, 2017, Kharagpur, India.
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- Sarthak S. Singh, R.Kitey and P. Venkitanarayanan, Filler shape and volume fraction effect on dynamic compression behavior of glass filler reinforced epoxy composites, INCAM 2017, 3rd ***Indian National Conference on Applied Mechanics***, MNNIT Allahabad, July 5-7, 2017, Allahabad, India.
- Sarthak S. Singh and R. Kitey, Effect of surface asperity on thin film adhesion using laser induced stress waves, 8th ***International Symposium on NDT in Aerospace***, IISc Bangalore, 3-5 Nov 2016, Bangalore, India
- K. Mishra, C. Mohanty, Sarthak S. Singh, S. S. Mahapatra, A mathematical approach for machine cell formation in cellular manufacturing systems, ICAME, 2nd ***International Conference in Advances in Mechanical Engineering (ICAME)***, SVNIT Surat, Aug 3-5, 2009, Surat, India