

List of Publications

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Journal Articles

- Sharma, M. K., **Chakraborty, S.** *Dynamic failure and energy dissipation in scalable sandwich structures with bistable auxetic topologies.* *Composite Structures*, **383**, 120141 (2026). *IF: 7.8.* [DOI Link](#)
- Bharadwaj, A., Sharma, M. K., **Chakraborty, S.**, Biswas, D. *Uncertainty-driven damage estimation of concrete: Integrating realistic aggregate morphology and stochastic flaw behaviour.* *International Journal of Solids and Structures*, **326**, 113775 (2026). *IF: 4.6.* [DOI Link](#)
- Sharma, M. K., Bharadwaj, A., **Chakraborty, S.** *A novel hybrid bistable auxetic metamaterials with reusable geometric configuration for energy dissipation.* *International Journal of Structural Integrity*, **16**(5), 1138–1157 (2025). *IF: 3.1.* [DOI Link](#)
- Sarkar, S., **Chakraborty, S.**, Nayak, S. *ANN-based axial strength prediction of short columns with double and bar-reinforced concrete-filled steel tubes subjected to concentric and eccentric loading.* *Arabian Journal for Science and Engineering*, **49**(4), 4947–4968 (2024). *IF: 3.1.* [DOI Link](#)
- Sarkar, S., **Chakraborty, S.**, Nayak, S. *Identification of optimum reinforcement detailing using tuned CDP parameters in RC beam under drop-weight impact.* *Engineering Failure Analysis*, **146**, 107116 (2023). *IF: 7.0.* [DOI Link](#)
- Narayan, Khan, D., **Chakraborty, S.** *Axisymmetric model for Taylor impact test and estimation of metal plasticity using nonlinear deformation profile.* *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, **45**(3), 128 (2023). *IF: 2.7.* [DOI Link](#)
- Bharadwaj, A., **Chakraborty, S.** *Numerical investigation on effect of randomized mesoscopic heterogeneity in stochastically located arbitrary shaped aggregates in impact response of reinforced concrete.* *Engineering Failure Analysis*, **141**, 106691 (2022). *IF: 7.0.* [DOI Link](#)
- Sahu, A., **Chakraborty, S.**, Dey, T. *Performance evaluation of sustainable recycled aggregate concrete with colloidal nano-silica.* *European Journal of Environmental and Civil Engineering*, **26**(15), 7878–7898 (2022). *IF: 2.4.* [DOI Link](#)
- Sahu, A., Dey, T., **Chakraborty, S.** *Influence of nano silica on mechanical and durability characteristic of mortar made by partial replacement with recycled fine aggregate.* *Silicon*, **13**(12), 4391–4405 (2021). *IF: 4.1.* [DOI Link](#)
- Islam, M. R. I., **Chakraborty, S.**, Shaw, A. *On Consistency and Energy Conservation in Smoothed Particle Hydrodynamics.* *International Journal for Numerical Methods in Engineering*, **116**(9),

601–632 (2018). IF: 3.3.

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- Islam, M. R. I., **Chakraborty, S.**, Shaw, A., Reid, S. *A computational model for failure of ductile material under impact. International Journal of Impact Engineering*, **108**, 334–347 (2017). IF: 6.7. [DOI Link](#)
- **Chakraborty, S.**, Islam, M. R. I., Shaw, A., Ramachandra, L. S., Reid, S. R. *A computational framework for modelling impact induced damage in ceramic and ceramic-metal composite structures. Composite Structures*, **164**, 263–276 (2017). IF: 7.8. [DOI Link](#)
- Sahu, A., Dey, T., **Chakraborty, S.** *Study on the Interfacial Transition Zones of Recycled Aggregate Concrete. Indian Journal of Science and Technology*, **9**(47), 1–6 (2016). [DOI Link](#)
- **Chakraborty, S.**, Shaw, A. *Prognosis for Ballistic Sensitivity of Pre-Notch in Metallic Beam through Mesh-less Computation Reflecting Material Damage. International Journal of Solids and Structures*, **67**, 192–204 (2015). IF: 4.6. [DOI Link](#)
- **Chakraborty, S.**, Shaw, A., Banerjee, B. *An axisymmetric model for Taylor impact test and estimation of metal plasticity. Proceedings of the Royal Society A*, **471**, 20140556 (2015). IF: 4.6. [DOI Link](#)
- Shaw, A., Reid, S. R., Roy, D., **Chakraborty, S.** *Beyond classical dynamic structural plasticity using mesh-free modelling techniques. International Journal of Impact Engineering*, **75**, 268–278 (2015). IF: 6.7 [DOI Link](#)
- **Chakraborty, S.**, Shaw, A. *Crack Propagation in Bi-material System via Pseudo-Spring Smoothed Particle Hydrodynamics. International Journal for Computational Methods in Engineering Science and Mechanics*, **15**(3), 294–301 (2014). IF: 1.2. [DOI Link](#)
- **Chakraborty, S.**, Shaw, A. *A pseudo-spring based fracture model for SPH simulation of impact dynamics. International Journal of Impact Engineering*, **58**, 84–95 (2013). IF: 6.7 [DOI Link](#)

Conference Proceedings and Presentations

- Das, D. K., **Chakraborty, S.** *Damage analysis due to debris impact on cylindrical RCC column. 14th International Symposium on Plasticity and Impact Mechanics (IMPLAST 2025)*, Roorkee, India, 12-16 October 2025.
- Danish, D. A., **Chakraborty, S.** *Behaviour of concrete-filled steel tube beams and columns. International Conference on Smart, Resilient and Sustainable Infrastructure (SRISTI)*, Dhanbad, India, 24–25 January 2025.
- Raj, R., **Chakraborty, S.** *Data-based health monitoring of wind turbine blade using machine learning algorithm. International Conference on Smart, Resilient and Sustainable Infrastructure (SRISTI)*, Dhanbad, India, 24–25 January 2025.
- Sharma, P., Sarkar, S., **Chakraborty, S.**, Nayak, S. *Effect of Rebar Arrangement and Support Condition on Impact Response of RC Slab. 13th International Symposium on Plasticity and*

Impact Mechanics (IMPLAST2022), Madras, India, 21–26 August 2022.

- Bharadwaj, A., **Chakraborty, S.** *A numerical approach to model heterogeneity of concrete in RC beam subjected to impact loading. 1st Online International Conference on Recent Advances in Computational and Experimental Mechanics 2020 (ICRACEM)*, Kharagpur, India, 4–6 September 2020.
- Sarkar, S., Lama, A., **Chakraborty, S.**, Nayak, S. *Effect of Drop Weight and Drop Height on Impact Behaviour of Reinforced Concrete Beam. 7th International Congress on Computational Mechanics and Simulation (ICCMS2019)*, Mandi, India, 11–13 December 2019.
- Jain, V., Kumar, R., **Chakraborty, S.** *Non-linear Dynamic Response and Dynamic Buckling of Isotropic Imperfect Thin Plates. International Conference on Nonlinear Solid Mechanics (ICoNSoM2019)*, Roma, Italy, 20–23 June 2019.
- **Chakraborty, S.**, Dey, T. *Mesh-less simulation of crack propagation in Functionally Graded Materials (FGM) subjected to impact loading. 20th International Conference on Composite Structures (ICCS20)*, Paris, France, 4–7 September 2017.
- Dey, T., **Chakraborty, S.** *Dynamic instability analysis of FGM cylindrical shell panels subjected to parabolic edge loading and thermal environment. 20th International Conference on Composite Structures (ICCS20)*, Paris, France, 4–7 September 2017.
- Sahu, A., Dey, T., **Chakraborty, S.** *Study on the Interfacial Transition Zones of recycled aggregate concrete. 2nd International Conference on Sustainable Energy and Built Environment (ASCE-ICES)*, Vellore, India, 10–12 March 2016.
- Rusdie, M. I., **Chakraborty, S.**, Shaw, A. *Evaluation of metal plasticity by optimization on mathematical model of Taylor impact test. Structural Engineering Convention (SEC)*, IIT Delhi, India, 22–24 December 2014.
- Rusdie, M. I., **Chakraborty, S.**, Shaw, A. *Numerical simulation of adiabatic shear plugging. 5th International Congress on Computational Mechanics and Simulation (ICCMS)*, Chennai, India, 10–13 December 2014.
- **Chakraborty, S.**, Shaw, A. *Numerical Modelling of Dynamic Crack Growth past an Inclusion. International Conference on Computational & Experimental Engineering and Sciences (ICCES'14)*, Changwon, Korea, 12–17 June 2014.
- **Chakraborty, S.**, Shaw, A. *Damage in Brittle Solids via Pseudo-Spring Smoothed Particle Hydrodynamics. 4th International Congress on Computational Mechanics and Simulation (ICCMS)*, IIT Hyderabad, India, 10–12 December 2012.
- **Chakraborty, S.**, Mondal, S. B., Guchhait, S., Pandey, A. D. *Influence of Train Speed on Fatigue characteristics of a Steel Girder Railway Bridge. 14th Symposium on Earthquake Engineering (SEE)*, IIT Roorkee, India, 17–19 December 2010.
- **Chakraborty, S.**, Pandey, A. D. *Soil-Structure interaction effects on fatigue life of a long span Railway steel truss bridge. 14th Symposium on Earthquake Engineering (SEE)*, IIT Roorkee, India, 17–19 December 2010.

Book Chapters

- Bharadwaj, A., **Chakraborty, S.** *A Numerical Approach to Model Heterogeneity of Concrete in RC Beam Subjected to Impact Loading*. In *Recent Advances in Computational and Experimental Mechanics, Vol II: Select Proceedings of ICRACEM 2020*, pp. 473–485 (2022). Springer, Singapore. [DOI Link](#)

Ph.D. Theses

- Sharma M. K. *Hybrid Reentrant Metamaterials with Snap-Through Mechanisms: Design, Energy Dissipation, and Impact Performance*. 2025.
- Bharadwaj A. *A numerical framework for damage assessment of RC structures considering three-phase mesoscopic heterogeneity under quasi-static and impact loading*. 2023.
- Sarkar S. *Low-velocity impact performance of concrete and composite sub-structural members using ANN-based applications with optimally generated FEA data*. 2023.
- Sahu A. *Sustainable development of concrete using recycled coarse and fine aggregates*. 2022.

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