

DR. RAJIB SARKAR

RESEARCH PUBLICATION:

Journals

1. Mohanty M., **Sarkar R.** and Das S.K. (2025). "Effects of Spatial Heterogeneity on Pseudo-Static Stability of Coal Mine Overburden Dump Slope using Random Limit Equilibrium and Random Finite Element Methods: A Comparative Study." *Earthquake Engineering and Engineering Vibration, Springer*, 24 (1): 83-99, DOI: <https://doi.org/10.1007/s11803-025-2303-y>
2. Banik N. and **Sarkar R.** (2025). "Effects of bacterial strains on undrained cyclic behavior of bio-cemented sand subjected to wet-dry cycles." *Journal of Rock Mechanics and Geotechnical Engineering, Elsevier*, 17: 432-452, DOI: <https://doi.org/10.1016/j.jrmge.2024.05.035>
3. Banik N., **Sarkar R.** and Emad Uddin Md. (2025). "Assessment of Dynamic Characteristics of Bio-Cemented Sand Considering Microbially Induced Calcite Precipitation Treatment." *Environmental Science and Pollution Research, Springer*, <https://doi.org/10.1007/s11356-024-35768-4>.
4. Kumar V., Khan P.K., **Sarkar R.** and Pal S.K. (2025). "Seismic Hazard Assessment of Faizabad Region of Uttar Pradesh, India using Deterministic and Probabilistic Approaches." *Journal of Earth System Science, Indian Academy of Sciences*, 134: 8, <https://doi.org/10.1007/s12040-024-02451-8>.
5. Mohanty M., **Sarkar R.** and Das S.K. (2024). "A critical review on static and dynamic performance of coal mine overburden dump slopes: Present status and way forward." *Journal of the Geological Society of India*, 100(9): 1271-1286, DOI: <https://doi.org/10.17491/jgsi/2024/173981>
6. Sahu S.K., Kumar V., Dutta S.C., **Sarkar R.**, Bhattacharya S. and Debnath P. (2024). "Structural safety of offshore wind turbines: Present state of knowledge and future challenges." *Ocean Engineering, Elsevier*, 309:118383. DOI: <https://doi.org/10.1016/j.oceaneng.2024.118383>
7. Jana K., **Sarkar R.** and Bhattacharya S. (2024). "Adequacy and performance of monopile foundations of multi-megawatt offshore wind turbines along Indian coastal regions." *Ocean Engineering, Elsevier*, 307:118173. DOI: <https://doi.org/10.1016/j.oceaneng.2024.118173>
8. Kumar S., Najar D.S., **Sarkar R.** and Nainegali L. (2024). "Static and dynamic performance of single batter piles embedded in slope." *Sādhanā, Indian Academy of Sciences*, 49:186. DOI: <https://doi.org/10.1007/s12046-024-02531-x>.
9. Rajeswari J.S. and **Sarkar R.** (2024). "Adequacy of batter piles under seismic conditions: A review of past performances and investigations." *Structures, Elsevier*, 61: 106022. DOI: <https://doi.org/10.1016/j.istruc.2024.106022>.
10. Sharma V., **Sarkar R.** and Prakash A. (2024). "Probabilistic assessment of seismic hazard for Uttarakhand state of India." *Journal of the Geological Society of India*, 100 (4): 531-542. DOI: <https://doi.org/10.17491/jgsi/2024/173870>
11. Mohanty M., **Sarkar R.** and Das S.K. (2023). "Effect of blast induced vibration on coal mine overburden dump slope through discrete element method." *Structures, Elsevier*, 56: 105013. DOI: <https://doi.org/10.1016/j.istruc.2023.105013>
12. Sharma V. and **Sarkar R.** (2023). "Evaluation of seismic hazard of Uttarakhand state of India through deterministic approach." *Journal of Earth System Science, Indian Academy of Sciences*, 132: 176. DOI: <https://doi.org/10.1007/s12040-023-02185-z>
13. Mohanty M., **Sarkar R.** and Das S.K. (2023). "Seismic performance of coal mine overburden dump slope using extended finite-element method-based Voronoi tessellation scheme." *International Journal of Geomechanics, ASCE*, 23(11): 04023194. DOI:10.1061/IJGNALGMENG-8634
14. Banik N., **Sarkar R.** and Emad Uddin Md. (2023). "Assessment of strength and low-strain shear modulus of bio-cemented sand considering MICP treatment." *Environmental Earth Sciences, Springer*, 82: 98. DOI: <https://doi.org/10.1007/s12665-023-10780-y>.
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17. Mohanty M., **Sarkar R.** and Das S.K. (2022). "Probabilistic assessment of effects of heterogeneity on the stability of coal mine overburden dump slopes through discrete element framework." *Bulletin of Engineering Geology and the Environment, Springer*, 81: 228. DOI: <https://doi.org/10.1007/s10064-022-02720-0>
18. Khatri V.N., Nainegali L., **Sarkar R.** and Das S.K. (2022). "Assessment of OB dump and high wall slope stability for Jambad OCP mine through in-situ and laboratory testing." *Current Science*, 123(2): 184-193. DOI: [10.18520/cs/v123/i2/184-193](https://doi.org/10.18520/cs/v123/i2/184-193)
19. Anand A. and **Sarkar R.** (2021). "Seismic bearing capacity of strip footing on partially saturated soil using modal response analysis." *Earthquake Engineering and Engineering Vibration, Springer*, 21(3): 641-662. DOI: <https://doi.org/10.1007/s11803-022-2114-3>
20. Rajeswari J.S. and **Sarkar R.** (2022). "Prediction of pile response in lateral spreading soil using multi-gene genetic programming." *International Journal of Geomechanics, ASCE*, 22(7): 04022099. DOI: [10.1061/\(ASCE\)GM.1943-5622.0002399](https://doi.org/10.1061/(ASCE)GM.1943-5622.0002399)
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23. Rajeswari J.S. and **Sarkar R.** (2022). "Kinematic response of single vertical and batter piles to bidirectional ground motions in liquefiable soil." *Structures, Elsevier*, 37: 203-216. DOI: <https://doi.org/10.1016/j.istruc.2022.01.006>
24. Kumar S., Jat M.K., **Sarkar R.** and Alsabhan A.H. (2022). "Static and dynamic characterization of fibre reinforced sand: A numerical investigation." *Journal of King Saud University- Engineering Sciences*. DOI: <https://doi.org/10.1016/j.jksues.2021.12.008>
25. Anand A. and **Sarkar R.** (2021). "A comprehensive investigation on bearing capacity of shallow foundations on unsaturated fly ash slopes adopting finite element limit analysis." *European Journal of Environmental and Civil Engineering, Taylor & Francis*. DOI: <https://doi.org/10.1080/19648189.2021.1967200>
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50. Maheshwari B.K. and **Sarkar R.** (2011). "Seismic behaviour of soil-pile-structure interaction in liquefiable soils: A parametric study." *International Journal of Geomechanics, ASCE*, 11(4): 335-347.
51. **Sarkar R.** and Maheshwari B.K. (2012). "Effect of soil nonlinearity and liquefaction on dynamic stiffness of pile groups." *International Journal of Geotechnical Engineering, Taylor & Francis*, 6(3): 319-330.
52. Maheshwari B.K. and **Sarkar R.** (2012). "Effect of soil nonlinearity and liquefaction on seismic response of pile groups." *International Journal of Geotechnical Engineering, Taylor & Francis*, 6(4): 497-506.
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Conferences/ Symposium

1. Kumar S., **Sarkar R.** and Nainegali L. (2023). "Dynamic behaviour of laterally loaded pile foundations with different batter angles embedded in sloping ground." Accepted for publication in *Indian Geotechnical Conference 2023*, To be held in IIT Roorkee, India.
2. Anand V., Mahatab M., Shrama A., Raj D., Jat M.K., **Sarkar R.** and Pal S. (2022). "Evaluation of dynamic properties of MICP treated Ennore sand through Bender element test." *17th Symposium on Earthquake Engineering*, Dept. of Earthquake Engg, IIT Roorkee.

3. Banik N. and **Sarkar R.** (2022). "Influence of microbial treatment on the stiffness and strength enhancement of standard Ennore sand." *Indian Geotechnical Conference 2022*, Held in Kochi, India.
4. Banik N. and **Sarkar R.** (2022). "Evaluation of dynamic properties of MICP treated Ennore sand through Bender element test." *17th Symposium on Earthquake Engineering*, Dept. of Earthquake Engg, IIT Roorkee.
5. Mohanty M., **Sarkar R.** and Das S.K. (2022). "Assessment of Seismic Stability of Coal Mine Overburden Dump Slope using Random Limit Equilibrium Method (RLEM) and Random Finite Element Method (RFEM)-A Comparative Study." *Indian Geotechnical Conference 2022*, Held in Kochi, India.
6. Mohanty M., **Sarkar R.** and Das S.K. (2022). "Earthquake induced damage assessment of coal mine overburden dump slope using extended finite element method coupled with Voronoi tessellation scheme." *17th Symposium on Earthquake Engineering*, Dept. of Earthquake Engg, IIT Roorkee.
7. Mohanty M., **Sarkar R.**, Das S.K. and Reddy K.R. (2021). "Numerical modelling of coal mine overburden dump slopes: Developments and current state-of-the-art." *Proc. Indian Geotechnical and Geoenvironmental Engineering Conference (IGGEC)*, Held at NIT Jalandhar.
8. Anand A. and **Sarkar R.** (2020). "Probabilistic investigation on seismic bearing capacity of shallow foundation on unsaturated fly ash deposit." *Proc. Indian Geotechnical Conference*, Held at Andhra University College of Engineering, Visakhapatnam, December 17-19, 2020.
9. Rajeswari J.S. and **Sarkar R.** (2020). "Comparative study on behaviour of vertical and batter piles in laterally spreading ground." *Proc. 7th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics*, To be held at IISC Bangalore, India.
10. Sinha R. and **Sarkar R.** (2020). "Deterministic seismic hazard assessment of Dhanbad city, India." *Proc. 7th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics*, To be held at IISC Bangalore, India.
11. Rajeswari J.S. and **Sarkar R.** (2020). "Three Dimensional Investigation on Seismic Performance of Batter Pile groups in Laterally Spreading Ground." In *Second ASCE India Conference on Challenges of Resilient and Sustainable Infrastructure Development in Emerging Economies (CRSIDE2020)*, Held in Kolkata, India.
12. Rajeswari J.S. and **Sarkar R.** (2019). "Seismic response of batter piles in liquefiable soils." In *Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions*: 4629-4636. <http://dx.doi.org/10.1201/9780429031274>, 7th International Conference on Earthquake Geotechnical Engineering, Held in Rome, Italy.
13. Rajeswari J.S. and **Sarkar R.** (2018). "Reliability analysis of single pile in lateral spreading ground: A three-dimensional investigation." *Indian Geotechnical Conference 2018*, Held at IISC Bangalore.
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15. Anand A. and **Sarkar R.** (2017). "Experimental and numerical investigation on load-settlement behaviour of stone column reinforced fly ash backfill." *Indian Geotechnical Conference*, Held at IIT Guwahati, December 2017.
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17. Roy N., **Sarkar R.** and Bharti S.D. (2017). "Dynamic response of tunnel in blocky rock mass with EPS geofabric as seismic buffer." *Indian Geotechnical Conference*, Held at IIT Guwahati, December 2017.
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19. Roy N. and **Sarkar R.** (2016). "Reliability based seismic tunnel performance in stratified ground condition." *INDOROCK 2016*, Held at IIT Bombay, June 2016.
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23. **Sarkar R.**, Shrimal D. and Goyal S. (2014). "Seismic analysis of a 275m tall RCC multi-flue chimney: A comparison of IS code provisions and numerical approaches." *Structural Engineering Convention (SEC)*, Held at IIT Delhi, December 2014.

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27. Maheshwari B.K. and **Sarkar R.** (2010). "Behaviour of pile supported structure under strong ground motion considering liquefaction of the soil medium." *Proc. of 9th US National and 10th Canadian Conference on Earthquake Engineering: Reaching Beyond Borders*, Paper No.-356, Toronto, July 2010.
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29. **Sarkar R.** and Maheshwari B.K. (2008). "Three-dimensional seismic analysis of pile groups." *Proc. of 12th Int. Conference of IACMAG*, Held in Goa, India.
30. **Sarkar R.** and Maheshwari B.K. (2006). "Evaluation of seismic ground response in DEQ campus of IIT Roorkee using SASW test." *Proc. of 13th Symposium on Earthquake Engineering*, Dept. of Earthquake Engg., IIT Roorkee: 401-409.
31. **Sarkar R.**, Maheshwari B.K. and Singh H.P. (2006). "Evaluation of liquefaction potential of soil in DEQ campus of IIT Roorkee." *Proc. of 13th Symposium on Earthquake Engineering*, Dept. of Earthquake Engg., IIT Roorkee: 531-538.

Book/ Chapter

1. Mohanty M., **Sarkar R.** and Das S.K. (2024). "Assessment of Seismic Stability of Coal Mine Overburden Dump Slope using Random Limit Equilibrium Method (RLEM) and Random Finite Element Method (RFEM)-A Comparative Study." B. T. Jose et al. (eds.), *Proceedings of the Indian Geotechnical Conference 2022 Volume 6*, Lecture Notes in Civil Engineering 484, https://doi.org/10.1007/978-981-97-3393-4_26
2. Mohanty M., **Sarkar R.** and Das S.K. (2022). "Performance of Coal Mine Overburden Dump Slope Under Earthquakes Using Extended Finite Element Method Based Voronoi Tessellation Scheme." *Geoenvironmental and Geotechnical Issues of Coal Mine Overburden and Mine Tailings*, Springer Transactions in Civil and Environmental Engineering, S.K. Das et al. (eds.), Springer Nature Singapore Pte Ltd. DOI: <https://doi.org/10.1007/978-981-99-6294-5>
3. Banik N. and **Sarkar R.** (2023). "Evaluation of dynamic properties of MICP treated Ennore sand through Bender element test." *Proceedings of 17th Symposium on Earthquake Engineering (Vol. 3)*, Lecture Notes in Civil Engineering 331, M. Shrikhande et al. (eds.), Springer Nature Singapore Pte Ltd. DOI: https://doi.org/10.1007/978-981-99-1579-8_2
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6. Amani S., Prabhakaran A., Bhattacharya S., Rashid H., and **Sarkar, R.** (2023). "Seismic hazards associated with offshore wind farms." *Chapter 8, Wind Energy Engineering*, Elsevier. DOI: <https://doi.org/10.1016/B978-0-323-99353-1.00018-9>
7. Mohanty M., **Sarkar R.**, Das S.K. and Reddy K.R. (2023). "Numerical modelling of coal mine overburden dump slopes: developments and current state-of-the-art." *Lecture Notes in Civil Engineering* 280, A. K. Agnihotri et al. (eds.), Springer Nature Singapore Pte Ltd. DOI: https://doi.org/10.1007/978-981-19-4739-1_23
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9. Sinha R. and **Sarkar R.** (2021). "Deterministic seismic hazard assessment of Dhanbad city, India." Seismic Hazards and Risk, Lecture Notes in Civil Engineering 116, T. G. Sitharam et al. (eds.), Springer Nature Singapore Pte Ltd. DOI: https://doi.org/10.1007/978-981-15-9976-7_1
10. Rajeswari J.S. and **Sarkar R.** (2021). "Comparative study on behaviour of vertical and batter piles in laterally spreading ground." Seismic Design and Performance, Lecture Notes in Civil Engineering 120, T. G. Sitharam et al. (eds.), Springer Nature Singapore Pte Ltd. DOI: https://doi.org/10.1007/978-981-33-4005-3_5
11. Rajeswari J.S. and **Sarkar R.** (2020). "Reliability analysis of single pile in lateral spreading ground: A three-dimensional investigation." Geohazards, Lecture Notes in Civil Engineering 86, M. Latha Gali and P. Raghuveer Rao (eds.), Springer Nature Singapore Pte Ltd. https://doi.org/10.1007/978-981-15-6233-4_27
12. **Sarkar R.**, Shrimal D. and Goyal S. (2015). "Seismic analysis of a 275m tall RCC multi-flue chimney: A comparison of IS code provisions and numerical approaches." Advances in Structural Engineering (SEC), V. Matsagar (ed.), Springer India. DOI: 10.1007/978-81-322-2193-7_80.
13. Bhattacharya S., **Sarkar R.** and Huang Y. (2012), "Seismic design of piles in liquefiable soils." New Frontiers in Engineering Geology and the Environment, Springer, 31-44.