Publications

Peer Reviewed Journals [Published]

1. **Rajan B.,** Sushmita A., and Singh D. (2023). Evaluation of Rutting Resistance of Highly Polymer Modified Asphalt Binder and Mixes Using Different Performance Parameters, Journal of Materials in Civil Engineering: ASCE (2023). https://doi.org/10.1061/JMCEE7.MTENG-15194
2. **Rajan, B**., & Singh, D. (2022). Effects of Coarse Aggregate Shape Parameters on Workability, Design, and Performance Characteristics of Stone Matrix Asphalt Mixes. Transportation Research Record, 03611981221125212. https://doi.org/10.1177/03611981221125212
3. Marath, A., Singh, D., & **Rajan, B. (**2022). Stiffness Behavior and Micromechanical Modeling of Asphalt Mastic Composed of Different Fillers. Journal of Materials in Civil Engineering, 34(8), 04022179. https://doi.org/10.1061/(ASCE)MT.1943-5533.0004328
4. Girimath, S., Singh, D., & **Rajan, B.** (2022). Performance evaluation and mechanistic-empirical design of bio-oil modified asphalt mixes. Construction and Building Materials, 325, 126735. https://doi.org/10.1016/j.conbuildmat.2022.126735
5. Singh, D., Showkat, B., **Rajan, B**., and Shah, A. (2020). Rheological interference of amine and silane–based antistripping agents on crumb rubber–modified binder. Journal of Materials in Civil Engineering, 32(2), 04019347. https://doi.org/10.1061/(ASCE)MT.1943-5533.0003004
6. Singh, D., Showkat, B., and **Rajan, B**. (2020). Effects of amine and silane antistripping agents on rheological behaviour of crumb rubber modified binder at high and low temperature. Advances in Civil Engineering Materials. https://doi.org/10.1520/ACEM20190226
7. **Rajan, B.,** and Singh, D. (2020). An image-based approach to capture influence of production mechanism on aggregate dimension distribution and breakage potential. Advances in Civil Engineering Materials, 9(1), 152-168. https://doi.org/10.1520/ACEM20190197
8. **Rajan, B.**, and Singh, D. (2019). Quantify effects of stage crushing on dimensional distribution of basaltic aggregates using image technique. International Journal of Pavement Research and Technology, 12(5), 497-507. https://doi.org/10.1007/s42947-019-0060-x
9. **Rajan, B.,** and Singh, D (2019). Role of image technique in shape characterization of aggregates for pavement construction. Highway Research Journal, Indian Road Congress (IRC) 80(1).
10. Singh, D., and **Rajan, B.** (2019). Field study on understanding effects of micro-trenching on structural performance of asphaltic pavement. International Journal of Pavement Research and Technology, 12(4), 435-441. https://doi.org/10.1007/s42947-019-0052-x
11. Singh, D., **Rajan, B.**, and Guta, H. G. (2019). Effects of aggregate shape on performance of gravel-aggregate hot-mix asphalt using digital image-based approach. Journal of Materials in Civil Engineering, 31(11), 04019260. https://doi.org/10.1061/(ASCE)MT.1943-5533.0002895
12. Singh, D., Mishra, V., Girimath, S. B., Das, A. K., and **Rajan, B.** (2019). Evaluation of rheological and moisture damage properties of crumb rubber–Modified Asphalt Binder. Advances in Civil Engineering Materials, 8(1), 477-496. https://doi.org/10.1520/ACEM20190045

13. **Rajan, B.**, and Singh, D. (2018). Investigation on effects of different crushing stages on morphology of coarse and fine aggregates. International Journal of Pavement Engineering: Taylors and Francis, 1-19. https://doi.org/10.1080/10298436.2018.1449951
14. **Rajan, B**., and Singh, D. (2017). Comparison of shape parameters and laboratory performance of coarse aggregates produced from different types of crushing operations. Journal of Materials in Civil Engineering: ASCE, 29(7), 04017044. https://doi.org/10.1061/(ASCE)MT.1943-5533.0001874
15. **Rajan, B.**, and Singh, D. (2017). Understanding influence of crushers on shape characteristics of fine aggregates based on digital image and conventional techniques. Construction and Building Materials: Elsevier, 150, 833-843. https://doi.org/10.1016/j.conbuildmat.2017.06.058

Book Chapters

1. Girimath, S., Singh, D., & **Rajan, B.** (2024). Performance Evaluation of Recycled Asphalt Mixes Composed of Waste Wood Bio-Oil. In The International Workshop on the Use of Biomaterials in Pavements (pp. 57-73). Cham: Springer Nature Switzerland https://doi.org/10.1007/978-3-031-72134-2_6.
2. **Rajan B.,** and Singh D (2022). Development in Aggregate Quality Characterization Approaches for Pavement Construction**.** Transportation Research in India-Practices and Future Directions, Springer Nature Singapore Pte Ltd Singapore.
3. **Rajan B.,** Singh D., Maheshwari S., Garg G. (2020) Understanding Effects of Crushing Mechanism on Aggregate Morphology Using AIMS. In: Mathew T., Joshi G., Velaga N., Arkatkar S. (eds) Transportation Research. Lecture Notes in Civil Engineering, vol 45. Springer, Singapore. https://doi.org/10.1007/978-981-32-9042-6_57

Peer Reviewed International/National Conferences

1. **Rajan B,** Kumar, P., & Kumar A. (2025). Criticality of Additive Selection on the Performance and Sustainability Aspects of Emulsion Treated Base Mixes. 8th Conference of the Transportation Research Group of India, Guwahati, India.
2. Upadhay S, Jayvant, C., & **Rajan B.** (2025). Effect of Type and Content of fillers on Long Term Aging Resistance of porous Asphalt Mixes. 8th Conference of the Transportation Research Group of India, Guwahati, India.
3. Upadhay S, Jayvant, C., & **Rajan B.** (2025). Effect of Filler Content on Long Term Ageing Resistance of Porous Asphalt Mixes. 3rd International Conference Transportation Infrastructure Projects: Conception to Execution, Roorkee, India.
4. Girimath, S., Singh, D., & **Rajan, B.** (2023). Performance evaluation and mechanistic-empirical design of bio-oil modified asphalt mixes. In 10th European Asphalt Technology Association (EATA) Conference, TU Wien Poland.
5. **Rajan, B.,** and Singh, D. (2022). Effects of Coarse Aggregate Shape Parameters on Workability, Design and Performance Characteristics of Stone Matrix Asphalt Mixes. In Transportation Research Board (TRB), 101st Annual Meeting, Washington, D.C, United States of America.

6. Singh, D., **Rajan, B.,** and Guta, H. G. (2020). Effects of Aggregate Shape Parameters on Workability and Shear Behaviour of Asphalt Mixes. 19th Annual International Conference on: Highways, Roads, Asphalt Technology, Airports Pavement Engineering and Infrastructures, Liverpool, UK.
7. **Rajan, B.,** and Singh, D. (2019). Effects of Orientation on Angularity of Aggregate using Digital Image Technique. In AAPA International Flexible Pavements Conference, Sydney, New South Wales, Australia
8. **Rajan, B.,** Singh, D., and Garg. G. (2017). Angularity of Fine Aggregates Using Digital Image Technique and Conventional Approach. International Conference on Advances in Highway Engineering and Transportation Systems (ICAHETS), Nigombo, Sri-Lanka.
9. **Rajan, B.,** Singh, D., Maheshwari.S., and Garg.G. (2017). Understanding Effects of Crushing Mechanism on Aggregate Morphology Using AIMS. 4th Conference of the Transportation Research Group of India, Mumbai, India.
10. **Rajan, B.,** Singh, D., Garg. G., and Maheshwari.S. (2016). A Study on Change in Aggregates Shape Characteristics in Impact and Los Angeles Tests Using Digital Image Technique, Conference on Sustainable Asphalt Pavements for Developing Countries (CONSAP), CRRI, New Delhi, India.