CETRA 2026

9th International Conference on Road and Rail Infrastructure
27–29 May 2026
Bol, Island Brač, Croatia

KEYNOTE LECTURE:

CIRCULAR ECONOMY CONCEPTUAL FRAMEWORK FOR ROADWAY INFRASTRUCTURE: SIGNIFICANCE OF RESEARCH-TO-PRACTICE

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Professor Krishna Prapoorna is an internationally accomplished academician with over 20 years of combined research, teaching, and administrative experience in India, USA, and Sweden. He is currently a Professor of Civil Environmental Engineering at the Indian Institute of Technology Tirupati (IITT), India. His expertise embodies multitude aspects of sustainable and smart transportation infrastructure, innovative materials, performance monitoring, asset management, and circular economy, chiefly supporting the United Nations Sustainable Development Goals (UN SDG). He has been successful in securing several million dollars through sponsored research and consulting projects, traversing several areas of engineering and technology. He has authored / co-authored and contributed over 270 papers in international journals and conferences, and over 90 reports, press articles, newsletters, and guides till date. He has delivered more than 250 presentations in 18 countries. His team has successfully developed over two dozen roadway products and processes that are cutting-edge engineering innovations and been deployed in the form of field demonstration roadway systems on highways and in smart cities. Since 2015, he has been serving as the Asphalt-Rubber Ambassador for the Republic of India, a recognition awarded by the rubberized asphalt-rubber conference group. Further, he has been consistently acknowledged as one of world's 2% most influential scientists by Elsevier and Stanford University (USA) since 2020. He is a Fellow of the International Road Federation (Global) and the Institution of Engineers (India). Currently, he serves as Director of the Boards of Rubberized Asphalt Foundation and International Road Federation (Global) as well as an Independent Director of Tinna Rubber & Infrastructure Limited (India). He is associated with various international societies such as the USA-based NASEM: TRB, ASTM International, RILEM, ASCE, IRF, iSMARTi, etc. Since December 2024, he has been serving as the International Road Federation (Global) Chair of the Sustainable and Resilient Pavements Committee.

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Abstract: Globally, pavement infrastructure requires substantial investment involving taxpayers' money, which causes an additional burden on the government exchequer. On a positive note, modern construction practices have encouraged utilization of recyclable waste materials as alternatives to conventional products / systems. Furthermore, smart road solutions such as asphalt-rubber, warm-mix asphalt-rubber, fiber-reinforced asphalt, plastic-rubber asphalt, coldmix asphalt technologies as well as low-impact development concrete have been found to reduce the carbon-footprint generated from road infrastructure without compromising serviceability and mechanical performance of the pavement systems. Since the entire world faces enormous challenges with respect to climate change, rapid urbanization, and scarcity of natural resources, it is imminent to provide smart, sustainable, and resilient roadway infrastructure / mobility that will provide long-lasting performance using perpetual designs / framework. Intriguingly, innovative solutions in roadway materials are paving the way for a more sustainable future and towards a resilient infrastructure by utilizing environmentally friendly alternatives to natural resources. This keynote address aims to encourage meaningful discussion on smart technologies, eco-friendly materials, and resilient designs that can transform the future of roadway systems from linear to circular economy. By combining innovation with sustainability, this talk will help provide solutions that cater to greener environment and durability, thus promoting the United Nations Sustainable Development Goals. Importantly, the lecture will serve as a platform for students, researchers, and professionals to come together, and explore the latest advancements in roadway technology. It is noteworthy that this meaningful exchange of ideas will play major role in developing sustainable transportation infrastructure and significantly contribute towards creating smarter and sustainable transportation systems through the future.