

Professor Jie Han, Ph.D., PE, F.ASCE

Roy A. Roberts Distinguished Professor at the University of Kansas, USA.



Bio: Dr. Jie Han is a Roy A. Roberts Distinguished Professor in the Civil, Environmental, and Architectural Engineering Department at the University of Kansas. He is a past president of the ASCE Geo-Institute, the treasurer of the International Geosynthetics Society, the chair of the US Transportation Research Board (TRB) Geomaterials Behavior and Properties committee, and the specialty chief editor of *Frontiers of Built Environment*. Prof. Han has gained extensive teaching, research, and industry experiences in geosynthetics, ground improvement, pile foundations, buried structures, and roadways. He is the sole author of the book entitled “Principles and Practice of Ground Improvement” and has published more 500 peer-reviewed journal and conference papers. Prof. Han has been invited to give more than 300 keynote/invited lectures and

short courses around the world, including the Burmister Lecture and the Ardaman-Wissa State-of-the-Practice Lecture both in 2025, the Sun Jun Lecture in 2024, the 3rd Robert M. Koerner Award Lecture in 2021, and the State of the Practice Lecture at the 21st Annual George F. Sowers Symposium and the 18th UK IGS Lecture both in 2018. He has received numerous awards from the profession including but not limited to the 2024 Irvin E. Youngberg Award in the Applied Sciences (the Kansas state higher education system’s most prestigious recognition for scholarly excellence), the 2018 ASCE Kansas City Section Engineer of Year Award, the 2017 ASCE Martin S. Kapp Foundation Engineering Award, and the 2014 the International Geosynthetics Society Award. Prof. Han was elected to the ASCE Fellow in 2014.

Topic: Geosynthetics for Resilient and Sustainable Roads

Abstract: Enhancing the resilience and sustainability of roadway infrastructure has become increasingly important as roads face growing traffic demands and intensified climate-related stressors, including flooding, sea-level rise, and extreme temperatures. Geosynthetics provide effective solutions that address these challenges by improving structural performance while supporting sustainable construction practices. This lecture explores the interconnected roles of resilience and sustainability in roadway systems and highlights recent advancements in geosynthetic applications. Case examples include geogrids for improving load response and reducing permanent deformation, geocells combined with recycled aggregates for sustainable base construction, and wicking geotextiles for mitigating moisture-related damage. Together, these technologies demonstrate the benefits of geosynthetics to create road networks that are more durable, adaptable, and environmentally responsible.

Topic: Rigid Inclusion Systems in Ground Improvement Practice

Abstract: Rigid inclusion systems, consisting of rigid inclusions and load transfer platforms, have been increasingly adopted in ground improvement practice to support embankments and buildings due to their rapid installation, reliable performance, and cost efficiency. This lecture reviews the development of rigid inclusion systems and examines their load transfer mechanisms in comparison with those of deep foundations. The performance of these systems under both vertical

and lateral loading is evaluated, with particular emphasis on the influence of load transfer platforms on load distribution. Key design considerations and challenges related to load transfer platforms, settlement reduction, slope stability, and liquefaction mitigation are discussed. Representative case studies are presented to illustrate the practical application of rigid inclusion systems.

Topic: Engineering Mechanically Stabilized Earth Walls for Special Site Constraints

Abstract: Steel and geosynthetic reinforcements have been widely and successfully used in mechanically stabilized earth (MSE) walls for a variety of applications. In certain situations, MSE walls must be designed and constructed under special site constraints, such as tiered configurations, back-to-back walls, and limited right-of-way conditions. Many design methods provided in current standards and manuals are based on conventional MSE wall configurations and therefore require modification to adequately address these nonstandard conditions. This lecture discusses the necessary design adaptations for MSE walls under special site constraints, highlights recent advances in MSE wall research, and presents case studies that illustrate both the challenges and advantages of MSE wall systems in such applications.

Topic: Evaluation of Lightweight Cellular Concrete Fill for Geotechnical Properties and Performance

Abstract: Lightweight cellular concrete (LCC) has seen increasing use as a fill material in geotechnical engineering due to its low unit weight, ease of placement, and rapid construction. As a relatively new material in this field, a thorough understanding of its physical and mechanical properties, as well as its interactions with steel and geosynthetic reinforcements and buried flexible pipes, is essential for design, quality control, and performance verification. This lecture introduces LCC and its benefits, highlights laboratory and field evaluations of its properties and interactions with reinforcements and pipes, and presents field monitoring results from a mechanically stabilized earth wall constructed with LCC fill.