Speaker

International Association for Computer Methods and Advances in Geomechanics

IACMAG

Chandrakant Desai Memorial Webinar Series*

The Contribution of Numerical Modelling to Improve Understanding of MSE Wall Behavior

PROFESSOR RICHARD J. BATHURST

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Kingston, Ontario, Canada

Thursday, March 5 | 8:00—9:30 A.M. (U.S. Central Time)

To register, scan the QR code or visit: https://bit.ly/49ThXcv

Hosted via TEAMS

ABSTRACT

Mechanically stabilized earth (MSE) walls constructed with steel and geosynthetic reinforcing elements are now well established technologies. This webinar is focused on numerical modelling used to: (a) gain insight into the mechanics of the behavior of MSE walls; (b) fill gaps in measured performance of instrumented walls constructed in the laboratory or in the field; and (c) carry out sensitivity analyses. Numerical modelling challenges are identified such as: modelling the stiffness of rate dependent polymeric geosynthetic materials; soil properties; the connections between the reinforcement layers and the wall facing; soil-interfaces and domain boundary conditions; and soil compaction. The webinar emphasizes that model validation should be carried out by comparing numerical model outcomes against measured wall boundary deformations, earth pressures, connection loads and reinforcement strains from full scale field and laboratory models. Furthermore, the veracity of a model should be tested against not just one structure, but against several walls with different reinforcement types, arrangement, wall geometry and boundary conditions. Examples of the Royal Military College of Canada test walls and several field structures used for this purpose are discussed in the webinar.

BIO

Dr. Bathurst is Professor Emeritus of Civil Engineering at the Royal Military College of Canada and holds a cross-appointment at Queen's University. He has authored or co-authored more than 230 journal papers and 300 other contributions. He has made contributions in the areas of micromechanics of granular soils, railway ballast and track dynamics, pavements, unsaturated soil-geotextile behavior, constitutive modelling of geosynthetic soil reinforcement materials, new test methods and the development of transparent granular soil surrogates for geotechnical testing. Dr. Bathurst's current research activities focus on geosynthetic and metallic reinforcement in earth retaining wall systems, probabilistic design of reinforced and unreinforced soil structures, reliability-based design, and load and resistance factor design (LRFD) calibration of soil-structures. Dr. Bathurst is the Editor-in-Chief of both journal Geosynthetics International and ASCE International Journal of Geomechanics (co-sponsored by the IACMAG). He is a Fellow of the Canadian Academy of Engineering, the Engineering Institute of Canada, and the Royal Society of Canada. Dr. Bathurst was recipient of the 2019 Thomas A. Middlebrooks Award for best paper published in the ASCE Journal of Geotechnical and Geoenvironmental Engineering and awarded the title of "GeoLegend" of the ASCE Geo-Institute in 2025.

***This webinar series is intended to retain the legacy of Prof. Chandrakant Desai for his original and seminal contributions to Geomechanics.**