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## Preface

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**Biographical notes:** J.A. Romero, PhD, is an Associate Professor in the Department of Electro-Mechanical Engineering at University of Queretaro, Queretaro, Mexico. His interests lie in the area of safety dynamics of heavy vehicles and pavement loading by the cargo vehicles.

Subhash Rakheja, PhD, fellow of ASME, is a Professor of Mechanical Engineering and Vehicular Ergodynamics Research Chair at the CONcordia Centre for Advanced Vehicle Engineering (CONCAVE), Concordia University, Montreal, Canada.

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Cargo tank trucks on our highways impose greatest technological challenges to ensure the safety of our highways and property in commerce. The tank trucks particularly exhibit lower stability limits in roll. Although these vehicles account for only 15% of all fatal crashes involving heavy trucks, the cargo tank rollovers account for 31% of the heavy vehicle rollover fatal crashes. This is partly attributed to factors other than the normal trucking practices such as tank design, loading and unloading methods, fill volume, load shifts during curving and braking and liquid-structure interactions. While considerable efforts have been made to realise safer vehicle designs, loading and unloading methods, and operating practices, far more technological advancements are desired to ensure safety dynamics limits of tank trucks comparable to those of the other commercial vehicles.

The primary focus of this special issue is to compile most recent technological advancements in the field that would contribute to realisation of safer designs and operating practices. This special issue encompasses nine technical papers devoted to recent research and development efforts in the field of hazardous material transportation. The papers submitted by researchers across the world focus on various technical issues associated with rail and road transportation of hazardous products. The presentations on road transportation emphasise various perspectives involving specific situations; namely the car-tanker impact dynamics, dynamic liquid cargo slosh, role of baffles designs, strategies for transportation in tunnels, applications of European legislation for design

and analysis of hazmat transportation road vehicles, relative analyses of sloshing and non-sloshing cargoes, and tools for analysis of current regulations.

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