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Nota di contenuto	Introduction and Motivations -- Vehicle modeling using active anti-roll bar system -- LQR optimal controller design for active anti-roll bar system -- H robust controller design for active anti-roll bar system -- H/LPV controller design for active anti-roll bar system -- Validation of the active anti-roll bar controllers by using TruckSim® software -- Conclusions and Outlook.
Sommario/riassunto	This book provides a comprehensive overview of active anti-roll bar systems on heavy vehicles as one of the most effective solutions for improving the roll stability of these vehicles. Due to the characteristics of these vehicles with heavy loads and high center of gravity, the possibility of roll instability occurs frequently and causes serious consequences for human life, vehicles, and traffic infrastructure. The book gives readers an in-depth survey of the roll instability characteristics of heavy vehicles such as single-unit trucks with rigid and flexible frames, and tractor semi-trailers. It then introduces an active anti-roll bar system, the electro-hydraulic actuators which use control methods such as LQR optimal and H robust controller design.

This work introduces a new control method, which is a combination of robust control with the linear parameter varying system (H/LPV). The validation of the new hybrid method is carried out using the nonlinear truck model from the TruckSim® software to assess the roll stability of heavy vehicles in order to limit the rollover accident. A number of examples are provided to illustrate the research results, which helps the readers have a practical and easy approach that can be applied to other active anti-roll bar systems for most forms of transport vehicles in general. This book caters to academics and practitioners who are interested in active anti-roll bar systems for the typical heavy vehicle available worldwide.