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Nota di contenuto	Introduction -- Dynamic analysis of a heavy vehicle using lumped parameter model -- Dynamic analysis of a heavy vehicle using functional virtual prototype -- Dynamic analysis of a pavement structure under a vehicle's moving load -- Road dynamic responses under moving vehicle loads based on double-layer plate model -- Road dynamic responses under moving vehicle loads based on three-dimensional finite element model -- Modeling and dynamic analysis of vehicle-road coupled systems -- Parameter design of vehicle-road system with low dynamic interaction -- Modeling and interaction of a vehicle-road system with nonlinearity and viscoelasticity --

Sommario/riassunto

Vehicle dynamics and road dynamics are usually considered to be two largely independent subjects. In vehicle dynamics, road surface roughness is generally regarded as random excitation of the vehicle, while in road dynamics, the vehicle is generally regarded as a moving load acting on the pavement. This book suggests a new research concept to integrate the vehicle and the road system with the help of a tire model, and establishes a cross-subject research framework dubbed vehicle-pavement coupled system dynamics. In this context, the dynamics of the vehicle, road and the vehicle-road coupled system are investigated by means of theoretical analysis, numerical simulations and field tests. This book will be a valuable resource for university professors, graduate students and engineers majoring in automotive design, mechanical engineering, highway engineering and other related areas. Shaopu Yang is a professor and deputy president of Shijiazhuang Tiedao University, China; Liqun Chen is a professor at Shanghai University, Shanghai, China; Shaohua Li is a professor at Shijiazhuang Tiedao University, China.