

THE INFLUENCE OF THE INCLUSION OF FRICTION, HYSTERESIS AND ACTUATION DELAY IN DAMPER'S MODEL ON DYNAMIC RESPONSES OF A SKYHOOK CONTROLLED VEHICLE SUSPENSION

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Increasing number of vehicles nowadays is equipped with adjustable dampers, which in turn leads to the necessity of implementing suspension damping control strategies. One of those strategies that has been used in vehicles is SkyHook control strategy. A lot of research has been done using different damper models, they were however usually simplified, bilinear models. In this paper the influence of implementing friction, hysteresis and actuation delay is described, which are overlooked in many other articles on the matter and which often are a limiting factor when it comes to real-life implementation of theoretical control strategies. The experiments were done using a model of a quarter-car implemented in Matlab-Simulink. The results from a simplified and advanced damper model are compared for typical excitations that can be encountered by road vehicles in normal exploitation.

Key words: adjustable damper, control strategy, SkyHook, viscous friction

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