

Mechatronic Suspension Design and Its Applications to Vehicle Suspension Control

Fu-Cheng Wang and Hsiang-An Chan

Abstract

This paper proposes the design of a novel mechatronic suspension strut, and investigates the performance benefits of vehicle suspension systems employing it. The proposed mechatronic suspension strut consists of a ball-screw inerter and permanent magnet electric machinery (PME), such that the system impedance can be realized through the combination of mechanical and electrical networks. Furthermore, we apply the mechatronic strut to vehicle suspension control, and discuss performance improvement. From the results, the proposed mechatronic suspension is deemed effective.