The Performance Improvements of Train Suspension Systems with Inerters

Fu-Cheng Wang, Chung-Huang Yu, Mong-Lon Chang and Mowson Hsu

Abstract

This paper investigates the performance benefits of train suspension systems employing a new mechanical network element, called *Inerter*. Combined with traditional passive suspension elements - dampers and springs, Inerter is shown to be capable of improving the performance, in terms of the passenger comfort, system dynamics and stability (safety), of the train suspension systems. Furthermore, a motor-driven platform is constructed to test the properties of suspension struts with inerters.