

Vehicle Motion Characteristics of a Maglev Train Set

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Superconducting magnetically levitated (Maglev) trains differ from conventional wheel-on-rail trains with respect to vehicle dynamics in two major aspects. One difference is that the primary suspension of the Maglev train is formed by electromagnetic springs with no physical contact between bogie and guideway, with spring stiffness that varies with the speed of the vehicle as well as the load on the bogie; the other is that the Maglev train consists of articulated bogies. This paper focuses on the vehicle dynamics of Maglev vehicles as a train set, and reports results of computations and experiments by a Maglev vehicle dynamics model experimental apparatus (MAGMOX), both using models of several car bodies and bogies.