

Development of Electromagnetic Braking

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Abstract: *Electromagnetic braking is a promising technique to make driving more secure and energy-efficient. Within this paper, we investigate the influence of electromagnetic braking on vehicle dynamics. Consequently, we devise a mathematical model for a vehicle outfitted with electromagnetic brakes and analyze both its equilibrium and performance characteristics. To gain insight into the effectiveness of electromagnetic braking in multiple settings, simulations were also conducted.*

The outcomes demonstrate that electromagnetic braking can greatly augment vehicle steadiness as well as diminish halting distances. Moreover, it was discovered that the success of electromagnetic braking highly depends on the speed and weight of the motorized transport. Furthermore, electric vehicles may better capitalize on their energy efficiency by utilizing regenerative braking, permitting them to recover a percentage of the kinetic energy during deceleration. All in all, our analysis demonstrates the promise of electromagnetic braking concerning optimizing car security and energy efficiency. Through shedding light on this technology and its possible integration in future vehicles, our research endows supportable insights for advancing this remarkable invention.

Keywords: *Electromagnetic braking, vehicle dynamics, stability, regenerative braking, energy efficiency.*

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