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Hydrodynamics analysis and coordinated control method of anti-lock brake based on dynamic axle load

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ABSTRACT

In order to improve the stability of anti-lock braking process, a dynamic analysis and coordinated control method of anti-lock brake based on dynamic axle load is proposed. On the basis of dynamic axle load, the wheel force of vehicle braking on hard road is analyzed according to the total resistance of vehicle driving, and the dynamic analysis of vehicle hydraulic braking process is completed based on hydrodynamics theory. The coordinated control model of hydraulic anti-lock braking system is established by using the difference equation of motion of hydraulic anti-lock braking system. The experimental results show that the control method can reduce the braking distance and improve the stability of the braking process.

Keywords: Dynamic axle load; Automobile hydraulic pressure; Anti-lock braking; Coordinated control; Theory of fluid mechanics

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