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(57) Abstract :
INTELLIGENT AUTONOMOUS BRAKING CONTROL STRATEGY OF E-VEHICLE BASED ON DRIVING INTENTION RECOGNITION ABSTRACT Regenerative braking is an effective approach for electric vehicles (EVs) to extend their driving range. A fuzzy-logic-based regenerative braking strategy (RBS) integrated with series regenerative braking is developed in this paper to advance the level of energy-savings. From the viewpoint of securing car stability in braking operations, the braking force distribution between the front and rear wheels so as to accord with the ideal distribution curve are considered to prevent vehicles from experiencing wheel lock and slip phenomena during braking. Then, a fuzzy RBS using the driver's braking force command, vehicle speed, battery SOC, battery temperature are designed to determine the distribution between friction braking force and regenerative braking force to improve the energy recuperation efficiency. The experimental results on an "LF620" prototype EV validated the feasibility and effectiveness of regenerative braking and showed that the proposed fuzzy RBS was endowed with good control performance. The maximum driving range of LF620 EV was improved by 25.7% compared with non-RBS conditions.

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