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一体化起动发电机并联混合动力汽车发动机稳态优化控制与仿真

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摘要
针对基于发动机效率最优化的传统混合动力汽车发动机稳态优化控制没有考虑动力总成系统其他部件的效率的问题，提出了以混合动力汽车整个动力总成系统能量转换效率最优化为目标的发动机稳态优化控制策略并经仿真验证，在中国乘用车城区瞬态循环下，与传统控制策略相比燃油经济性改善了3.9%。

关键词 车辆工程；混合动力汽车；一体化起动发电机 能量转换；稳态优化；发动机

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Steady-state optimization control and simulation of internal combustion engine for ISG parallel hybrid electric vehicle

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Abstract

The conventional steady state optimization control strategy of the hybrid electric vehicle based on maximizing the efficiency of its internal combustion engine ignores the power conversion efficiency of the other components of the powertrain system, such as the electric motor and the power battery or ultracapacitor. So, a novel control strategy aiming at the optimization of power conversion efficiency of overall powertrain system was suggested and justified through simulation. Compared with the conventional control strategy, the vehicle fuel economy using the suggested control strategy was improved by 3.9% under Chinese transient urban driving cycle.

Key words vehicle engineering hybrid electric vehicle integrated starte

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