

基于功率跟随的混联混合动力汽车控制策略 Control Strategy of Parallel-serial Hybrid Electrical Vehicle Based on the Power Track Method

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关键词: 混联混合动力汽车 控制策略 模式切换 功率跟随

摘要: 针对某混联式汽车布置形式,分析确定了车辆行驶模式、模式切换过渡算法、行星排运动学限制模型,提出了基于功率跟随的整车控制策略。利用Cruise和Matlab软件,在Udc-auto循环工况下进行联合仿真。仿真结果表明:模式切换稳定,车速跟踪效果好,在车辆中高速加速工况下,可以控制发动机在最低燃油消耗线附近,控制策略和算法是可行的。同传统车辆相比,混合动力汽车控制策略可以实现在同一循环工况下节油55.42%。 This paper analyzed and confirmed the whole car modes of driving, modes conversion transient algorithm, planetary system kinematics limited model for a certain parallel-serial hybrid electric vehicle configuration, and proposed based-power-track control strategy. Combining Cruise with Matlab, we carried out the combination simulation under Udc-auto cycling run condition. The simulation result showed that mode conversions are stable, and tracking pre-defined car velocity effect is good. The engine can be controlled to work at the vicinity of its optimizing curve under accelerating condition of medium and high velocity of vehicle. The control strategy and algorithm are valid. Compared with conventional vehicle, HEV control strategy can realize that the decreasing ratio of fuel consumption reaches 55.42% under the same cycle run condition.

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