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应用复合电源的轻度混合动力汽车的参数匹配

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摘要 为解决混合动力汽车成本高、电池寿命短的问题，提出了复合电源轻度混合动力汽车的思想，通过取消发动机怠速、回收制动能量提高燃油经济性，应用电机主动同步技术缩短换档时间，利用超级电容寿命长、效率高的优点与电池组成复合电源，缓冲电池功率负荷，延长电池寿命。对整车各动力部件进行了参数匹配，通过仿真分析对匹配结果加以验证，并总结出将复合电源应用到轻度混合动力汽车中的可行性。

关键词 车辆工程,混合动力汽车,复合电源, 参数匹配

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Parameter matching of mild hybrid electric vehicle with compound power supply

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Abstract In order to reduce the high cost of the hybrid electric vehicle(HEV) and prolong its battery lifespan, a mild HEV with a compound power supply was suggested. The fuel economy of the mild HEV can be improved by stopping the vehicle driving without the engine idling and regenerating the braking energy. The time required for gear shifting can be shortened because of the motor active synchronizing technique. The supercapacitor with high power density and long lifespan was used to form a compound power supply with the battery to buffer the power load of battery to prolong its lifespan. The parameter matching was performed for the powerdrive components of the mild HEV and validated by simulation analysis. The feasibility of applying the compound power supply system in the mild HEV was summarized.

Key words vehicle engineering hybrid electric vehicle(HEV) compound power supply parameter matching

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