

Research on the Torsional Vibration of a Power-Split Hybrid Powertrain Equipped with a Dual Mass Flywheel

Authors : Xiaolin Tang, Wei Yang, Xiaoan Chen

Abstract : The research described in this paper was aimed at exploring the torsional vibration characteristics of a power-split hybrid powertrain equipped with a dual mass flywheel. The dynamic equations of governing torsional vibration for this hybrid driveline are presented, and the multi-body dynamic model for the powertrain is established with the software of ADAMS. Accordingly, different parameters of dual mass flywheel are investigated by forced vibration to reduce the torsional vibration of hybrid drive train. The analysis shows that the implementation of a dual mass flywheel is an effective way to decrease the torsional vibration of the hybrid powertrain. At last, the optimal combination of parameters yielding the lowest vibration is provided.

Keywords : dual mass flywheel, hybrid electric vehicle, torsional vibration, powertrain, dynamics

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