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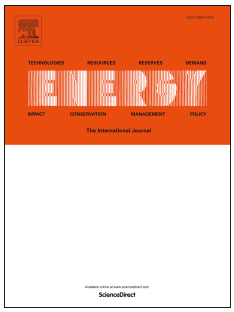

A combinatorial optimisation approach to energy management strategy for a hybrid fuel cell vehicle

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ACCEPTED MANUSCRIPT

A Combinatorial Optimisation Approach to Energy Management Strategy for a Hybrid Fuel Cell Vehicle

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Abstract

Hybrid Electric Vehicles are becoming more and more prevalent for economic and environmental reasons. Many studies have been conducted in order to improve Hybrid Electric Vehicle performance by increasing their autonomy while respecting the power demand of the electric motor and various constraints. Focusing on the Hybrid Electric Vehicle energy management problem, different approaches and strategies already exist based on non-linear modelling, selection of adequate architecture and source design or the expertise of the manufacturer in the domain. In this paper, a new combinatorial approach is presented to optimally manage offline Hybrid Electric Vehicle energy distribution, composed of two energy sources: a fuel cell as a main source and a super-capacitor for energy storage. New mathematical mod-

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