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International Journal of Vehicle Autonomous Systems • Volume 15, Issue 1, Pages 26 - 49 • 2020

Document type

Article

Source type

Journal

ISSN

14710226

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10.1504/IJVAS.2020.104816

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Dynamic performance analysis of electrified propulsion system in electric vehicle

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Abstract

High speed can be achieved by choosing compact size of propulsion system in an electric vehicle (EV). The cost of the propulsion system is one of the major design considerations which fall on the type of motor and controller. The choice of pancake shape Axial Flux Permanent Magnet Brushless DC Motor (AFPM BLDC) reduces the size of the propulsion system and improves the on board space of the EV. The intermittent periodic duty class has been considered to choose the power rating of the AFPM. A new type of Zeta converter is proposed here to regulate the input side DC voltage. The dynamic performance of the EV has been compared with and without Zeta converter which will be useful for the researchers in future. © 2020 Inderscience Enterprises Ltd.

Author keywords

AFPM; Axial flux permanent magnet brushless DC motor; Distance travelled; Electric vehicle acceleration; Static model; Total harmonic distortion; Zeta converter

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