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Abstract

This paper presents the application of fuzzy logic technique to reduce torque ripples in an induction motor drive employing direct torque control (DTC). The DTC is characterized by the absence of PI regulators, coordinate transformations, current regulators and PWM signals. The main drawback of DTC is its high torque ripples. In this proposed technique, the two hysteresis controllers are replaced by fuzzy logic controllers (FLC 1 and FLC 2). The distortions in flux, current and torque can be easily reduced by applying the selected inverter voltage vector only for the part and not for the entire switching period unlike in conventional DTC. The performance of the proposed system is evaluated through digital simulation using MATLAB – SIMULINK package. The simulation results verify the superiority of the proposed technique to the conventional DTC technique.

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Index Terms

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Keywords

Direct torque control fuzzy logic controller space vector modulation induction motor
drive switching
table