An Efficient Speed Controller of Three Phase Induction Motors Through Direct Torque Control

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Abstract

for three phase (3-ph) induction motors based on direct torque control (DTC). The main function of the DTC is to control the flux, developed torque and the direction of rotation. Many industrial applications require a precise speed control. Most of the available controller techniques could not grantee keeping the 3-Ph induction motor speed constant, while subjected to mechanical load disturbances. A high rejection of the effect of mechanical disturbance is achieved through using the proposed technique with an excellent motor speed regulation as shown in the simulation results. Different speed trajectories have been carried out to verify the robustness of the controller. A variable gain PI controller is introduced to cover all speed references and provide to be an efficient controller.
Keywords ð Speed Control; 3-Ph Induction Motors; Direct Torque Control; and Variable Gain.

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