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Abstract:

To control the flux and the torque precisely based on the FOC, core losses (CL) and stray load losses (SLL), which are generally neglected, should be considered in the mathematical model of IM to design the controller. In this paper, a discrete time multi input multi output (MIMO) optimal regulator is proposed based on the state space equations of IM taking CL and SLL into account. IRFOC technique is used to design the proposed controller. The performance of the designed controller is verified by the simulation studies which have been done by using Matlab/Simulink.

Keywords: Induction motor, Core loss, Stray Load loss, Field-oriented control, Optimal Regulator.