

Fuzzy-Sliding Controller Design for Induction Motor Control

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Abstract : In this paper, the position control of linear induction motor using fuzzy sliding mode controller design is proposed. First, the indirect field oriented control LIM is derived. Then, a designed sliding mode control system with an integral-operation switching surface is investigated, in which a simple adaptive algorithm is utilized for generalised soft-switching parameter. Finally, a fuzzy sliding mode controller is derived to compensate the uncertainties which occur in the control, in which the fuzzy logic system is used to dynamically control parameter settings of the SMC control law. The effectiveness of the proposed control scheme is verified by numerical simulation. The experimental results of the proposed scheme have presented good performances compared to the conventional sliding mode controller.

Keywords : linear induction motor, vector control, backstepping, fuzzy-sliding mode control

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