Lehrstühle und Professuren

Dokumenttyp: Zeitschriftenaufsatz
Autor(en) des Beitrags: Wang, F.; Davari, S.A.; Chen, Z.; Zhang, Z.; Khaburi, D.A.; Rodríguez, J.; Kennel, R.
Titel des Beitrags: Finite Control Set Model Predictive Torque Control of Induction Machine With a Robust Adaptive Observer.
Abstract: This paper proposes a finite control set model predictive torque control (PTC) of induction machine with an adaptive observer. Model reference adaptive system (MRAS) can accurately estimate the rotor speed. However, the encoderless PTC method requires not only the estimated rotor speed but also the estimated fluxes. A sliding mode stator voltage model observer is applied as the reference model in the MRAS. Although sliding mode method has chattering problem, it can be largely reduced by optimizing the sliding function and by proper sliding gains designed with H infinity method. The proposed encoderless PTC is experimentally verified in this work. The results show that the method is stable in a wide speed range and has good performance over load disturbance. Moreover, the proposed encoderless strategy has the merits of predictive control: fast dynamics, straightforward structure, and easy implementation for constraints’ inclusion.
Zeitschriftentitel: IEEE Transactions on Industrial Electronics
Jahr: