

AN ADAPTIVE SLIDING-MODE OBSERVER INCORPORATING CORE LOSS

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ABSTRACT

A novel adaptive sliding-mode observer has been developed for a three-phase squirrel-cage induction motor. With the new scheme taking core loss into account, the observer can accurately estimate rotor flux and speed, resistances of stator, rotor and core loss by using measured stator voltages and currents. Essences of switching conditions and adaptive manners are based on Lyapunov stability.