

Abstract

In vector controlled induction motor drives, the instantaneous rotor speed is measured using either sensors or estimators. Since the basic Kalman filter is a state observer, its use in vector controlled schemes has received much attention. However, these schemes are based on the assumption that the existence of iron loss in an induction motor may be neglected. The paper shows the effect of iron loss on the extended Kalman filter performance that is designed on the basis of the ironless induction machine model. Simulation results are carried out to demonstrate this effect as well as the effectiveness of the suggested approach to minimise the speed estimation error without modifying the observer algorithm.