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Robust-adaptive flux observers in induction motor drive systems

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Abstract

In this paper, we present a comparison of the performances among three rotor flux observers. If the rotor flux is applied as criterion in the vector control of induction motor, the value and direction of the flux needs to be known. Starting from two induction motor mathematical models, this paper analyses theoretically and in terms of simulation, the performances of a conventional rotor flux simulator with a view to the temperature influence of the rotor resistance. Flux observers were used to estimate the flux, since classic methods do not seem to provide acceptable performances. This paper analyses the performances of a robust-adaptive rotor flux observer, starting from a mathematical model and using simulation.

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Field-oriented control; Induction motor; Numerical simulation; Robust-adaptive flux observer; Rotor flux simulator

Index Keywords

Adaptive flux observers; Adaptive rotor flux observer; Field-oriented control; Flux observers; Induction motor drive system; Numerical simulation; Rotor flux observers; Rotor fluxes; Rotor resistances; Temperature influence; Vector controls
Engineering controlled terms: Electric drives; Induction motors; Intelligent systems; Robust control; Simulators
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