Simulation Model for Torque and Rotor Flux Estimation in Induction Motor

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Abstract:
Field oriented control (FOC) is a useful analytical method used to determine torque and rotor flux at every instant to maintain constant torque at variable speeds in a vector controlled drive. Constant torque under varying load conditions is necessary for CNC applications1. This paper deals with one of the simulation models developed using MATLAB to observe the torque and rotor flux components. The model has been generated using the principles of field oriented control and concepts of two-phase transformations used for DSP estimation. It can be used to analyze motor performance, as well as, interface with an induction motor using dSpace, for real time applications. Output ata generated can be used to train neural networks which can be used for faster and fault tolerant estimation.

Keywords : Field oriented control; Vector controlled drive; 2-phase Transformation