

عنوان مقاله:

On Line Determination of Optimal Hysteresis Band Amplitudes in Direct Torque Control of Induction Motor Drives

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خلاصه مقاله:

In conventional direct torque control (DTC) of induction machines, undesirable flux and torque ripples are produced. These occur since non of the selected inverter's voltage vectors are able to generate the exact voltage required to produce the desired changes in the electromagnetic torque and stator flux linkage in most of the switching instances. In addition, when direct torque control is implemented in a digital form these ripples will increase due to sampling and computation delays. In this paper, the influences of the amplitudes of flux and torque hysteresis bands and the sampling time of control program on the torque and flux ripples are investigated. A new method is then proposed for the determination and application of optimal hysteresis band amplitudes in DTC to reduce flux and torque ripples, and prevent the inverter switching frequency to exceed a desired limit. Extensive simulation results confirm the superiority of the DTC under the proposed method over the conventional DTC.

کلمات کلیدی:

Induction motors, Direct Torque Control, Hysteresis Bands

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