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Speed control of 8/6 switched reluctance motor with torque ripple reduction taking into account magnetic saturation effects

Chouaib Labiod^a, Kamel Srairi^a, Belkacem Mahdad^a, Mohamed Toufik Benchouia^b, M.E.H. Benbouzid^c

^aLESM: Laboratory of Energy Systems Modeling
Department of Electrical Engineering, University of Biskra
BP 145, Biskra 07000, Algeria.

^bLGEB: Laboratoire de Génie Electrique
Department of Electrical Engineering, University of Biskra
BP 145, Biskra 07000, Algeria.

^cUniversity of Brest, EA 4325, Brest Mechanics and Systems Laboratory (LBMS), 29238 Brest Cedex 03, France
E-mail: labiod.chouaib@gmail.com, ksrairi@yahoo.fr, bemahdad@mselab.org, Benchouia@yahoo.fr and
Mohamed.Benbouzid@univ-brest.fr

Abstract

This paper presents speed control of switched reluctance motor (SRM) with torque ripple reduction using direct Instantaneous torque control (DITC). The reference values of the instantaneous torque is generated from speed control by PI controller, from the comparison between the reference torques and the estimated torque using hysteresis controller in addition to selects different turn-off angles so that improve the performance of torque ripple, the latter achieves the switching signals needed for the converter to get the desired results. SRM have highly nonlinear for this the static characteristic has been determined using finite element method (FEM) under non-linear magnetic characteristics that makes them difficult to control but gives results closer to the truth. Results obtained from computer are compared for different turn-off angle which improve the performance the torque ripple of SRM.

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1. Introduction

The Switched Reluctance machine system has the advantages in mechanically simple, fault tolerant capability, low cost and robust structure capable of use in high temperature environments. However, it has some defects as high