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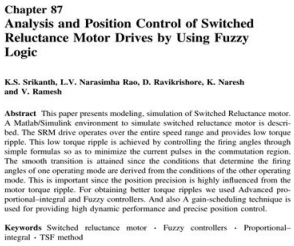

Chapter 87
Analysis and Position Control of Switched Reluctance Motor Drives by Using Fuzzy Logic

K.S. Srikanth, L.V. Narasimha Rao, D. Ravikrishore, K. Naresh and V. Ramesh

Abstract This paper presents modeling, simulation of Switched Reluctance motor. A Matlab/Simulink environment to simulate switched reluctance motor is described. The SRM drive operates over the entire speed range and provides low torque ripple. This low torque ripple is achieved by controlling the firing angles through simple formulas so as to minimize the current pulses in the commutation region. The smooth transition is attained since the conditions that determine the firing angles of one operating mode are derived from the conditions of the other operating mode. This is important since the position precision is highly influenced from the motor torque ripple. For obtaining better torque ripples we used Advanced proportional–integral and Fuzzy controllers. And also A gain-scheduling technique is used for providing high dynamic performance and precise position control.

Keywords Switched reluctance motor · Fuzzy controllers · Proportional–integral · TSF method

K.S. Srikanth (✉) · L.V. Narasimha Rao · D. Ravikrishore · K. Naresh · V. Ramesh
Department of Electrical and Electronics Engineering, K L University, Greenfields, Vaddeswaram, India
e-mail: Sri_anth_ds@gmail.com
L.V. Narasimha Rao
e-mail: Lvnrao19644@gmail.com
D. Ravikrishore
e-mail: dravikrishore@gmail.com
K. Naresh
e-mail: knaresh@kluniversity.in
V. Ramesh
e-mail: sitamsramesh@gmail.com

C. Kamalakannan et al. (eds.), *Power Electronics and Renewable Energy Systems*, Lecture Notes in Electrical Engineering 326, DOI 10.1007/978-81-322-2119-7_87