SIMULATION OF A STEPLESS-SPEED VARIABLE RELUCTANCE TORQUE COUPLER

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ABSTRACT

This thesis consist a study of reluctance torque coupler (RTC). The objective is to modify the switch reluctance motor (SRM) model to represent the RTC. A 2 phase 4/6 pole SRM with voltage rating 12V is used for the modification. The SRM block diagram was given by the supervisor and the simulation will be done using MATLAB Simulink program. The performance of the SRM was tested and studied for further understanding of its operation. The relative position and speed technique was used to relate the modified stator with the existing rotor in the SRM. The performance of the RTC was tested and investigated using MATLAB Simulink program. Several tests including the load disturbance test, slips test, motoring and breaking effect test and lock rotor test was conducted and the results was studied and analyzed. The simulation results show that the RTC can operate at different values of slips and the stability when introduced to load was practically high. Plus the voltage control angle can be manipulated effectively. Thus RTC has the advantages of high precision, high reliability and high practicability.

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