

## **DYNAMIC PERFORMANCE OF SWITCHED RELUCTANCE MOTOR (SRM) DRIVE FOR DIFFERENT LOADS**

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### **Abstract**

The inductance of the Switched Reluctance Motor (SRM) is a nonlinear function of position of rotor and stator currents. The control strategies for the SRM are Hysteresis Current Control and Voltage Control. The SRM is modeled by the value of inductance at four different positions of the rotor. The values of these inductances are evaluated from the Finite Element Analysis (FEA) which is conducted in FEMLAB software. First the model of single phase winding of SRM is developed and it is extended to four phases. The modeled SRM is simulated in MATLAB/SIMULINK. The model contains both Hysteresis Current control and Voltage control. The transition from Hysteresis control to Voltage control takes place automatically.

The model is simulated for various types of loads like Constant torque, Fan type torque, Constant Power, Sudden load torque. The dynamic performance characteristics like speed, torque, current etc are studied. Speed control of the drive is achieved by PI and PID controllers. Comparisons are made for both PI and PID controllers.

