

Mathematical model of switched reluctance motor

Sven Gotovac

*Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, University
of Split, Ruđera Boškovića b.b., HR-21000 Split, CROATIA*

SUMMARY

An accurate mathematical model of a switched reluctance motor (SRM) is a base for the motor design and performance analysis. It is important for the mathematical model to determine the flux-linkage dependence upon a current and a rotor displacement angle. The finite-element method was used to calculate the flux-linkage for a particular current and a rotor displacement angle. This method takes into account the salient pole geometry of the stator and the rotor and the nonlinear properties of the magnetic materials. In order to increase the accuracy of the calculations the flux-linkage was measured too. The calculated and measured flux-linkage data were interpolated with the B-splines. Comprehensive simulations were made and compared with the measurements.
