

Scope: A5 Coupled Problems

Dynamic Analysis of Highly Saturated Switched Reluctance Motors Using Coupled Magnetic Equivalent Circuit and the Analytical Solution

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Abstract

This paper presents a new method for dynamic performance analysis of highly saturated switched reluctance motors using coupled magnetic equivalent circuit and the analytical solution. In the method, the air-gap of the switched reluctance motor is modelled by the analytic method and the magnetic equivalent circuit is used to model the rest of the machine by taking into account the nonlinearity characteristics of the problem. The complex static and dynamic mesh generation process in the air-gap is not required in the proposed method. Thus, the modelling of motion of rotor becomes simpler and more accurate.