

عنوان مقاله:

Design, Optimization and FEM Analysis of a Surface-Mounted Permanent-magnet Brushless DC Motor

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نویسنده:

Hassan Moradi CheshmehBeigi - *Electrical Eng., Razi University, Kermanshah, Iran*

خلاصه مقاله:

In this paper a fast analytical algorithm for design a surface-mounted PM Brushless DC motor (SMPM-BLDC) for variable-speed application based on electromagnetic field analysis and RSM optimization algorithm is discussed. To achieve the desired performance, the physical dimensions of the proposed SMPM-BLDC motor subject to minimal ripple torque utilizing RSM optimization algorithm were optimized. Finally, to evaluate the motor performance and confirm the accuracy of the proposed design procedure 2-D Finite Element (FE) analysis were employed. The obtained numerical analysis results explain the accuracy and effectiveness of the proposed machine design methodology.

کلمات کلیدی:

PMBLDC, finite element analysis, Analytical model

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