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Paper No. : PP-20 (503-M11-018)

Title: Space Harmonic Analysis for Magnetic Field Distribution

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Date and Time: November 3, 2004 Wednesday 10:40 - 12:10

Venue: Lobby B

- Abstract -

As an analytical method, space harmonic analysis for the design of the permanent magnet motor is developed in this paper. For the analysis, permanent magnet of the motor is replaced by equivalent magnetization current sheet. Flux distributions according to the pole arc angle, eccentricity, and magnetization of permanent magnet are estimated. To verify presented analysis method, 2-dimensional finite element analysis is performed in static state and the results are compared. With this method, the flux distribution will be easily and rapidly estimated with accuracy in the design stage of permanent magnet motor and optimization of the motor will be easily performed by parameterized analysis.

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Space Harmonic Analysis for Magnetic Field Distribution

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Soon-O Kwon, Ji-Young Lee, Jung-Pyo Hong (Changwon National Univ., Korea), Yang-Soo Lim, Yoon Hur (Daewoo Precision Industries Co. LTD., Korea)

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Y. Li, X. Lin, J.Y. Xu, Y.Tang (Shenyang Univ. of Tech., China)

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Tao Peng, Cheng Lin Gu (HuaZhong Univ. of Science and Tech., China)

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Shuhong Wang (Gwangju Inst. of Science and Tech., Korea and Xi'an Jiaotong Univ., China), Semyung Wang (Gwangju Inst. of Science and Tech., Korea), Jie Qiu, Qingfu Li (Xi'an Jiaotong Univ., China)

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Dai JingMin, Chen ZhaoYang, He Jin, Sha YuanXia (Harbin Inst. of Tech., China)

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LI Hui (Ministry of Education, China), Yang Shunchang (Chongqing Univ., China)

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Yong-Soo Song, Su-Gil Lee, Sung-Ho Han (Korea Railroad Research Inst., Korea)