

Topic Area: Theory, Modeling and Simulation

Paper No. : PP-21 (503-M11-019)

Title: Characteristic Analysis of Claw-Pole type Generators using 2-dimensional Finite Element Method

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

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

Venue: Lobby B

- Abstract -

This paper presents the design of 2D equivalent model for claw-pole type generator in detail, and simplified characteristic analysis method using 2D FEM with 2D equivalent model. The dimensions of the 2D equivalent model are determined by geometric mean distance and material of 3D model. The basic concept of equivalent model is designing the equivalent magnetic circuit. With proposed 2D equivalent model, less calculation time and computer memory are required comparing to 3D analysis. For the validity of 2D analysis results, the flux distribution from 2D FEM is compared that from 3D FEM, and the back EMF is compared with measurements.

International Conference
on Electrical Machines and Systems 2004

ICEMS 2004

October 31 ~ November 3, 2004 Jeju Island, Korea



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