

Research on Axial End Flux Leakage and Detent Force of Transverse Flux PM Linear Machine

Authors : W. R. Li, J. K. Xia, R. Q. Peng, Z. Y. Guo, L. Jiang

Abstract : According to 3D magnetic circuit of the transverse flux PM linear machine, distribution law is presented, and analytical expression of axial end flux leakage is derived using numerical method. Maxwell stress tensor is used to solve detent force of mover. A 3D finite element model of the transverse flux PM machine is built to analyze the flux distribution and detent force. Experimental results of the prototype verified the validity of axial end flux leakage and detent force theoretical derivation, the research on axial end flux leakage and detent force provides a valuable reference to other types of linear machine.

Keywords : axial end flux leakage, detent force, flux distribution, transverse flux PM linear machine

Conference Title : ICECSE 2016 : International Conference on Electrical, Computer and Systems Engineering

Conference Location : Paris, France

Conference Dates : April 25-26, 2016