

**MODELING OF A PM CONVERTER-FED MACHINE
ALLOWING FOR ARMATURE REACTION AND DAMPER CAGE EFFECTS**

Clovis Goldemberg
Escola Politécnica da USP
Av. Prof. Luciano Gualberto, 158
CEP 05508-900 São Paulo SP Brasil

Orlando Sílvio Lobosco
IEE - Instituto de Eletrotécnica e Energia
Av. Prof. Luciano Gualberto, 1289
CEP 05508-900 São Paulo SP Brasil

RESUMO:

Este trabalho trata do modelamento de motores de comutação eletrônica a ímãs permanentes, aperfeiçoando modelos anteriores, pela introdução da gaiola de amortecimento. A reação de armadura é discutida tanto qualitativa como quantitativamente. As análises foram suportadas por testes em laboratórios feitos em protótipo de 100 cv.

ABSTRACTS

This paper deals with permanent magnet converter-fed machines mainly of large size. The machine modeling includes the effect of the damper cage, improving previously development models. Armature reaction is thoroughly discussed both qualitatively and quantitatively. The entire analysis is supported by laboratory experiments made on a 100 HP machine, conceived and constructed in such a way to facilitate this type of research. The machine simulation is developed in two steps. Initially the machine is simulated as a generator, where the power electronics converter can be neglected. The model is then applied for motor operating conditions, showing the influence of the damper cage on the motor performance.