Abstract

This paper presents an analysis of effects of dynamic air-gap eccentricity on the performances of a 6/4 Switched Reluctance Machine (SRM) through finite element analysis (FEA) based on a FEMM package associated to MATLAB/SIMULINK package software. Among the various Time-Frequency methods used for detection of defects, the Time-Frequency Representation (TFR) is an appropriate tool to detect the mechanical failures through the torque analysis by allowing a better representation independent from the type of fault. Simulation results of healthy and faulty cases are discussed and illustrate the effectiveness of the proposed approach.

References

- Subhasis Nandi, Shehab Ahmed, and Hamid A. Toliyat, "Detection of Rotor Slot
- Sang-Hyuk Lee, Sungshin Kim, Jang Mok Kim, &quot;Extraction of Induction Motor Fault Characteristics in Frequency Domain and Fuzzy Entropy&quot;, 2005 IEEE Int. Conf. on Electric Machines and Drives, San-Antonio, TX, pp. 35-40.
- Irahis Rodriguez, Roberto Alves, &quot;Detection of the Combination of Static and Dynamic Air gap Eccentricity in 3-Phase Induction Motors using Stator Current Monitoring&quot;, ICEM&apos;s;06, Chania, Crete Island, Greece, Sept. 2-5, 2006.
- J. Faiz, and B. M. Ebrahimi, &quot;Static eccentricity fault diagnosis in an accelerating no-load three-phase saturated squirrel-cage induction motor&quot;, Progress In


Index Terms

Computer Science

Signal Processing

Keywords

Eccentricity  FEA  SRM  Time-Frequency Representation  Wigner-Ville Distribution