عنوان فارسی مقاله:
رویکردنی جدید نسبت به تشخیص خط‌ای در ماشین‌های سنکرون مغناطیس دائم با استفاده از تحلیل سیگنال الکترومغناطیسی

عنوان انگلیسی مقاله:
A New Approach to Fault Diagnostics for Permanent Magnet Synchronous Machines Using Electromagnetic Signature Analysis

توجه!
این فایل تنها قسمتی از ترجمه می‌باشد. برای تهیه مقاله ترجمه شده کامل با فرمت ورد (قابل ویرایش) همراه با نسخه انگلیسی مقاله، اینجا کلیک نمایید.
VII. Conclusion

In this paper, a novel scheme for PMSM health monitor-ing and fault diagnosis has been proposed. Search coils are wound around each tooth so that the air-gap flux density can be measured. Although the method is invasive, only the first-order harmonic is used for fault detection so that it is immune to the harmonics induced by power electronic devices. Another beneﬁt of this technique is that the load condition does not necessarily need to be speciﬁed for accurate fault diagnosis.

2-D time transient FEA simulations have been presented for the validation of the proposed method over different motor op-eration conditions. The faults considered in this study include static and dynamic eccentricity, interturn short circuit, phase-to-ground short circuit, and partial and uniform demagnetization. Results show that the signatures of different faults are easy to identify, so no time-consuming pattern recognition algorithm is required. Furthermore, the direction of eccentricity and the location of winding shorted turns can be found. In addition, this method is also capable of evaluating the severity of each fault, which is of significant importance in mission-critical applications such as automotive, aerospace, and military.

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