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Abstract

Vector control has been widely used in control of permanent magnet synchronous motors (PMSM) where the information of rotor position is required. Shaft position sensor such as an optical shaft position encoder or Hall Effect sensor is fitted to provide a signal that is used to maintain an appropriate space angle between the stator and rotor fields in the motor. Even though this method is very precise but the cost of mechanical sensors and the difficulty to incorporate them make it necessary to avoid their uses and to study the mechanical sensorless control. There are many methods which vary in principle and observer structure. The authors cover a wide range of topics related to the speed sensorless control of permanent magnet

synchronous motor (PMSM) drives including their fundamental, limitations, present advances and future trends. In this paper conventional techniques are reviewed and recent developments in this area are introduced with their inherent advantages and drawbacks.

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Index Terms

Computer Science

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Keywords

Permanent Magnet Synchronous Motor Speed Estimator Observer.