

PMSM Drive Fed by Sliding Mode Controlled PFC Boost Converter

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Abstract

In this study, a vector controlled permanent magnet synchronous motor (PMSM) drive fed by a two-level inverter which is connected to a boost converter with sliding mode control (SMC) for power factor correction (PFC) is presented. The performance of the drive system is analyzed with all the system details such as speed control of PMSM, SMC, and PFC. The simulation results are obtained using MATLAB/SimPowerSystem blocks. The waveforms of source and motor currents are analyzed with their harmonic spectrum. The unity power factor is performed by obtaining a low input current with total harmonic distortion (THD). The experimental results of PFC are analyzed with input current waveforms and THD values for with/without PFC.

Keywords

Author Keywords: [Inverters](#); [Permanent magnet motor](#); [Power quality](#); [Sliding mode](#); [Vector control](#); [Space vector PWM](#)

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