Abstract

In this paper, a sliding mode controller (SMC) is designed to control the speed of an induction motor fed by three phase voltage source inverter based on space vector pulse width modulation (SVPWM) technique. The sliding mode controller is a nonlinear, high speed switching, feedback control strategy that provides an effective and robust approach for controlling nonlinear plants. The space vector pulse width modulation technique is advanced, computation-intensive pulse width modulation (PWM) technique and it is possibly the best among all the PWM techniques for variable frequency drive applications. The proposed scheme enables us to adjust the speed of the motor by controlling the frequency and amplitude of the stator voltage; the ratio of the stator voltage to the frequency should be kept constant. It is introduced to maintain a constant speed to when the load varies. Simulation results show the
validation of the proposed scheme.

References

- X. Liu and W. Wang, "High order sliding mode and its application on the tracking control of piezoelectric systems," International Journal of Innovative Computing,
A Sliding Mode Controller for a Three Phase Induction Motor


Index Terms

Computer Science

Power Electronics

Keywords

Sliding mode controller  induction motor  space vector pulse width modulation