

A NOVEL HYBRID MULTI LEVEL INVERTER FED INDUCTION MOTOR DRIVE

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Abstract

This paper presents the hybrid topology of cascaded three phase multilevel inverter fed induction motor drive. The cascaded multilevel inverter consist of two complementary operated switches connected in series with DC source and a common H –bridge inverter per phase. This topology is termed as Hybrid topology. The switching technique is combined by binary logic and SPWM, to achieve the $2^{(N+1)}-1$ level of output voltage per phase, with $2N$ and 4 switches per phases used for cascaded inverter and H-bridge inverter respectively; N is the number of variable DC source per phase. This model provides the output waveform having 31 levels per phase. Moreover, higher voltage level and changing switching frequency helps in reducing harmonics, total harmonic distortion, and switching losses. The model of the Multilevel inverter system is developed SPWM strategy to control the speed of the induction motor. The above concepts are coincide with simulated results.

Keywords : Hybrid topology, binary logic, SPWM, $2^{(N+1)}-1$ level, SPWM technique