Z-source inverter

Abstract:

To overcome the drawbacks of traditional inverters, the newly proposed impedance source or Z-source inverter can be used, which is virtually the combination of VSI and CSI. It employs an impedance network as a DC link consisting of L and C to couple the converter bridge and the power source as shown in Figure 1.1. A traditional PWM 3-phase VSI operates in eight states, six active and two null states. In active states, power is transported from the DC link to the AC output, whereas in null states the DC link capacitor is charged from the DC source. The shoot through state is introduced within the null state of Z-source inverter. This cannot be applied in voltage source inverter. The shoot-through state in Z-source inverter enhances the voltage at the load end. It should be inserted in such a way that, equal null intervals are again maintained at the start and end of the switching cycle, to achieve the same optimal harmonic performance. This project represents the comparison of voltage gain at different modulation indexes using different boosting techniques, in Z-source inverter.