

# **Modified Space Vector Modulation for a Zero-Voltage Transition Three-Phase to DC Bi-directional Converter**

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## **(ABSTRACT)**

A modified space vector modulation algorithm for a zero-voltage transition three-phase voltage source inverter/boost rectifier is presented. The converter is intended for high performance medium power applications requiring bi-directional power flow. The proposed modified space vector modulation allows the main switches to be operated with constant frequency and soft switching for any phase shift between the three-phase currents and voltages. The modulation algorithm also eliminates any low frequency distortion caused by the zero-voltage transition and can be extended to other soft-switching PWM three-phase converters. Experimental verification of the proposed algorithm is also presented as well as a comparison to the hard switched PWM converter.

**Abstract**