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2.6.1 Comparison between the switching patterns 2.7 Basic current source conversion operation; 2.7.1 Analysis of the CSC waveforms; 2.8 Summary; References; 3 Multilevel Voltage Source Conversion; 3.1 Introduction; 3.2 PWM-assisted multibridge conversion; 3.3 The diode clamping concept; 3.3.1 Three-level neutral point clamped VSC; 3.3.2 Five-level diode-clamped VSC; 3.3.3 Diode clamping generalization; 3.4 The flying capacitor concept; 3.4.1 Three-level flying capacitor conversion; 3.4.2 Multi-level flying capacitor conversion; 3.5 Cascaded H-bridge configuration 3.6 Modular multilevel conversion (MMC) 3.7 Summary; References; 4 Multilevel Reinjection; 4.1 Introduction; 4.2 The reinjection concept in line-commutated current source conversion; 4.2.1 The reinjection concept in the double-bridge configuration; 4.3 Application of the reinjection concept to self-commutating conversion; 4.3.1 Ideal injection signal required to produce a sinusoidal output waveform; 4.3.2 Symmetrical approximation to the ideal injection; 4.4 Multilevel reinjection (MLR)-the waveforms; 4.5 MLR implementation-the combination concept; 4.5.1 CSC configuration 4.5.2 VSC configuration 4.6 MLR implementation-the distribution concept; 4.6.1 CSC configuration; 4.6.2 VSC configuration; 4.7 Summary; References; 5 Modelling and Control of Converter Dynamics; 5.1 Introduction; 5.2 Control system levels; 5.2.1 Firing control; 5.2.2 Converter state control; 5.2.3 System control level; 5.3 Non-linearity of the power converter system; 5.4 Modelling the voltage source converter system; 5.4.1 Conversion under pulse width modulation; 5.5 Modelling grouped voltage source converters operating with fundamental frequency switching 5.6 Modelling the current source converter system

Sommario/riassunto

For very high voltage or very high current applications, the power industry still relies on thyristor-based Line Commutated Conversion (LCC), which limits the power controllability to two quadrant operation. However, the ratings of self-commutating switches such as the Insulated-Gate Bipolar Transistor (IGBT) and Integrated Gate-Commutated Thyristor (IGCT), are reaching levels that make the technology possible for very high power applications. This unique book reviews the present state and future prospects of self-commutating static power converters for applications requiring either
