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Descrizione fisica	1 online resource (XVIII, 232 p. 129 illus., 113 illus. in color.)
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Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Introduction -- Comparisons among TCLC-HAPF and Other Different Power Quality Filters -- Mitigation of the Harmonic Injection in TCLC Part and Nonlinear Hysteresis PWM Control in Active Inverter Part of TCLC-HAPF -- Modeling and Parameter Design Method of TCLC-HAPF for Balanced/Unbalanced Loading Compensation -- Unbalanced Control Strategy for TCLC-HAPF -- Minimizing Inverter Capacity Design and Comparative Performance Evaluation of FC-TCR-HAPF and TCLC-HAPF -- An Adaptive DC-link voltage Control of TCLC-HAPF -- Selective Compensation of Distortion, Unbalanced and Reactive Power of TCLC-HAPF -- Implementation of An 110V-5kVA Three-phase Three-Wire TCLC-HAPF Experimental Prototype -- Conclusions and Prospective for Further Work.
Sommario/riassunto	This book introduces advanced thyristor-based shunt hybrid active power filters (HAPFs) for power quality improvement in power grids, which are characterized by a low dc-link operating voltage and a wide compensation range. This means they can overcome the high dc-link voltage requirement of conventional active power filters and the narrow compensation range problem of LC-coupling hybrid active power

filters. Consisting of 10 chapters, the book discusses the principle, design, control and hardware implementation of thyristor-based hybrid active power filters. It covers 1) V-I characteristics, cost analysis, power loss and reliability studies of different power filters; 2) mitigation of the harmonic injection technique for thyristor-controlled parts; 3) nonlinear pulse width modulation (PWM) control; 4) parameter design methods; 5) minimum inverter capacity design; 6) adaptive dc-link voltage control; 7) unbalanced control strategy; 8) selective compensation techniques; and 9) the hardware prototype design of thyristor-based HAPFs, verified by simulation and experimental results. It enables readers to gain an understanding of the basic power electronics techniques applied in power systems as well as the advanced techniques for controlling, implementing and designing advanced thyristor-based HAPFs.