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Nota di contenuto	Towards a Distributed, Electronized and Self-organized power systems -- [P Q]-[V] Admittance Modeling Method of Grid-Connected Multi-VSG System -- General [P Q]-[V] Modeling Method of Hybrid GFM/GFL Multi-VSC Systems -- Revisiting Droop Control and Virtual Impedance Method -- Power Coupling Index (PCI)-Oriented Stability Analysis -- Power Oscillation Suppression with Adaptive Virtual Inertia -- Power Oscillation Suppression with Decentralized Mutual Damping Control -- Power Oscillation Suppression with Adaptive Virtual Impedance Control -- Dynamic Frequency Support Considering Virtual Inertia and Damping -- Quantitative Control Parameters Design Oriented to Synchronization Stability -- Modified VSG Control to Enhance Both Small-Signal Stability and Synchronization Stability -- Adaptive Inertia and Damping Coordination (AIDC) Control for Grid-Forming VSG -- COI-frequency consensus control for distributed multi-VSG grids -- PLL-Synchronized Voltage-Supporting Control under Near-Zero Line Impedance -- Distributed Coordination Control for Islanded Hybrid AC/DC Microgrid -- Priority-Driven Self-Optimizing Power Control for Interlinking Converters of Microgrid Clusters.

Sommario/riassunto

This book gives a comprehensive and in-depth introduction to the development of advanced self-organized control and synchronization stability of electronized power systems from voltage amplitude-frequency dynamics. It presents modeling method from the amplitude-frequency dynamic perspective, oscillation suppression control, transient synchronous stability and self-organized operation of the electronized power systems. For each topic, a theoretical introduction and overview are backed by very concrete programming examples that enable the reader to not only understand the topic but to develop microgrid simulation models. This book will serve as an invaluable tool for researchers, engineers, and designers in the field of the electronized power systems who are involved in the cooperative control of high renewable based power converter networks.