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| Nota di contenuto | Chapter 1. Introduction to Grid-Connected Power Converters -- Chapter 2. Bifurcations of Grid-Following Rectifiers and Routes to Voltage Instability -- Chapter 3. Homoclinic Bifurcation and Transient Stability of Grid-Forming Inverters -- Chapter 4. Comparison of Homoclinic Bifurcations in Grid-Following and Grid-Forming Inverters -- Chapter 5. Impact of Control Methods on Transient Synchronization Stability of Grid-Following Inverters -- Chapter 6. Reduced-Order Models and Nonlinear Behavior of Islanded Microgrid -- Chapter 7. Sub-Synchronous Oscillations and Transient Stability of Islanded Microgrid -- Chapter 8. Interaction Between Grid-Forming and Grid-Following Inverters and Transient Stability of Islanded Microgrid -- Chapter 9. Stability of Power-Electronics Based Power Grids. |
| Sommario/riassunto | This book is a comprehensive resource on the latest research in the field of power electronics and systems. The authors provide a detailed analysis of the complex behavior and stability issues of grid-connected power converters, which are essential for integrating renewable energy sources into the power grid and improving the efficiency and flexibility of the grid's operation. The book offers a multidisciplinary approach |

that combines expertise in circuit modeling, control theory, nonlinear system analysis, and power electronics system design. It covers topics such as bifurcation, nonlinear oscillations, synchronization, and stability of grid-connected power converters. Additionally, it highlights the latest research in these areas, including the development of advanced control strategies that can adapt to changes in the grid's operating conditions and mitigate the effects of nonlinear behavior and other stability issues. Complex Behavior of Grid-Connected Power Electronics Systems is a must-read for anyone seeking to develop and implement efficient and reliable grid-connected power converters. Focuses on grid-connected power electronic converters and their impact on power systems; Describes complex behavior of grid-connected power converters and the impact on the stability of power grids; Provides stability results that are applicable to a variety of devices connected to the power grid.