1. Record Nr. UNINA9910678259903321

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| Titolo | Holistic Design of Resonant DC Transformer on Constant Voltage Conversion, Cascaded Stability and High Efficiency / / by Xin Zhang, Fanfan Lin, Hao Ma, Bin Zhao, Jingjing Huang |
| Pubbl/distr/stampa | Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023 |
| ISBN | 981-19-9115-4 |
| Edizione | [1st ed. 2023.] |
| Descrizione fisica | 1 online resource (247 pages) |
| Disciplina | 621.31912 |
| Soggetti | Electric power production<br>Computational intelligence<br>Electronic circuits<br>Electrical Power Engineering<br>Computational Intelligence<br>Electronic Circuits and Systems |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Introduction -- The Proposed Robust Circuit Parameters Design for the CLLC-type DC Transformer in the Hybrid AC/DC Microgrid -- The Proposed Simplified Resonant Parameters Design of the Asymmetrical CLLC-type DC Transformer in the Renewable Energy System via Semi-artificial Intelligent Optimal Scheme -- The Proposed Two-stage Parameter Design Methodology of a Generalized Resonant DC Transformer in Hybrid AC/DC Microgrid with Optimum Active Power Transmission -- Design of Symmetrical CLLC Resonant DC Transformer Considering Voltage Transfer Ratio and Cascaded System Stability -- Parameter Design for Symmetrical CLLC-Type DC Transformer Considering Cascaded System Stability and Power Efficiency -- Design Methodology for Symmetric CLLC Resonant DC Transformer Considering Voltage Conversion Ratio, System Stability and Efficiency -- The Proposed Multi-Time Scale Frequency Regulation of a General Resonant DC Transformer in Hybrid AC/DC Microgrid. |
| Sommario/riassunto | This book is devoted to the optimum design of the DCT in a hybrid AC/DC microgrid, which takes into account not only the influence of |

different inductors/capacitors values, but also numerous design goals (i.e., VCG, efficiency, stability and so on). This book examines the DCT's design problem in detail. It begins by reviewing existing DCTs in, the hybrid AC/DC microgrid and their design problems. Following that, this book proposes a family of DCT optimization design approaches to ensure that the designed DCT has good power transmission and voltage regulation ability in the hybrid AC/DC microgrid, even when the actual inductors/capacitors values fluctuate with practical power and temperature. Following that, this book provides a family of multi-objective optimization design methodologies for the DCT to guarantee that it concurrently achieves the requirements of VCG, efficiency, and system stability. This book also covers how to control the DCT in a hybrid AC/DC microgrid optimally and generically.