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Edizione	[1st ed.]
Descrizione fisica	1 online resource (0 pages)
Altri autori (Persone)	LiXiao GeBaoming Abu-RubHaithem BlaabjergFrede
Soggetti	AC-to-AC converters Impedance (Electricity)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Background -- Z-source/Quasi-Z-source direct matrix converter -- Z-source/Quasi-Z-source indirect matrix converter (non-all SiC solution) -- Z-source/Quasi-Z-source indirect matrix converter (all SiC solution) -- Comparison of typical Z-source/Quasi-Z-source matrix converters -- Z-source/Quasi-Z-source 3-1-phase matrix converters -- Z-source/Quasi-Z-source 3-1-phase matrix converters with low-frequency power compensation -- Model predictive control of LC filter-integrated quasi-z-source indirect matrix converter -- Optimum boost control of LC Filter integrated quasi-z-source indirect matrix converter -- Applications in motor drives -- Future trends.

## Sommario/riassunto

Technical resource presenting the latest power conversion solutions to advance the role of AC-AC power electronics in various applications. Compiling state-of-the-art research from around the world, Impedance Source Matrix Converters and Control provides a rich diversity of scientific work experience and scholarly approaches on the fundamentals and advances of power electronic converters for motor drives, renewable energies, and industry applications. The reader will be able to apply the learnt design approaches in this book for building and researching the future generation of efficient power electronic converters: more efficient, more reliable, less expensive, lighter, and less voluminous. The text introduces impedance source matrix converters in four distinct parts, covering the basics, converter topology, control, and applications. Its main focus is on the detailed understanding of advanced concepts related to fundamentals of impedance source matrix converters, and provides associated models, analysis, modulation, and final design and optimization control. Additional tables, questions/answers, tutorials, PowerPoint presentations, and selected simulation and experimental results are discussed in order to impart seamless reader comprehension. Written by four highly qualified academics with significant experience in the field, Impedance Source Matrix Converters and Control covers sample topics such as:

- \* Operating principles and modulation methods for impedance source direct/indirect matrix converters and 3-1-phase matrix converters
- \* Optimum operation control of LC filter integrated impedance source indirect matrix converters and comparison and control strategies of typical impedance source matrix converters
- \* Design and improvement in the electricity supply's reliability, efficiency, compact volume, power quality, and sustainability
- \* Challenges and key technologies within the field of impedance source matrix converters, and solutions and directions for further research and applications

Impedance Source Matrix Converters and Control is an essential resource on the latest developments in the field for researchers, postgraduate students, and graduate students studying power electronics and renewable energy conversion. The text is also a useful reference for R&D engineers involved with the development of power converters/inverters.

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