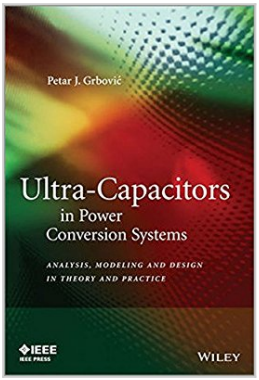

Ultra-Capacitors in Power Conversion Systems: Analysis, Modeling and Design in Theory and Practice

By Petar J. Grbovic

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Ultra-capacitors, used as short-term energy storage devices, are growing in popularity especially in the transportation and renewable energy sectors. This text provides an up-to-date and comprehensive analysis of ultra-capacitor theory, modeling and module design from an application perspective, focusing on the practical aspects of power conversion and ultra-capacitor integration with power electronics systems.

Key features:

- clearly explains the theoretical and practical aspects of ultra-capacitor, analysis, modelling and design
- describes different power conversion applications such as variable speed drives, renewable energy systems, traction, power quality, diesel electric hybrid applications
- provides detailed guidelines for the design and selection of ultra-capacitor modules and interface dc-dc converters
- includes end-of-chapter exercises and design examples

This is an essential reference for power electronics engineers and professionals wanting to expand their knowledge of advanced ultra-capacitor energy storage devices and their application in power conversion. It is also a valuable resource for industrial design engineers as well as academics and advanced students in power electronics who want to develop their understanding about this highly topical subject.

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Editorial Review

From the Back Cover

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Dr Grboviæ is currently a Senior Expert in the area of power electronics and power conversion at HUAWEI Technologies, Europe Energy Competence Center. From September 2010 until August 2011 he was with General Electric Global Research in Munich. Before this he worked for five years at Schneider Toshiba Inverter Europe, Pacy-Sur-Eure, France as Power Electronics Group Expert. Prior to this he had experience in R&D with PDL Electronics Ltd., New Zealand, and consulting experience with CESET Italy. Dr Grboviæ holds four US and European patents, nine patent applications, also five US patent applications in filing process. He is IEEE senior member of the Power Electronics and Industrial Electronics Society. His current research is on the application of advanced energy storage devices, active gate driving for high power IGBT’s and JFET SiC, power converter topologies, advanced power semiconductor devices and control of power converters and semiconductor switches.

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