Control of Power Electronic Converters with Microgrid Applications

Arindam Ghosh, Firuz Zare

**DESCRIPTION**

**Control of Power Electronic Converters with Microgrid Applications**

Discover a systematic approach to design controllers for power electronic converters and circuits

In *Control of Power Electronic Converters with Microgrid Applications*, distinguished academics and authors Drs. Arindam Ghosh and Firuz Zare deliver a systematic exploration of design controllers for power electronic converters and circuits. The book offers readers the knowledge necessary to effectively design intelligent control mechanisms. It covers the theoretical requirements, like advanced control theories and the analysis and conditioning of AC signals as well as controller development and control.

The authors provide readers with discussions of custom power devices, as well as both DC and AC microgrids. They also discuss the harmonic issues that are crucial in this area, as well as harmonic standardization. The book addresses a widespread lack of understanding in the control philosophy that can lead to a stable operation of converters, with a focus on the application of power electronics to power distribution systems.

Readers will also benefit from the inclusion of:

- A thorough introduction to controller design for different power electronic converter configurations in microgrid systems (both AC and DC)
- A presentation of emerging technology in power distribution systems to integrate different renewable energy sources
• Chapters on DC-DC converters and DC microgrids, as well as DC-AC converter modulation techniques and custom power devices, predictive control, and AC microgrids

Perfect for manufacturers of power converters, microgrid developers and installers, as well as consultants who work in this area, *Control of Power Electronic Converters with Microgrid Applications* is also an indispensable reference for graduate students, senior undergraduate students, and researchers seeking a one-stop resource for the design of controllers for power electronic converters and circuits.

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💖 ABOUT THE AUTHOR

**Arindam Ghosh, PhD**, is a Research Academic Professor at Curtin University, Perth, Australia. He obtained his PhD from the University of Calgary, Canada. He was with the Indian Institute of Technology Kanpur from 1985 to 2006 and a Research Capacity Building Professor at Queensland University of Technology, Brisbane, Australia from 2006 to 2013. He was a Fulbright Scholar in 2003. He is a Fellow of the Indian National Academy of Engineering: INAE (2005) and a Fellow of the Institute of Electrical and Electronics Engineers: IEEE (2006). He was conferred the IEEE PES Nari Hingorani Custom Power Award in 2019. He has published over 450 peer reviewed journal and conference articles and has authored 2 books.

**Firuz Zare, PhD**, is Head of the School of Electrical Engineering and Robotics, Queensland University of Technology, and an IEEE Fellow. He has over 20 years of experience in academia and industry and has published 250 peer-reviewed journal and conference papers.

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