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In the middle of 2014 the Springer Book Series “*Studies in Computational Intelligence*” (edited by Professor Janusz Kacprzyk for the Polish Academy of Sciences) has issued the new monograph “*Advanced and Intelligent Control in Power Electronics and Drives*”, edited by Professor Teresa Orłowska-Kowalska (Wrocław University of Technology, Poland), Professor Frede Blaabjerg (Aalborg University, Denmark) and Professor Jose Rodriguez (Valparaiso University of Technology, Chile). This book has been dedicated to Professor Marian P. Kaźmierkowski on the occasion of his 70th anniversary.

Power electronics and variable frequency drives are continuously developing multidisciplinary fields in electrical engineering, and it is practically not possible to write the book covering the entire area by one individual specialist. Especially, that recently fast-development has been observed in neighboring fields like control theory, computational intelligence and signal processing, which all strongly influence new solutions in control of power electronics and drives. Therefore, the book is written by key specialist working on the area of modern advanced control methods which penetrates current implementation of power converters and drives. Although some of the presented methods are still not adopted by industry, they create new solutions with high further research and application potential.

The material of the book is presented in the following three parts with 3-4 chapters each:

Part I: Advanced Power Electronic Control in Renewable Energy Sources

1. Ke Ma, Yongheng Yang, and Frede Blaabjerg: “*Introduction to Renewable Energy Systems*”
2. Yongheng Yang, Wenjie Chen, and Frede Blaabjerg: “*Advanced Control of Photovoltaic and Wind Turbines Power Systems*”
3. Marek Jasinski, Grzegorz Wrona, and Szymon Piasecki, “*Control of Grid Connected Converter (GCC) Under Grid Voltage Disturbances*”
4. Kyo-Beum Lee, Ui-Min Choi, “*Faults and diagnosis systems in power converters*”

Part II: Predictive Control of Power Converters and Drives

5. Daniel Quevedo, Ricardo P. Aguilera, and Tobias Geyer, “*Predictive Control in Power Electronics and Drives: basic concepts, theory and methods*”
6. Jose Rodriguez, Haitham Abu-Rub, Marcelo A. Perez, and Samir Kouro, “*Application of predictive control in power electronics: an AC-DC-AC converter system*”
7. Krzysztof Szabat, Piotr Serkies, and Teresa Orłowska-Kowalska, “*Long-horizon model predictive control in electrical drives*”

Part III: Neuro and Nonlinear Control of Power Converters and Drives

8. Teresa Orłowska-Kowalska, and Marcin Kamiński, “*Adaptive neurocontrollers for mechatronic drive systems*”
9. Bartłomiej Ufnalski, Lech M. Grzesiak and Arkadiusz Kaszewski, “*Advanced control and optimization techniques in AC drives and DC/AC voltage sine-wave voltage inverters – selected problems*”
10. Sebastian Styński, and Mariusz Malinowski, “*Space Vector Modulation in Three-phase Three-level Flying Capacitor Converter-fed Adjustable Speed Drive*”
11. Dariusz L. Sobczuk, “*Some aspects of nonlinear and discontinuous control with induction motor applications*”

The book has strong monograph attributes and is intended for engineers, researchers, and students in the field of power electronics and drives who are interested in the use of advanced control methods and also for specialists from the control theory area who like to explore new area of applications. Some parts of the content can be considered as part of graduate and undergraduate studies in electrical engineering, robotics and mechatronics faculties.

This book is available under following address:

<http://www.springer.com/engineering/computational+intelligence+and+complexity/book/978-3-319-03400-3>