1. Record Nr. UNINA9910416132203321

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Titolo	Advanced Electrical Drives : Analysis, Modeling, Control / / by Rik W. De Doncker, Duco W.J. Pulle, André Veltman
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-48977-9
Edizione	[2nd ed. 2020.]
Descrizione fisica	1 online resource (XXXVII, 419 p. 330 illus., 329 illus. in color.)
Collana	Power Systems, , 1612-1287
Disciplina	629.8043
Soggetti	Power electronics Control engineering Robotics Mechatronics Power Electronics, Electrical Machines and Networks Control, Robotics, Mechatronics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Chapter 1. Modern electrical drives: an overview -- Chapter 2. Modulation techniques for power electronic converters -- Chapter 3. Current control of generalized load -- Chapter 4. Drive principles -- Chapter 5. Modeling and control of DC machines -- Chapter 6. Synchronous machine modeling concepts -- Chapter 7. Control of synchronous machine drives -- Chapter 8. Induction machine modeling concepts -- Chapter 9. Control of induction machine drives -- Chapter 10. Switched reluctance drive systems.
Sommario/riassunto	This book provides a unique approach to derive model-based torque controllers for all types of Lorentz force machines, i.e. DC, synchronous and induction machines. The rotating transformer model forms the basis for the generalized modeling approach of rotating field machines, which leads to the development of universal field-oriented control algorithms. Contrary to this, direct torque control algorithms, using observer-based methods, are developed for switched reluctance machines. Tutorials are included at the end of each chapter, and the reader is encouraged to execute these tutorials in order to gain

familiarity with the dynamic behavior of drive systems. This updated edition uses PLECS®simulation and vector processing tools that were specifically adopted for the purpose of these hands-on tutorials. Hence, Advanced Electrical Drives encourages “learning by doing” and the experienced drive specialist may find the simulation tools useful to design high-performance torque controllers. Although it is a powerful reference in its own right, when used in conjunction with the companion texts Fundamentals of Electrical Drives and Applied Control of Electrical Drives, this book provides a uniquely comprehensive reference set that takes readers all the way from understanding the basics of how electrical drives work, to deep familiarity with advanced features and models, to a mastery of applying the concepts to actual hardware in practice. Teaches readers to perform insightful analysis of AC electrical machines and drives; Introduces new modeling methods and modern control techniques for switched reluctance drives; Updated to use PLECS® simulation tools for modeling electrical drives, including new and more experimental results; Numerous tutorials at end of each chapters to learn by doing, step-by-step; Includes extra material featuring “build and play” lab modules, for lectures and self-study.