

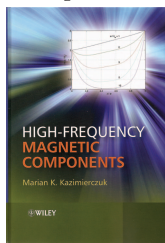
- Chapter 6: “Observer Gain Determination Based on Parameter Sensitivity Analysis” by Benoît Robyns
- Chapter 7: “Observation of the Load Torque of an Electrical Machine” by Maurice Fadel and Bernard de Fornel
- Chapter 8: “Observation of the Rotor Position to Control the Synchronous Machine Without Mechanical Sensor” by Stéphane Caux and Maurice Fadel.

An authors list, affiliations, index, and references (given in each chapter) are also included. *Electrical Actuators: Identification and Observation* is a valuable research reference book for advanced undergraduate courses, graduated courses, and for students, researchers, and industrial engineers in the field of variable speed drives.

## References

- [1] B. De Fornel and J.-P. Louis, Eds., *Identification et observation des actionneurs électriques*. France: Hermes Science Lavoisier, 2007, vol. 2, 532 pp.
- [2] M. Garrido, *Dynamique des alternateurs*. IST, Technical University of Lisbon, 1989.
- [3] M. Garrido, *Contribution a la Théorie Dynamique des Systèmes Électromécaniques*, Theses Docteur Es-Sciences Physiques, Faculté des Sciences de L'Université de Nancy, 1968.

## High-Frequency Magnetic Components



By Marian K. Kazimierzczuk, John Wiley & Sons, Ltd., Chichester, United Kingdom, 2009, Hard cover, 486 pages, ISBN: 978-0-470-71453-9.

This is the third textbook on power electronics authored by Marian K. Kazimierzczuk, who is the Robert J. Kegerreis Distinguished Professor of Electrical Engineering at Wright State University, Dayton, Ohio, and published by John Wiley & Sons. The previous two volumes were devoted to dc-dc power converters [1] and RF power amplifiers [2].

High-frequency inductors and transformers used in power electronic converters usually are not available commercially in a generally specified form because of a variety of parameters characterizing their properties (inductance, voltage and current rating, energy, frequency, turns number, leakage, weight and size, and costs). They are designed and manufactured for dedicated applications, and the design requires good understanding of the principles and experience. There are not many books on the market fully devoted to magnetic components in power electronics. In most cases, there are only chapters in power electronics books. An exception is a very good contribution presented by van den Bossche and Valchev [3]. However, it is written in the form of a reference or handbook rather than a textbook. Therefore, the presented textbook by Prof. Kazimierzczuk perfectly fills the gap.

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The book covers the following:

- integrated inductors and the self-capacitance of inductors and transformers
- criteria for selecting the core material, shape, and size
- winding resistance at high frequencies
- expressions for winding and core power losses for nonsinusoidal current shapes
- case studies as well as practical examples and procedures.

This textbook is geared towards senior undergraduate and graduate students in the areas of electrical, electronics, and telecommunications engineering. It consists of the following chapters:

- 1) Fundamentals of Magnetic Devices
- 2) Magnetic Cores
- 3) Skin Effect
- 4) Proximity Effect
- 5) Winding Resistance at High Frequencies
- 6) Laminated Cores
- 7) Transformers
- 8) Integrated Inductors
- 9) Self-Capacitance
- 10) Design of Inductors
- 11) Design of Transformers.

Included at the end of the book are two appendices: 1) Fourier Series and 2) Introduction to MATLAB as well as sections “Answers to Problems” and the “Index.”

Like a typical textbook, it includes review questions at the end of each chapter, problems, and thorough summaries of the key concepts to aid learning. The list of references is given in each chapter separately. The *Solutions Manual* is also available for instructors. I strongly recommend this new textbook not only for professors and students but also for practicing engineers working with switch-mode power supplies, resonant converters, RF power amplifiers, and high-frequency contactless energy transfer.

## References

- [1] M. K. Kazimierzczuk, *Pulse-Width Modulated DC-DC Power Converters*. Hoboken, NJ: Wiley, 2008.
- [2] M. K. Kazimierzczuk, *RF Power Amplifiers*. Hoboken, NJ: Wiley, 2008.
- [3] A. van den Bossche and V. C. Valchev, *Inductors and Transformers for Power Electronics*. Boca Raton, FL: CRC Press.



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