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4.1 Introduction 165 -- 4.2 Heat Extraction Through Conduction 167 -- 4.3 Heat Extraction Through Convection 170 -- 4.4 Heat Extraction Through Radiation 186 -- 4.5 Cooling Systems Summary 188 -- 4.6 Thermal Network Based on Lumped Parameters 188 -- 4.7 Analytical Thermal Network Analysis 192 -- 4.8 Thermal Analysis Using Finite Element Method 193 -- 4.9 Thermal Analysis Using Computational Fluid Dynamics 195 -- 4.10 Thermal Parameters Determination 200 -- 4.11 Losses in Brushless Permanent Magnet Machines 202 -- 4.12 Cooling Systems 210 -- 4.13 Cooling Examples 214 -- References 218 -- CHAPTER 5 AUTOMATED OPTIMIZATION FOR ELECTRIC MACHINES 223 Dan M. Ionel and Vandana Rallabandi</i> -- 5.1 Introduction 223 -- 5.2 Formulating an Optimization Problem 224 -- 5.3 Optimization Methods 226 -- 5.4 Design of Experiments and Response Surface Methods 228 -- 5.5 Differential Evolution 233 -- 5.6 First Example: Optimization of an Ultra High Torque Density PM Motor for Formula E Racing Cars: Selection of Best Compromise Designs 234 -- 5.7 Second Example: Single Objective Optimization of a Range of Permanent Magnet Synchronous Machine (PMSM) Rated Between 1 kW and 1 MW Derivation of Design Proportions and Recommendations 238 -- 5.8 Third Example: Two- and Three-Objective Function Optimization of a Synchronous Reluctance (SYNREL) and PM Assisted Synchronous Reluctance Motor 241 -- 5.9 Fourth Example: Multi-Objective Optimization of PM Machines Combining DOE and DE Methods 245 -- 5.10 Summary 248 -- References 248 -- CHAPTER 6 POWER ELECTRONICS AND DRIVE SYSTEMS 251 Frede Blaabjerg, Francesco Iannuzzo, and Lorenzo Ceccarelli</i> -- 6.1 Introduction 251 -- 6.2 Power Electronic Devices 253 -- 6.3 Circuit-Level Simulation of Drive Systems 264 -- 6.4 Multiphysics Design Challenges 274 -- References 281 -- INDEX 283.

Sommario/riassunto

Presents applied theory and advanced simulation techniques for electric machines and drives This book combines the knowledge of experts from both academia and the software industry to present theories of multiphysics simulation by design for electrical machines, power electronics, and drives. The comprehensive design approach described within supports new applications required by technologies sustaining high drive efficiency. The highlighted framework considers the electric machine at the heart of the entire electric drive. The book also emphasizes the simulation by design concept—a concept that frames the entire highlighted design methodology, which is described and illustrated by various advanced simulation technologies.

Multiphysics Simulation by Design for Electrical Machines, Power Electronics and Drives begins with the basics of electrical machine design and manufacturing tolerances. It also discusses fundamental aspects of the state of the art design process and includes examples from industrial practice. It explains FEM-based analysis techniques for electrical machine design—providing details on how it can be employed in ANSYS Maxwell software. In addition, the book covers advanced magnetic material modeling capabilities employed in numerical computation; thermal analysis; automated optimization for electric machines; and power electronics and drive systems. This valuable resource:

- Delivers the multi-physics know-how based on practical electric machine design methodologies
- Provides an extensive overview of electric machine design optimization and its integration with power electronics and drives
- Incorporates case studies from industrial practice and research and development projects

Multiphysics Simulation by Design for Electrical Machines, Power Electronics and Drives is an incredibly

helpful book for design engineers, application and system engineers, and technical professionals. It will also benefit graduate engineering students with a strong interest in electric machines and drives.</p>
