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Nota di contenuto	Cover; Title Page; Copyright Page; Table of Contents; Preface; Chapter 1. Mission and Environmental Data Processing; 1.1. Introduction; 1.2. Considerations of the mission and environmental variables; 1.2.1. Mission representation through a nominal operating point; 1.2.2. Extraction of a "sizing" temporal chronogram; 1.2.3. Representation of an environmental variable or mission resulting from statistical analysis; 1.3. New approach for the characterization of a "representative mission"; 1.3.1. Characterization indicators of the mission and environmental variables 1.3.2. Mission and environmental variables at the heart of the system: an eminently systemic bidirectional coupling 1.4. Classification of missions and environmental variables; 1.4.1. Classification without a priori assumption on the number of classes; 1.4.2. Mission classification for hybrid railway systems; 1.5. Synthesis of mission and environmental variable profiles; 1.5.1. Mission or environmental variable synthesis process; 1.5.2. Elementary patterns for profile generation; 1.5.3. Application to the compacting of a wind speed profile 1.6. From classification to simultaneous design by optimization of a hybrid traction chain 1.6.1. Modeling of the hybrid locomotive; 1.6.2. Optimization model; 1.6.3. Mission classification; 1.6.4. Synthesis of

representative missions; 1.6.5. Simultaneous design by optimization; 1.6.6. Design results comparison; 1.7. Conclusion; 1.8. Bibliography; Chapter 2. Analytical Sizing Models for Electrical Energy Systems Optimization; 2.1. Introduction; 2.2. The problem of modeling for synthesis; 2.2.1. Modeling for synthesis; 2.2.2. Analytical and numerical modeling
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2.6. Development of an analytical static converter model 2.6.1. The various physical fields of the model and associated resolution methods; 2.6.2. Application to the example of a hybrid electrical heavy vehicle: modeling of inverters feeding synchronous machines; 2.7. Development of a mechanical transmission analytical model; 2.7.1. The various physical fields of the model and associated resolution methods; 2.7.2. Application to the example of a hybrid electric heavy vehicle: modeling of the Ravigneaux gear set; 2.8. Development of an analytical energy storage device model
2.9. Use of models for the optimum sizing of a system

Sommario/riassunto

"This book presents the vision of French academics about systemic design methodologies applied to electrical energy systems. It is especially dedicated to discussion of analysis and system management, as well as modeling and sizing tools"--