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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title Page; Copyright Page; Table of Contents; Introduction; Chapter 1. Synchronous motor controls, Problems and Modeling; 1.1. Introduction; 1.2. Problems on the synchronous motor control; 1.2.1. The synchronous motor control, a vector control; 1.2.2. Direct/inverse model and modeling hypotheses; 1.2.3. Control properties; 1.3. Descriptions and physical modeling of the synchronous motor; 1.3.1. Description of the motor in preparation for its modeling; 1.3.2. Hypotheses on the motor; 1.3.3. Notations; 1.3.4. Main transformation matrices; 1.3.5. Physical model of the synchronous motor 1.3.6. The two levels voltage inverter1.3.7. Model of the mechanical load; 1.4. Modeling in dynamic regime of the synchronous motor in the natural three-phase a-b-c reference frame; 1.4.1. Model of the machines with non-salient poles and constant excitation; 1.4.2. Exploitation of the model in the a-b-c reference frame in sinusoidal steady state, electromagnetic torque; 1.4.3. Extensions to the case of non-sinusoidal field distribution machines 1.5. Vector transformations and dynamic models in the a-ß and d-q

Sommario/riassunto

Synchronous motors are indubitably the most effective device to drive industrial production systems and robots with precision and rapidity. Their control law is thus critical for combining at the same time high productivity to reduced energy consummation. As far as possible, the control algorithms must exploit the properties of these actuators. Therefore, this work draws on well adapted models resulting from the Park's transformation, for both the most traditional machines with sinusoidal field distribution and for machines with non-sinusoidal field distribution which are more and more used in

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Autore	Dorf Richard C
Titolo	Modern Control Systems : Introduction to Total Quality
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Descrizione fisica	1 online resource (1047 pages)
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Nota di contenuto	Cover -- Table of Contents -- 1. Introduction to Control Systems -- 2. Mathematical Models of Systems -- 3. State Variable Models -- 4. Feedback Control System Characteristics -- 5. The Performance of Feedback Control Systems -- 6. The Stability of Linear Feedback Systems -- 7. The Root Locus Method -- 8. Frequency Response Methods -- 9. Stability in the Frequency Domain -- 10. The Design of Feedback Control Systems -- 11. The Design of State Variable Feedback Systems -- 12. Robust Control Systems -- Appendix: Matlab Basics -- Index.
Sommario/riassunto	For an introductory undergraduate course in control systems for engineering students. Written to be equally useful for all engineering disciplines, this text is organized around the concept of control systems theory as it has been developed in the frequency and time domains. It provides coverage of classical control, employing root locus design, frequency and response design using Bode and Nyquist plots. It also covers modern control methods based on state variable models including pole placement design techniques with full-state feedback controllers and full-state observers. Many examples throughout give students ample opportunity to apply the theory to the design and analysis of control systems. Incorporates computer-aided design and analysis using MATLAB and LabVIEW MathScript.