

Reluctance Electric Machines: Design and Control

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The book details the modeling, performance, design, and control of reluctance synchronous and flux-modulation machines developed for low cost and high efficiency. It covers one and three phase reluctance synchronous motors in line-start applications and reluctance flux-modulation motors in pulse width modulation converter-fed variable speed drives.

KEY FEATURES

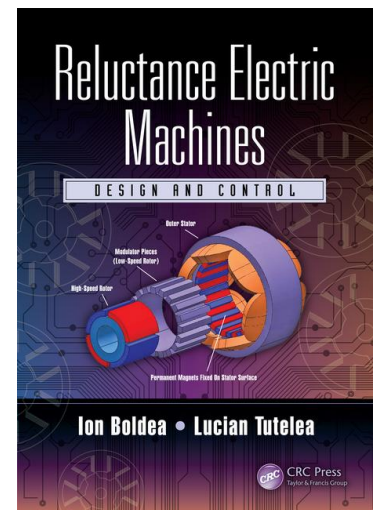
- Presents basic and up-to-date knowledge about the topologies, modeling, performance, design, and control of reluctance synchronous machines.
- Includes information on recently introduced reluctance flux-modulation electric machines (switched-flux, flux-reversal, Vernier, transverse flux, claw pole, magnetic-g geared dual-rotor, brushless doubly fed, etc.).
- Features numerous examples and case studies throughout.
- Includes a comprehensive overview of all reluctance electric machines.

SELECTED CONTENTS

Reluctance Electric Machines: An Introduction. Line-Start Three-Phase Reluctance Synchronous Machines: Modeling, Performance, and Design. Phase-Source Line-Start Cage Rotor Permanent Magnet-Reluctance Synchronous Machines: Modeling, Performance and Design. Three-Phase Variable-Speed Reluctance Synchronous Motors: Modeling, Performance, and Design. Control of Three-Phase Reluctance Synchronous Machine and Permanent Magnet-Reluctance Synchronous Machine Drives. Claw Pole and Homopolar Synchronous Motors: Modeling, Design, and Control. Brushless Direct Current-Multiple Phase Reluctance Motor Modeling, Control, and Design. Brushless Doubly-Fed Reluctance Machine Drives. Switched Flux-Permanent Magnet Synchronous Motor Analysis, Design, and Control. Flux-Reversal Permanent Magnet Synchronous Machines. Vernier PM Machines. Transverse Flux Permanent Magnet Synchronous Motor Analysis, Optimal Design, and Control. Magnetic-Geared Dual-Rotor Reluctance Electric Machines: Topologies, Analysis, Performance. Direct Current + Alternating Current Stator Doubly Salient Electric Machines: Analysis, Design, and Performance.

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