Linear Electric Machines, Drives, and MAGLEVs Handbook

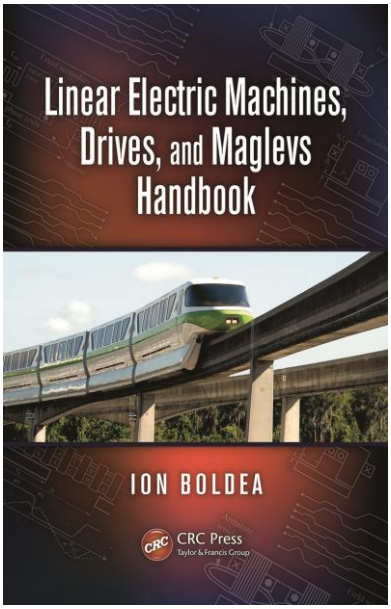
Author/Affiliation

Ion Boldea, Politehnica University of Timisoara, Romania

This state-of-the-art handbook covers most progressive and oscillatory linear electric machines (LEMs), drives, and MAGLEVS. It discusses basic and advanced modeling, steady state, transients, control, design and testing of linear machines and drives with numerous case studies related to representative applications. Readers get ready-to-use knowledge of the analysis, design, control, testing, and ordering of linear electric machines, drives, and Maglevs to suit best various applications from people movers to industrial transport and linear oscillatory machines (loudspeakers, plunger solenoids, compressor drive, linear generators, or automotive active dampers and electromagnetic valve actuators for ICEs)

Key Features

- Identifies direct linear (translational) electric motion-progressive and oscillatory- control by electromagnetic forces as a main source of energy savings and increased productivity in various industries and transportation
- Reviews electromagnetic fundamentals of electromagnetic force production and classification of linear electric machines by principle and by application
- Contains ready-to-use knowledge for the analysis, design, control, testing, and ordering of linear electric machines, drives, and MAGLEVs
- Includes numerical examples and sample digital simulation and experimental results
- Discusses plunger solenoids, linear oscillatory motor/generators, and commercial and potential MAGLEV types



Selected Contents

Fields, Forces, and Materials for LEMs. Classifications and Applications of LEMs. Linear Induction Motors: Topologies, Fields, Forces, and Powers Including Edge, End, and Skin Effects. Linear Induction Motors: Circuit Theories, Transients, and Control. Design of Flat and Tubular Low-Speed LIMs. Transportation (Medium- and High-Speed) SLIM Design. DC-Excited Linear Synchronous Motors (DCE-LSM): Steady State, Design, Transients, and Control. Superconducting Magnet Linear Synchronous Motors. Homopolar Linear Synchronous Motors (H-LSM): Modeling, Design, and Control. Linear Reluctance Synchronous Motors: Modeling, Performance Design, and Control. Linear Switched Reluctance Motors (L-SRM): Modeling, Design, and Control. Flat Linear Permanent Magnet Synchronous Motors. Tubular Linear Permanent Magnet Synchronous Motors. Multi-Pole Coil Three- or Two-Phase Linear PM Reluctance Motors. Plunger Solenoids and Their Control. Linear DC PM Brushless Motors. Resonant Linear Oscillatory Single-Phase PM Motors/Generators. Multiaxis Linear PM Motor Drives. Attraction Force (Electromagnetic) Levitation Systems. Repulsive Force Levitation Systems. Active Guideway MAGLEVs. Passive Guideway MAGLEVs.

Catalog no. K12005
February 2013, 660 pp.
ISBN: 978-1-4398-4514-1
$169.95 / £108.00

SAVE 20% when you order online and enter Promo Code AJM32
FREE standard shipping when you order online.

www.crcpress.com

CRC Press
Taylor & Francis Group

e-mail: orders@crcpress.com
1-800-634-7064 • 1-561-994-0555 • +44 (0) 1235 400 524