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Titolo	Electromagnetic Linear Machines with Dual Halbach Array [[electronic resource]] : Design and Analysis // by Liang Yan, Lu Zhang, Juanjuan Peng, Lei Zhang, Zongxia Jiao
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ISBN	981-10-2309-3
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XXIII, 125 p. 90 illus., 59 illus. in color.)
Disciplina	519
Soggetti	Applied mathematics Engineering mathematics Machinery Computer mathematics Computer simulation Mathematical and Computational Engineering Machinery and Machine Elements Computational Mathematics and Numerical Analysis Simulation and Modeling
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Working Principle and Pole Arrays -- Magnetic Field Modeling -- Mathematical Modeling of Output Force -- Mathematical Modeling of Inductance -- Comparison between Analytical Models and Finite Element Results -- Design Optimization of Linear Machines -- Prototype Development and Experiments.
Sommario/riassunto	This book extends the conventional two-dimensional (2D) magnet arrangement into 3D pattern for permanent magnet linear machines for the first time, and proposes a novel dual Halbach array. It can not only effectively increase the radial component of magnetic flux density and output force of tubular linear machines, but also significantly reduce the axial flux density, radial force and thus system vibrations and noises. The book is also the first to address the fundamentals and provide a summary of conventional arrays, as well as novel concepts for

PM pole design in electric linear machines. It covers theoretical study, numerical simulation, design optimization and experimental works systematically. The design concept and analytical approaches can be implemented to other linear and rotary machines with similar structures. The book will be of interest to academics, researchers, R&D engineers and graduate students in electronic engineering and mechanical engineering who wish to learn the core principles, methods, and applications of linear and rotary machines.
