

1. Record Nr.	UNINA9910299493303321
Autore	Dorfmann Luis
Titolo	Nonlinear Theory of Electroelastic and Magnetoelastic Interactions // by Luis Dorfmann, Ray W. Ogden
Pubbl/distr/stampa	New York, NY : , : Springer US : , : Imprint : Springer, , 2014
ISBN	1-4614-9596-2
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (318 p.)
Disciplina	620 620.1 621.3 681.2
Soggetti	Electrical engineering Mechanics Mechanics, Applied Electrical Engineering Theoretical and Applied Mechanics Solid Mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Electromagnetic Theory -- Nonlinear Elasticity Background -- Nonlinear Electroelastic Interactions -- Electroelastic Boundary-Value Problems -- Nonlinear Magnetoelastic Interactions -- Magnetoelastic Boundary-Value Problems -- Variational Formulations in Electroelasticity and Magnetoelasticity -- Incremental Equations -- Electroelastic Stability -- Magnetoelastic Wave Propagation -- Basic Vector and Tensor Operations -- Index.
Sommario/riassunto	This book provides a unified theory of nonlinear electro- magnetomechanical interactions of soft materials capable of large elastic deformations. The authors include an overview of the basic principles of the classical theory of electromagnetism from the fundamental notions of point charges and magnetic dipoles through to distributions of charge and current in a non-deformable continuum, time-dependent electromagnetic fields and Maxwell's equations. They

summarize the basic ingredients of continuum mechanics that are required to account for the deformability of material and present nonlinear constitutive frameworks for electroelastic and magnetoelastic interactions in a highly deformable material. The equations contained in the book are used to formulate and solve a variety of representative boundary-value problems for both nonlinear electroelasticity and magnetoelasticity.
