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Descrizione fisica	1 online resource (XXIV, 175 p. 72 illus., 18 illus. in color.)
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Soggetti	Thin-walled structures - Design and construction Piezoelectric materials
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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Literature Review -- Geometrically Nonlinear Theories -- Nonlinear Constitutive Formations -- Finite Element Formulations -- Nonlinear Analysis of Piezoelectric Structures -- Nonlinear Analysis of Macro-fiber Composite Structures -- Conclusions and Future Work.
Sommario/riassunto	This book focuses on nonlinear finite element analysis of thin-walled smart structures integrated with piezoelectric materials. Two types of nonlinear phenomena are presented in the book, namely geometrical nonlinearity and material nonlinearity. Geometrical nonlinearity mainly results from large deformations and large rotations of structures. The book discusses various geometrically nonlinear theories including von Kármán type nonlinear theory, moderate rotation nonlinear theory, fully geometrically nonlinear theory with moderate rotations and large rotation nonlinear theory. The material nonlinearity mainly considered in this book is electroelastic coupled nonlinearity resulting from large driving electric field. This book will be a good reference for students and researchers in the field of structural mechanics.