1.	Record Nr.	UNINA9910456133803321
	Autore	Elishakoff Isaac
	Titolo	Optimization and anti-optimization of structures under uncertainty [[electronic resource] /] / Isaac Elishakoff, Makoto Ohsaki
	Pubbl/distr/stampa	London, : Imperial College Press, c2010
	ISBN	1-282-76006-8 9786612760068 1-84816-478-5
	Descrizione fisica	1 online resource (424 p.)
	Altri autori (Persone)	OsakiMakoto <1960->
	Disciplina	624.177130151
	Soggetti	Structural optimization - Mathematics Structural analysis (Engineering) - Mathematics Structural stability - Mathematics Computer-aided engineering Electronic books.
	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 and index.
	Nota di contenuto	Preface; Contents; 1. Introduction; 1.1 Probabilistic Analysis: Bad News; 1.2 Probabilistic Analysis: Good News; 1.3 Convergence of Probability and Anti-Optimization; 2. Optimization or Making the Best in the Presence of Certainty/Uncertainty; 2.1 Introduction; 2.2 What Can We Get from Structural Optimization?; 2.3 Definition of the Structural Optimization Problem; 2.4 Various Formulations of Optimization Problems; 2.4.1 Overview of optimization problems; 2.4.2 Classification of optimization problems; 2.4.3 Parametric programming; 2.4.4 Multiobjective programming 2.5 Approximation by Metamodels2.6 Heuristics; 2.6.1 Overview of heuristics; 2.6.2 Basic approaches of single-point search heuristics; 2.6.2.1 Neighborhood solutions; 2.6.2.2 Basic algorithm of single-point search heuristics; 2.6.2.3 Greedy method; 2.6.3 Simulated annealing; 2.7 Classification of Structural Optimization Problems; 2.8 Probabilistic Optimization; 2.9 Fuzzy Optimization; 3. General Formulation of Anti-Optimization; 3.1 Introduction; 3.2 Models of Uncertainty; 3.3 Interval Analysis; 3.3.1 Introduction; 3.3.2 A simple

Sommario/riassunto	The volume presents a collaboration between internationally recognized experts on anti-optimization and structural optimization, and summarizes various novel ideas, methodologies and results studied over 20 years. The book vividly demonstrates how the concept of uncertainty should be incorporated in a rigorous manner during the process of designing real-world structures. The necessity of anti-optimization approach is first demonstrated, then the anti-optimization techniques are applied to static, dynamic and buckling problems, thus covering the broadest possible set of applications. Finally, a