1. Record Nr. UNINA9910876869203321

Titolo	The Duffing equation : nonlinear oscillators and their behaviour / / edited by Ivana Kovacic, Michael J. Brennan
Pubbl/distr/stampa	Chichester, West Sussex, : Wiley, 2011
ISBN	0-470-97783-3 1-283-37306-8 9786613373069 0-470-97786-8 0-470-97785-X
Descrizione fisica	1 online resource (392 p.)
Altri autori (Persone)	BrennanMichael J <1956-> (Michael John) KovacicIvana <1972->
Disciplina	515.35 515/.35 620.001515355
Soggetti	Duffing equations Nonlinear oscillators - Mathematical models
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	The Duffing Equation: Nonlinear Oscillators and their Behaviour; Contents; Contributors; Preface; 1 Background: On Georg Duffing and the Duffing equation; 1.1 Introduction; 1.2 Historical perspective; 1.3 A brief biography of Georg Duffing; 1.4 The work of Georg Duffing; 1.5 Contents of Duffing's book; 1.5.1 Description of Duffing's book; 1.5.2 Reviews of Duffing's book; 1.6 Research inspired by Duffing's work; 1.6.1 1918-1952; 1.6.2 1962 to the present day; 1.7 Some other books on nonlinear dynamics; 1.8 Overview of this book; References 2 Examples of physical systems described by the Duffing equation2.1 Introduction; 2.2 Nonlinear stiffness; 2.3 The pendulum; 2.4 Example of geometrical nonlinearity; 2.5 A system consisting of the pendulum and nonlinear stiffness; 2.6 Snap-through mechanism; 2.7 Nonlinear isolator; 2.7.1 Quasi-zero stiffness isolator; 2.8 Large deflection of a beam with nonlinear stiffness; 2.9 Beam with nonlinear stiffness due to inplane tension; 2.10 Nonlinear cable vibrations; 2.11 Nonlinear

Sommario/riassunto

The Duffing Equation: Nonlinear Oscillators and their Behaviour brings together the results of a wealth of disseminated research literature on the Duffing equation, a key engineering model with a vast number of applications in science and engineering, summarizing the findings of this research. Each chapter is written by an expert contributor in the field of nonlinear dynamics and addresses a different form of the equation, relating it to various oscillatory problems and clearly linking the problem with the mathematics that describe it. The editors and the contributors explain the mathem