

1. Record Nr.	UNISA996466759603316
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Titolo	Periodic solutions of nonlinear dynamical systems : numerical computation, stability, bifurcation, and transition to chaos // Eduard Reithmeier
Pubbl/distr/stampa	Berlin, Germany ; ; New York, New York : , : Springer, , [1991] ©1991
ISBN	3-540-38427-8
Edizione	[1st ed. 1991.]
Descrizione fisica	1 online resource (VI, 174 p.)
Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1483
Classificazione	34C25 58F22
Disciplina	515.355
Soggetti	Differential equations, Nonlinear - Numerical solutions Differentiable dynamical systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references (pages [152]-162) and index.
Sommario/riassunto	Limit cycles or, more general, periodic solutions of nonlinear dynamical systems occur in many different fields of application. Although, there is extensive literature on periodic solutions, in particular on existence theorems, the connection to physical and technical applications needs to be improved. The bifurcation behavior of periodic solutions by means of parameter variations plays an important role in transition to chaos, so numerical algorithms are necessary to compute periodic solutions and investigate their stability on a numerical basis. From the technical point of view, dynamical systems with discontinuities are of special interest. The discontinuities may occur with respect to the variables describing the configuration space manifold or/and with respect to the variables of the vector-field of the dynamical system. The multiple shooting method is employed in computing limit cycles numerically, and is modified for systems with discontinuities. The theory is supported by numerous examples, mainly from the field of nonlinear vibrations. The text addresses mathematicians interested in engineering problems as well as engineers working with nonlinear dynamics.

