1. Record Nr. UNISA996466508403316

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Titolo	Global bifurcation of periodic solutions with symmetry / / Bernold Fiedler
Pubbl/distr/stampa	Berlin, Germany ; ; New York, New York : , : Springer-Verlag, , [1988] ©1988
ISBN	3-540-39150-9
Edizione	[1st ed. 1988.]
Descrizione fisica	1 online resource (X, 154 p.)
Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1309
Disciplina	515
Soggetti	Singularities (Mathematics) Nonlinear operators Bifurcation theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di contenuto	Main results -- No symmetry — a survey -- Virtual symmetry -- Generic local theory -- Generic global theory -- General global theory -- Applications -- Discussion -- Appendix on genericity.
Sommario/riassunto	This largely self-contained research monograph addresses the following type of questions. Suppose one encounters a continuous time dynamical system with some built-in symmetry. Should one expect periodic motions which somehow reflect this symmetry? And how would periodicity harmonize with symmetry? Probing into these questions leads from dynamics to topology, algebra, singularity theory, and to many applications. Within a global approach, the emphasis is on periodic motions far from equilibrium. Mathematical methods include bifurcation theory, transversality theory, and generic approximations. A new homotopy invariant is designed to study the global interdependence of symmetric periodic motions. Besides mathematical techniques, the book contains 5 largely nontechnical chapters. The first three outline the main questions, results and methods. A detailed discussion pursues theoretical consequences and open problems. Results are illustrated by a variety of applications including coupled oscillators and rotating waves: these links to such disciplines as theoretical biology, chemistry, fluid dynamics, physics and their

engineering counterparts make the book directly accessible to a wider audience.