

1. Record Nr.	UNINA9910146313803321
Autore	Gatermann Karin
Titolo	Computer Algebra Methods for Equivariant Dynamical Systems // by Karin Gatermann
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2000
ISBN	3-540-46519-7
Edizione	[1st ed. 2000.]
Descrizione fisica	1 online resource (XVIII, 162 p.)
Collana	Lecture Notes in Mathematics, , 1617-9692 ; ; 1728
Disciplina	510
Soggetti	Algebra Computer science - Mathematics Mathematics - Data processing Mathematical analysis Global analysis (Mathematics) Manifolds (Mathematics) Mathematics of Computing Computational Science and Engineering Mathematical Applications in Computer Science Analysis Global Analysis and Analysis on Manifolds
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 [139]-149) and index.
Nota di contenuto	Gröbner bases: Buchberger's algorithm -- The consequence of grading -- Definitions and the relation to Gröbner bases -- Computation of a Hilbert series -- The Hilbert series driven Buchberger algorithm -- The computation with algebraic extensions -- Detection of Gröbner bases -- Dynamic Buchberger algorithm -- Elimination -- Algorithms of the computation of invariants and equivariants: Using the Hilbert series -- Invariants -- Equivariants -- Using the nullcone -- Using a homogeneous system of parameters -- Computing uniqueness -- Symmetric bifurcation theory -- Local bifurcation analysis -- An example of secondary Hopf bifurcation -- Orbit space reduction -- Exact computation of steady states -- Differential equations on the orbit space -- Using Noether normalization -- Further reading --

---

Sommario/riassunto

This book starts with an overview of the research of Gröbner bases which have many applications in various areas of mathematics since they are a general tool for the investigation of polynomial systems. The next chapter describes algorithms in invariant theory including many examples and time tables. These techniques are applied in the chapters on symmetric bifurcation theory and equivariant dynamics. This combination of different areas of mathematics will be interesting to researchers in computational algebra and/or dynamics.

---