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| 1. Record Nr.           | UNINA9911099688703321                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Autore                  | Cox David                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Titolo                  | Ideals, Varieties, and Algorithms : An Introduction to Computational Algebraic Geometry and Commutative Algebra / / by David Cox, John Little, DONAL OSHEA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Pubbl/distr/stampa      | New York, NY : , : Springer New York : , : Imprint : Springer, , 1997                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ISBN                    | 1-4757-2693-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Edizione                | [2nd ed. 1997.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Descrizione fisica      | 1 online resource (XIII, 538 p. 44 illus.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Collana                 | Undergraduate Texts in Mathematics, , 2197-5604                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Classificazione         | 14Qxx                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Disciplina              | 511.3<br>516.35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Soggetti                | Logic, Symbolic and mathematical<br>Mathematical Logic and Foundations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 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 and index.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Nota di contenuto       | 1. Geometry, Algebra, and Algorithms -- 2. Groebner Bases -- 3. Elimination Theory -- 4. The Algebra-Geometry Dictionary -- 5. Polynomial and Rational Functions on a Variety -- 6. Robotics and Automatic Geometric Theorem Proving -- 7. Invariant Theory of Finite Groups -- 8. Projective Algebraic Geometry -- 9. The Dimension of a Variety -- Appendix A. Some Concepts from Algebra -- §1 Fields and Rings -- §2. Groups -- §3. Determinants -- Appendix B. Pseudocode -- §1. Inputs, Outputs, Variables, and Constants -- §2. Assignment Statements -- §3. Looping Structures -- §4. Branching Structures -- Appendix C. Computer Algebra Systems -- §1. AXIOM -- §2. Maple -- §3. Mathematica -- §4. REDUCE -- §5. Other Systems -- Appendix D. Independent Projects -- §1. General Comments -- §2. Suggested Projects -- References. |
| Sommario/riassunto      | Algebraic Geometry is the study of systems of polynomial equations in one or more variables, asking such questions as: Does the system have finitely many solutions, and if so how can one find them? And if there are infinitely many solutions, how can they be described and manipulated? The solutions of a system of polynomial equations form a geometric object called a variety; the corresponding algebraic object is an ideal. There is a close relationship between ideals and varieties                                                                                                                                                                                                                                                                                                                                             |

which reveals the intimate link between algebra and geometry. Written at a level appropriate to undergraduates, this book covers such topics as the Hilbert Basis Theorem, the Nullstellensatz, invariant theory, projective geometry, and dimension theory. The algorithms to answer questions such as those posed above are an important part of algebraic geometry. This book bases its discussion of algorithms on a generalization of the division algorithm for polynomials in one variable that was only discovered in the 1960's. Although the algorithmic roots of algebraic geometry are old, the computational aspects were neglected earlier in this century. This has changed in recent years, and new algorithms, coupled with the power of fast computers, have let to some interesting applications, for example in robotics and in geometric theorem proving. In preparing a new edition of Ideals, Varieties and Algorithms the authors present an improved proof of the Buchberger Criterion as well as a proof of Bezout's Theorem. Appendix C contains a new section on Axiom and an update about Maple , Mathematica and REDUCE.

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| 2. Record Nr.           | UNINA9911150462003321                                                                                                        |
| Autore                  | Phillipson Paul E (Paul Edgar), <1933->                                                                                      |
| Titolo                  | Modeling by nonlinear differential equations : dissipative and conservative processes / / Paul E. Phillipson, Peter Schuster |
| Pubbl/distr/stampa      | Singapore, : World Scientific, c2009                                                                                         |
| ISBN                    | 9786612757952<br>9781282757950<br>1282757954<br>9789814271608<br>9814271608                                                  |
| Edizione                | [1st ed.]                                                                                                                    |
| Descrizione fisica      | 1 online resource (238 p.)                                                                                                   |
| Collana                 | World Scientific series on nonlinear science. Series A ; ; vol. 69                                                           |
| Classificazione         | SK 520<br>WD 2100                                                                                                            |
| Altri autori (Persone)  | SchusterP <1941-> (Peter)                                                                                                    |
| Disciplina              | 515.355                                                                                                                      |
| Soggetti                | Differential equations, Nonlinear<br>Differential equations, Partial<br>Mathematical models                                  |
| Lingua di pubblicazione | Inglese                                                                                                                      |
| Formato                 | Materiale a stampa                                                                                                           |
| Livello bibliografico   | Monografia                                                                                                                   |

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| Note generali        | Description based upon print version of record.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Nota di bibliografia | Includes bibliographical references and index.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Nota di contenuto    | <p>Contents; Acknowledgments; 1. Theme and Contents of this Book; 2. Processes in Closed and Open Systems; 2.1 Introduction; 2.2 Thermodynamics of general systems; 2.3 Chemical reactions; 2.4 Autocatalysis in closed and open systems; 2.4.1 Autocatalysis in closed systems; 2.4.2 Autocatalysis in the flow reactor; 3. Dynamics of Molecular Evolution; 3.1 Introduction; 3.2 Selection and evolution; 3.3 Template induced autocatalysis; 3.3.1 Autocatalytic oligomerization; 3.3.2 Biopolymer replication; 3.3.3 Replication and selection; 3.3.4 Replication and mutation; 3.3.5 Error thresholds</p> <p>3.4 Replicator equations 3.4.1 Schlogl model; 3.4.2 Fisher's selection equation; 3.4.3 Symbioses and hypercycles; 3.5 Unlimited growth and selection; 4. Relaxation Oscillations; 4.1 Introduction; 4.2 Self-exciting relaxation oscillations; 4.2.1 van der Pol equation; 4.2.2 Stoker-Haag equation; 4.3 Current induced neuron oscillations; 4.4 Bistability and complex structure of harmonically forced relaxation oscillations; 5. Order and Chaos; 5.1 Introduction; 5.2 One dimensional maps; 5.2.1 Formation of a period window; 5.2.2 Stability of a period window; 5.2.3 Topology of one dimensional maps</p> <p>5.3 Lorenz equations 5.4 Low dimensional autocatalytic networks; 5.5 Chua equations; 6. Reaction Diffusion Dynamics; 6.1 Introduction; 6.2 Pulse front solutions of Fisher and related equations; 6.3 Diffusion driven spatial inhomogeneities; 6.4 Turing mechanism of chemical pattern formation; 7. Solitons; 7.1 Introduction; 7.2 One dimensional lattice dynamics; 7.2.1 Korteweg-de Vries equation; 7.2.2 sine-Gordon equation; 7.3 Burgers equation; 8. Neuron Pulse Propagation; 8.1 Introduction; 8.2 Properties of a neural pulse; 8.3 FitzHugh-Nagumo equations; 8.4 Hodgkin-Huxley equations</p> <p>8.5 An overview 9. Time Reversal, Dissipation and Conservation; 9.1 Introduction; 9.2 Irreversibility and diffusion; 9.2.1 Theory of random walk; 9.2.2 Langevin equation and equilibrium fluctuations; 9.2.3 Newtonian mechanics and asymptotic irreversibility; 9.3 Reversibility and time recurrence; 9.3.1 A linear synchronous system; 9.3.2 Recurrence in nonlinear Hamiltonian systems: Fermi-Pasta-Ulam Model; 9.4 Complex dynamics and chaos in Newtonian dynamics: Henon-Heiles equations; Bibliography; Index</p> |
| Sommario/riassunto   | <p>This book aims to provide mathematical analyses of nonlinear differential equations, which have proved pivotal to understanding many phenomena in physics, chemistry and biology. Topics of focus are autocatalysis and dynamics of molecular evolution, relaxation oscillations, deterministic chaos, reaction diffusion driven chemical pattern formation, solitons and neuron dynamics. Included is a discussion of processes from the viewpoints of reversibility, reflected by conservative classical mechanics, and irreversibility introduced by the dissipative role of diffusion. Each chapter presents the su</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |