1. Record Nr.   UNINA9910144765203321

   Titolo   Eurêka

   Pubbl/distr/stampa   Ottawa, : Collège Algonquin

   Descrizione fisica   1 online resource

   Classificazione   cci1icc

   Disciplina   510/.5

   Soggetti   Mathematics
                          Mathématiques
                          Electronic journals.
                          Periodicals.

   Lingua di pubblicazione Inglese

   Formato   Materiale a stampa

   Livello bibliografico Periodico

   Note generali   Sponsored by Carleton-Ottawa Mathematics Association.

2. | Record Nr. | UNISA996466827603316 |
|---|---|
| Autore | Conte Robert M |
| Titolo | Direct and Inverse Methods in Nonlinear Evolution Equations [[electronic resource]] : Lectures Given at the C.I.M.E. Summer School Held in Cetraro, Italy, September 5–12, 1999 / / by Robert M. Conte, Franco Magri, Micheline Musette, Junkichi Satsuma, Pavel Winternitz ; edited by Antonio Maria Greco |
| Pubbl/distr/stampa | Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2003 |
| ISBN | 3-540-39808-2 |
| Edizione | [1st ed. 2003.] |
| Descrizione fisica | 1 online resource (XI, 279 p.) |
| Collana | Lecture Notes in Physics, , 0075-8450 ; ; 632 |
| Disciplina | 530.15/5353 |
| Soggetti | Physics
Partial differential equations
Differential geometry
Statistical physics
Dynamical systems
Mathematical Methods in Physics
Partial Differential Equations
Differential Geometry
Complex Systems
Statistical Physics and Dynamical Systems |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Bibliographic Level Mode of Issuance: Monograph |
| Nota di contenuto | Exact Solutions of Nonlinear Partial Differential Equations by Singularity Analysis -- The Method of Poisson Pairs in the Theory of Nonlinear PDEs -- Nonlinear Superposition Formulae of Integrable Partial Differential Equations by the Singular Manifold Method -- Hirota Bilinear Method for Nonlinear Evolution Equations -- Lie Groups, Singularities and Solutions of Nonlinear Partial Differential Equations. |
| Sommario/riassunto | Many physical phenomena are described by nonlinear evolution equation. Those that are integrable provide various mathematical methods, presented by experts in this tutorial book, to find special analytic solutions to both integrable and partially integrable equations. |

The direct method to build solutions includes the analysis of singularities à la Painlevé, Lie symmetries leaving the equation invariant, extension of the Hirota method, construction of the nonlinear superposition formula. The main inverse method described here relies on the bi-hamiltonian structure of integrable equations. The book also presents some extension to equations with discrete independent and dependent variables. The different chapters face from different points of view the theory of exact solutions and of the complete integrability of nonlinear evolution equations. Several examples and applications to concrete problems allow the reader to experience directly the power of the different machineries involved.