1. Record Nr.   UNISALENTO991002325489707536

   Autore   Sirca, Simon

   Titolo   Computational methods for physicists : compendium for students /
                       Simon Sirca, Martin Horvat

   Pubbl/distr/stampa New York : Springer, 2012

   ISBN   9783642324772 (hard cover : alk. paper)

   Descrizione fisica xx, 715 p : ill. ; 24 cm

   Collana   Graduate texts in physics

   Classificazione   LC QC21.3
                       510:53

   Altri autori (Persone)   Horvat, Martinauthor

   Disciplina   530.15

   Soggetti   Mathematical physics
                       Physics - Data processing

   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

   Livello bibliografico   Monografia

   Nota di bibliografia   Includes bibliographical references and index

   Nota di contenuto   Basics of numerical analysis -- Solution of nonlinear equations --
                       Matrix methods -- Transformations of functions and signals --
                       Statistical description and modeling of data -- Modeling and analysis of
                       time series -- Initial-value problems for ordinary differential equations
                       -- Boundary-value problems for ordinary differential equations --
                       Difference methods for one-dimensional partial differential equations
                       -- Difference methods for partial differential equations in more than
                       one dim -- Spectral methods for partial differential equations

   Sommario/riassunto This book helps advanced undergraduate, graduate and postdoctoral
                       students in their daily work by offering them a compendium of
                       numerical methods. The choice of methods pays significant attention to
                       error estimates, stability and convergence issues as well as to the ways
                       to optimize program execution speeds. Many examples are given
                       throughout the chapters, and each chapter is followed by at least a
                       handful of more comprehensive problems which may be dealt with, for
                       example, on a weekly basis in a one- or two-semester course. In these
                       end-of-chapter problems the physics background is pronounced, and
                       the main text preceding them is intended as an introduction or as a
                       later reference. Less stress is given to the explanation of individual
                       algorithms. It is tried to induce in the reader an own independent
                       thinking and a certain amount of scepticism and scrutiny instead of