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   Titolo   The Concept of Stability in Numerical Mathematics / / by Wolfgang
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   Descrizione fisica   1 online resource (202 pages) : illustrations

   Collana   Springer Series in Computational Mathematics, , 2198-3712 ; ; 45

   Disciplina   518

   Soggetti   Numerical analysis
                    Differential equations
                    Integral equations
                    Numerical Analysis
                    Differential Equations
                    Integral Equations

   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 at the end of each chapters and
                    index.

   Nota di contenuto   Preface -- Introduction -- Stability of Finite Algorithms -- Quadrature
                    -- Interpolation -- Ordinary Differential Equations -- Instationary
                    Partial Difference Equations -- Stability for Discretisations of Elliptic
                    Problems -- Stability for Discretisations of Integral Equations -- Index.

   Sommario/riassunto   In this book, the author compares the meaning of stability in different
                    subfields of numerical mathematics. Concept of Stability in numerical
                    mathematics opens by examining the stability of finite algorithms. A
                    more precise definition of stability holds for quadrature and
                    interpolation methods, which the following chapters focus on. The
                    discussion then progresses to the numerical treatment of ordinary
                    differential equations (ODEs). While one-step methods for ODEs are
                    always stable, this is not the case for hyperbolic or parabolic
                    differential equations, which are investigated next. The final chapters
                    discuss stability for discretisations of elliptic differential equations and
                    integral equations. In comparison among the subfields we discuss the
                    practical importance of stability and the possible conflict between