

1. Record Nr.	UNINA9910823706203321
Titolo	Differential equations and numerical mathematics : selected papers presented to a national conference held in Novosibirsk, September 1978 / / edited by G. I. Marchuk
Pubbl/distr/stampa	Oxford, England : , : Pergamon Press, , 1982 ©1982
ISBN	1-4831-5454-8
Edizione	[First English edition.]
Descrizione fisica	1 online resource (165 p.)
Disciplina	515.3/5
Soggetti	Differential equations Numerical analysis Functional analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Front Cover; Differential Equations and Numerical Mathematics; Copyright Page; Preface; Table of Contents; SECTION A: Cubature Formulae and Functional Analysis; CHAPTER 1. On an analogue of Plancherel's theorem and on the qualitative character of the spectrum of a self-adjoint operator; References; References; CHAPTER 2. Self-adjoint operators in spaces of functions of an infinite number of variables; CHAPTER 3. Multidimensional non-linear spectral boundary value problems and soliton superposition of their asymptotic solutions; 1. A non-linear spectral boundary value problem of Steklov type 2. Asymptotic complex-valued solutions, concentrated in the neighbourhood of closed geodesies3. "Non-linear superposition" of asymptotic solutions, multidimensional Dirichlet series and real-valued asymptotic solutions; 4. Example; 5. Problem of reflection from a boundary and finite-gap almost periodic solutions; References; CHAPTER 4. Reduction de la dimension dans un probleme de controle optimal; Introduction; 1. Position du probleme; 2. Enonce du resultat; 3. Bornes superieures; 4. Dualite; 5. Bornes inferieures; References 2. The second asymptotic formula3. The domain of validity of formula II; 4. The magnitude of $q\lambda_j(k)$ and the error for large values of $q$ ; 5. The first asymptotic formula; 6. Estimation of ; 7. The estimation of 1; 8.

The estimation of 2; 9. The estimation of the error of formula I; 10. The estimation of the length of productive intervals for  $q = 0(k-1/2)$ ; References; CHAPTER 8. On certain mathematical problems in hydrodynamics; 1. On the approximation of solenoidal vector fields 2. The second problem we should like to consider is the investigation of the decay and rise of vorticity in a moving continuous mediumReferences; CHAPTER 9. On the solvability of the Sturm-Liouville inverse problem on the entire line; 1. Solution of the inverse problem on the entire line by a spectral matrix function; 2. Application to the Kortevég-de Vries equation; References; CHAPTER 10. Asymptotic properties of solutions of partial differential equations; References; CHAPTER 11. Boundary value problems for weakly elliptic systems of differential equations; References

SECTION C: Numerical Mathematics

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#### Sommario/riassunto

Differential Equations and Numerical Mathematics contains selected papers presented in a national conference held in Novosibirsk on September 1978. This book, as the conference, is organized into three sections. Section A describes the modern theory of efficient cubature formulas; embedding theorems; and problems of spectral analysis. Section B considers the theoretical questions of partial differential equations, with emphasis on hyperbolic equations and systems, formulations, and methods for nonclassical problems of mathematical physics. Section C addresses the various problems of numerical

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