Record Nr. UNINA9910817918103321 Autore Boichuk A. A (Aleksandr Andreevich) Titolo Generalized inverse operators : and Fredholm boundary-value problems / / Alexander A. Boichuk, Anatolii M. Samoilenko Pubbl/distr/stampa Berlin, [Germany];; Boston, [Massachusetts]:,: De Gruyter,, 2016 ©2016 **ISBN** 3-11-038735-2 3-11-037844-2 Edizione [2nd ed.] Descrizione fisica 1 online resource (314 p.) Collana Inverse and III-Posed Problems Series, , 1381-4524;; Volume 59 Classificazione SK 620 Disciplina 515/.35 Soggetti Fredholm equations Boundary value problems Banach spaces Operator theory 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. Frontmatter -- Contents -- Preface -- Preface to the second edition --Nota di contenuto Notation -- Chapter 1. Preliminary Information -- Chapter 2. Generalized Inverse Operators in Banach Spaces -- Chapter 3. Pseudoinverse Operators in Hilbert Spaces -- Chapter 4. Boundary-Value Problems for Operator Equations -- Chapter 5. Boundary-Value Problems for Systems of Ordinary Differential Equations -- Chapter 6. Impulsive Boundary-Value Problems for Systems of Ordinary Differential Equations -- Chapter 7. Solutions of Differential and Difference Systems Bounded on the Entire Real Axis -- Epilogue --Bibliography -- Backmatter Sommario/riassunto The book is devoted to the foundations of the theory of boundaryvalue problems for various classes of systems of differential-operator equations whose linear part is represented by Fredholm operators of the general form. A common point of view on numerous classes of problems that were traditionally studied independently of each other enables us to study, in a natural way, the theory of these problems, to

supplement and improve the existing results, and in certain cases, study some of these problems for the first time. With the help of the

technique of generalized inverse operators, the Vishik-Lyusternik method, and iterative methods, we perform a detailed investigation of the problems of existence, bifurcations, and branching of the solutions of linear and nonlinear boundary-value problems for various classes of differential-operator systems and propose new procedures for their construction. For more than 11 years that have passed since the appearance of the first edition of the monograph, numerous new publications of the authors in this direction have appeared. In this connection, it became necessary to make some additions and corrections to the previous extensively cited edition, which is still of significant interest for the researchers. For researchers, teachers, postgraduate students, and students of physical and mathematical departments of universities. Contents: Preliminary InformationGeneralized Inverse Operators in Banach SpacesPseudoinverse Operators in Hilbert SpacesBoundary-Value Problems for Operator EquationsBoundary-Value Problems for Systems of Ordinary Differential EquationsImpulsive Boundary-Value Problems for Systems of Ordinary Differential Equations Solutions of Differential and Difference Systems Bounded on the Entire Real Axis