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Titolo	Perturbation Theory for Linear Operators [[electronic resource] /] / by Tosio Kato
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Edizione	[2nd ed. 1995.]
Descrizione fisica	1 online resource (XXI, 623 p.)
Collana	; ; 132
Disciplina	515/.7246
Soggetti	Partial differential equations Calculus of variations Partial Differential Equations Calculus of Variations and Optimal Control; Optimization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"With 3 Figures."
Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	One Operator theory in finite-dimensional vector spaces -- § 1. Vector spaces and normed vector spaces -- § 2. Linear forms and the adjoint space -- § 3. Linear operators -- § 4. Analysis with operators -- § 5. The eigenvalue problem -- § 6. Operators in unitary spaces -- Two Perturbation theory in a finite-dimensional space -- § 1. Analytic perturbation of eigenvalues -- § 2. Perturbation series -- § 3. Convergence radii and error estimates -- § . Similarity transformations of the eigenspaces and eigenvectors -- § 5. Non-analytic perturbations -- § 6. Perturbation of symmetric operators -- Three Introduction to the theory of operators in Banach spaces -- § 1. Banach spaces -- § 2. Linear operators in Banach spaces -- § 3. Bounded operators -- § 4. Compact operators -- § 5. Closed operators -- § 6. Resolvents and spectra -- Four Stability theorems -- §1. Stability of closedness and bounded invertibility -- § 2. Generalized convergence of closed operators -- § 3. Perturbation of the spectrum -- § 4. Pairs of closed linear manifolds -- § 5. Stability theorems for semi-Fredholm operators -- § 6. Degenerate perturbations -- Five Operators in Hilbert spaces -- § 1. Hilbert space -- § 2. Bounded operators in Hilbert spaces -- § 3. Unbounded operators in Hilbert spaces -- § 4. Perturbation of self adjoint operators -- § 5. The Schrödinger and Dirac

operators -- Six Sesquilinear forms in Hilbert spaces and associated operators -- § 1. Sesquilinear and quadratic forms -- § 2. The representation theorems -- § 3. Perturbation of sesquilinear forms and the associated operators -- § 4. Quadratic forms and the Schrödinger operators -- § 5. The spectral theorem and perturbation of spectral families -- Seven Analytic perturbation theory -- § 1. Analytic families of operators -- § 2. Holomorphic families of type (A) -- § 3. Selfadjoint holomorphic families -- § 4. Holomorphic families of type (B) -- § 5. Further problems of analytic perturbation theory -- § 6. Eigenvalue problems in the generalized form -- Eight Asymptotic perturbation theory -- § 1. Strong convergence in the generalized sense -- § 2. Asymptotic expansions -- § 3. Generalized strong convergence of sectorial operators -- § 4. Asymptotic expansions for sectorial operators -- § 5. Spectral concentration -- Nine Perturbation theory for semigroups of operators -- § 1. One-parameter semigroups and groups of operators -- § 2. Perturbation of semigroups -- § 3. Approximation by discrete semigroups -- Ten Perturbation of continuous spectra and unitary equivalence -- §1. The continuous spectrum of a selfadjoint operator -- § 2. Perturbation of continuous spectra -- § 3. Wave operators and the stability of absolutely continuous spectra -- § 4. Existence and completeness of wave operators -- § 5. A stationary method -- Supplementary Notes -- Supplementary Bibliography -- Notation index -- Author index.

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Sommario/riassunto

In view of recent development in perturbation theory, supplementary notes and a supplementary bibliography are added at the end of the new edition. Little change has been made in the text except that the para- graphs V-§ 4.5, VI-§ 4.3, and VIII-§ 1.4 have been completely rewritten, and a number of minor errors, mostly typographical, have been corrected. The author would like to thank many readers who brought the errors to his attention. Due to these changes, some theorems, lemmas, and formulas of the first edition are missing from the new edition while new ones are added. The new ones have numbers different from those attached to the old ones which they may have replaced. Despite considerable expansion, the bibliography is not intended to be complete. Berkeley, April 1976 TosIO RATO Preface to the First Edition This book is intended to give a systematic presentation of perturba- tion theory for linear operators. It is hoped that the book will be useful to students as well as to mature scientists, both in mathematics and in the physical sciences.

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