

1. Record Nr.	UNINA9910969394303321
Autore	Vatsya S. Raj
Titolo	Foundations and applications of variational and perturbation methods / / S. Raj Vatsya
Pubbl/distr/stampa	Hauppauge, NY, : Nova Science Publishers, c2009
ISBN	1-60741-414-7
Edizione	[1st ed.]
Descrizione fisica	1 online resource (349 p.)
Disciplina	515/.392
Soggetti	Perturbation (Mathematics) Perturbation (Quantum dynamics) Variational principles
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 (p. [327]-330) and index.
Nota di contenuto	Intro -- FOUNDATIONS AND APPLICATIONS OF VARIATIONAL AND PERTURBATION METHODS -- FOUNDATIONS AND APPLICATIONS OF VARIATIONAL AND PERTURBATION METHODS -- CONTENTS -- PREFACE -- ACKNOWLEDGEMENTS -- I. FOUNDATIONS -- 1. INTEGRATION AND VECTOR SPACES -- 1. I. PRELIMINARIES -- 1. II. INTEGRATION -- 1.II.1. Basic Concepts -- 1.II.2. Integration over Trajectories -- 1. III. VECTOR SPACES -- 2. OPERATORS IN VECTOR SPACES -- 2.I. OPERATORS IN BANACH SPACES -- 2.II. Operators in Hilbert Spaces -- 2.III. Forms in Hilbert Spaces -- 2.IV. Integral Transforms -- 2.V. Differential Operators -- 3. VARIATIONAL METHODS -- 3.I. FORMULATION -- 3.II. CONVERGENCE -- 3.II.1. Basic Results -- 3.II.2. Compact Operators -- 3.II.3. Bounded Operators -- 3.II.4. Semi- Bounded Operators -- 3.III. PADÉ APPROXIMANTS -- 3.III.1. Formulation -- 3.III.2. Representations -- 3.III.3. Convergence And Applications -- 3.IV. MONOTONIC CONVERGENCE -- 3.IV.1. Diagonal Forms -- 3.IV.2. Eigenvalues -- 4. PERTURBATION METHODS -- 4.I. PERTURBED OPERATOR -- 4.II. SPECTRAL PERTURBATION -- 4.II.1. Resolvent and Point Spectrum -- 4.II.2. Continuous Spectrum -- 4.III. SPECTRAL DIFFERENTIATION -- 4.IV. ITERATION -- II. APPLICATIONS -- 5. MATRICES -- 5.I. TRIDIAGONAL MATRICES -- 5.II. STRUCTURED MATRICES -- 6. ATOMIC SYSTEMS -- 6.I. PRELIMINARIES -- 6.II. EIGENVALUES AND CRITICAL POINTS -- 6.II.1. Helium Atom -- 6.II.2.

Short Range Potentials -- 6.III. SCATTERING -- 6.III.1. Formulation -- 6.III.2. Born Series -- 6.III.3. Schwinger's Method -- 6.III.4. Hulthén - Kohn Methods -- 6.III.5. Rotated Hamiltonians -- 7. SUPPLEMENTARY EXAMPLES -- 7.I. RAY TOMOGRAPHY -- 7.II. MAXWELL'S EQUATIONS -- 7.III. POSITIVITY LEMMA FOR THE ELLIPTIC OPERATORS -- 7.III.1. Basic Results -- 7.III.2. Applications -- 7.IV. TRANSPORT AND PROPAGATION -- 7.IV.1. Reaction-Diffusion -- 7.IV.2. Heat Transfer. 7.IV.3. Radiative Transfer -- 7.IV.4. Turbulent Diffusion -- 7.IV.5. Optical Beam Propagation -- 7.V. QUANTUM THEORY -- REFERENCES -- INDEX.

Sommario/riassunto

Contents: Preface; Integration and vector spaces; Operators in vector spaces; Variational methods; Perturbation methods; Matrices; Atomic systems; Supplementary examples; References; Index.
