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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Solvability of a Nonstationary Problem of Radiative-Conductive Heat Transfer in a System of Semi-transparent Bodies -- The Nonstationary Radiative–Conductive Heat Transfer Problem in a Periodic System of Grey Heat Shields. Semidiscrete and Asymptotic Approximations -- A Mixed Impedance Scattering Problem for Partially Coated Obstacles in Two-Dimensional Linear Elasticity -- Half-Life Distribution Shift of Fission Products by Coupled Fission–Fusion Processes -- DRBEM Simulation on Mixed Convection with Hydromagnetic Effect -- Nonlinear Method of Reduction of Dimensionality Based on Artificial Neural Network and Hardware Implementation -- On the Eigenvalues of

a Biharmonic Steklov Problem -- Shape Differentiability of the Eigenvalues of Elliptic Systems -- Pollutant Dispersion in the Atmosphere: A Solution Considering Nonlocal Closure of Turbulent Diffusion -- The Characteristic Matrix of Nonuniqueness for First-Kind Equations -- On the Spectrum of Volume Integral Operators in Acoustic Scattering -- Modeling and Implementation of Demand Dispatch Approach in a Smart Micro-Grid -- Harmonic Functions in a Domain with a Small Hole: A Functional Analytic Approach -- Employing Eddy Diffusivities to Simulate the Contaminants Dispersion for a Shear Dominated-Stable Boundary Layer -- Analysis of Boundary–Domain Integral Equations for Variable-Coefficient Dirichlet BVP in 2D.-Onset of SeparatedWater-Layer in Three-Phase Stratified Flow -- An Integro-Differential Equation for 1D Cell Migration -- The Multi-Group Neutron Diffusion Equation in General Geometries Using the Parseval Identity -- Multi-Group Neutron Propagation in Transport Theory by Space Asymptotic Methods. Infiltration in Porous Media: On the Construction of a Functional Solution Method for the Richards Equation -- A Soft-Sensor Approach to Probability Density Function Estimation -- Two Reasons Why Pollution Dispersion Modeling Needs Sesquilinear Forms -- Correcting Terms for Perforated Media by Thin Tubes with Nonlinear Flux and Large Adsorption Parameters -- A Finite Element Method For Deblurring Images -- Multi-Particle Collision Algorithm for Solving an Inverse Radiative Problem.-Performance of a Higher-Order Numerical Method for Solving Ordinary Differential Equations by Taylor Series -- Retinal Image Quality Assessment Using Shearlet Transform -- The Radiative-Conductive Transfer Equation in Cylinder Geometry and its Application to Rocket Launch Exhaust Phenomena -- A Functional Analytic Approach to Homogenization Problems -- Anisotropic Fundamental Solutions for Linear Elasticity and Heat Conduction Problems Based on a Crystalline Class Hierarchy Governed Decomposition Method -- On a Model for Pollutant Dispersion in the Atmosphere with Partially Reflective Boundary Conditions -- Asymptotic Approximations for Chemical Reactive Flows in Thick Fractal Junctions -- BDIE System in the Mixed BVP for the Stokes Equations with Variable Viscosity Calderón–Zygmund Theory for Second-Order Elliptic Systems on Riemannian Manifolds -- The Regularity Problem in Rough Subdomains of Riemannian Manifolds -- A Collocation Method Based on the Central Part Interpolation for Integral Equations -- Evolutional Contact with Coulomb Friction on a Periodic Microstructure -- Piecewise Polynomial Collocation for a Class of Fractional Integro-Differential Equations -- A Note on Transforming a Plane Strain First-Kind Fredholm Integral Equation into an Equivalent Second-Kind Equation -- Asymptotic Analysis of the Steklov Spectral Problem in Thin Perforated Domains with Rapidly Varying Thickness and Different Limit Dimensions -- Semi-Analytical Solution for Torsion of a Micropolar Beam of Elliptic Cross Section -- L1 Regularized Regression Modeling of Functional Connectivity -- Automatic Separation of Retinal Vessels into Arteries and Veins Using Ensemble Learning -- Study of Extreme Brazilian Meteorological Events -- The Neutron Point Kinetics Equation: Suppression of Fractional Derivative Effects by Temperature Feedback -- Comparison of Analytical and Numerical Solution Methods for the Point Kinetics Equation with Temperature Feedback Free of Stiffness -- The Wind Meandering Phenomenon in an Eulerian Three- Dimensional Model to Simulate the Pollutants Dispersion -- Semilinear Second-Order Ordinary Differential Equations: Distances Between Consecutive Zeros of Oscillatory Solutions -- Oscillation Criteria for some Third-Order Linear Ordinary Differential Equations -- Oscillation Criteria for some Semi-Linear

Emden–Fowler ODE -- Analytic Representation of the Solution of Neutron Kinetic Transport Equation in Slab-Geometry Discrete Ordinates Formulation -- New Constructions in the Theory of Elliptic Boundary Value Problems -- Optimal Control of Partial Differential Equations by Means of Stackelberg Strategies: An Environmental Application -- An Overview of the Modified Buckley–Leverett Equation -- Influence of Stochastic Moments on the Solution of the Neutron Point Kinetics Equation -- The Hamilton Principle for Mechanical Systems with Impacts and Unilateral Constraints -- Numerical Solutions and Their Error Bounds for Oscillatory Neural Networks.

Sommario/riassunto

This contributed volume contains a collection of articles on state-of-the-art developments on the construction of theoretical integral techniques and their application to specific problems in science and engineering. Written by internationally recognized researchers, the chapters in this book are based on talks given at the Thirteenth International Conference on Integral Methods in Science and Engineering, held July 21–25, 2014, in Karlsruhe, Germany. A broad range of topics is addressed, from problems of existence and uniqueness for singular integral equations on domain boundaries to numerical integration via finite and boundary elements, conservation laws, hybrid methods, and other quadrature-related approaches. This collection will be of interest to researchers in applied mathematics, physics, and mechanical and electrical engineering, as well as graduate students in these disciplines and other professionals for whom integration is an essential tool.