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Inside-Outside Duality Method -- A Note on Optimal Design for Thin Structures in the Orlicz–Sobolev Setting -- On the Radiative Conductive Transfer Equation: A Heuristic Convergence Criterion by Stability Analysis -- An Indirect Boundary Integral Equation Method for Boundary Value Problems in Elastostatics -- An Instability Result for Suspension Bridges -- A New Diffeomorph Conformal Methodology to Solve Flow Problems with Complex Boundaries by an Equivalent Plane Parallel Problem -- A New Family of Boundary-Domain Integral Equations for the Mixed Exterior Stationary Heat Transfer with Variable Coefficient -- Radiation Conditions and Integral Representations for Clifford Algebra-Valued Null-Solutions of the Iterated Helmholtz Operator -- A Wiener-Hopf System of Equations in the Steady-State Propagation of a Rectilinear Crack in an Infinite Elastic Plate -- Mono-energetic Neutron Space-Kinetics in Full Cylinder Symmetry: Simulating Power Decrease -- AsymptoticSolutions of Maxwell's Equations in a Layered Periodic Structure -- Some Properties of the Fractional Circle Zernike Polynomials -- Double Laplace Transform and Explicit Fractional Analogue of 2D Laplacian -- Stability of the Laplace Single Layer Boundary Integral Operator in Sobolev Spaces -- Spectral Lanczos' Tau Method for Systems of Nonlinear Integro-differential Equations -- Discreteness, Periodicity, Holomorphy, and Factorization -- Modes Coupling Seismic Waves and Vibrating Buildings: Existence -- Index. .

Sommario/riassunto

This contributed volume contains a collection of articles on the most recent advances in integral methods. The first of two volumes, this work focuses on the construction of theoretical integral methods. Written by internationally recognized researchers, the chapters in this book are based on talks given at the Fourteenth International Conference on Integral Methods in Science and Engineering, held July 25-29, 2016, in Padova, Italy. A broad range of topics is addressed, such as: • Integral equations • Homogenization • Duality methods • Optimal design • Conformal techniques 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 to other professionals who use integration as an essential tool in their work.