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Nota di contenuto	Front matter -- Preface -- Contents -- Introduction -- 1 Method of Generalized Eikonal -- 2 Solution of Two-dimensional Problems by the Method of Generalized Eikonal -- 3 Application of Two-dimensional Solutions to Three-dimensional Problems -- 4 Diffraction by a Plane Perfectly Conducting Angular Sector (Heuristic Approach) -- 5 Propagation of Radio Waves in Urban Environment (Deterministic Approach) -- 6 Analytical Heuristic Solution for Wave Diffraction by a Plane Polygonal Scatterer -- 7 Conclusion -- A Application of Stokes Theorem to Diffraction Problems -- B Rigorous Two-dimensional Solution for Diffraction by Half-plane -- C Application of Imaginary Edge in Diffraction Problems -- D Summary of Formulas for Diffraction by Plane Angular Sector -- E Fresnel Integral and its Properties -- F Generalized Fresnel Integral and Its Properties -- G Electromagnetic Wave Diffraction by Semi-transparent Plate in the Physical Optics Approximation -- H Generalized Diffraction Coefficient and its Application to Diffraction Problems -- Bibliography -- Index -- Backmatter
Sommario/riassunto	Diffraction theory describes scattering mechanisms for waves of various physical nature, scattered by objects of different shapes and materials. This book proposes new methods to account for the contour shape, edge profile and boundary conditions of three-dimensional

scatterers (in particularly, flat polygons and polyhedrals). A standard method to refine the physical optics approximation (PO) is the heuristic method of edge waves (MEW). In comparison with MEW, the presented approaches simplify the solving and refining the PO approximation without solving a corresponding two-dimensional problem.

Furthermore these methods allow to take into account the field perturbation in the vicinity of vertices. While the analytical formulas obtained by using these new approaches are as simple as in the PO case, the accuracy can be even higher than for MEW. On the basis of the developed methods construction of solutions for wave propagation in urban area and elastic wave diffraction (including seismic waves) are proposed. The book is useful for specialists who solve scientific and engineering problems in wave propagation and for students and postgraduate students.
