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Autore	Ufimtsev P. IA (Petr IAKovlevich)
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Nota di contenuto	Preface xiii -- Foreword to the First Edition xv -- Preface to the First Edition xix -- Acknowledgments xxi -- Introduction xxiii -- 1 Basic Notions in Acoustic and Electromagnetic Diffraction Problems 1 -- 1.1 Formulation of the Diffraction Problem / 1 -- 1.2 Scattered Field in the Far Zone / 3 -- 1.3 Physical Optics / 7 -- 1.3.1 Definition of Physical Optics / 7 -- 1.3.2 Total Scattering Cross-Section / 10 -- 1.3.3 Optical Theorem / 11 -- 1.3.4 Introducing Shadow Radiation / 12 -- 1.3.5 Shadow Contour Theorem and the Total Scattering Cross-Section / 17 -- 1.3.6 Shadow Radiation and Reflected Field in the Far Zone / 20 -- 1.3.7 Shadow Radiation and Reflection from Opaque Objects / 22 -- 1.4 Electromagnetic Waves / 23 -- 1.4.1 Basic Field Equations and PO Backscattering / 23 -- 1.4.2 PO Field Components: Reflected Field and Shadow Radiation / 26 -- 1.4.3 Electromagnetic Reflection and Shadow Radiation from Opaque Objects / 28 -- 1.5 Physical Interpretations of Shadow Radiation / 31 -- 1.5.1 Shadow Field and Transverse Diffusion / 31 -- 1.5.2 Fresnel Diffraction and Forward Scattering / 32 -- 1.6 Summary of Properties of Physical Optics Approximation / 32 -- 1.7 Nonuniform Component of an Induced Surface Field / 33 -- Problems / 36 -- 2 Wedge Diffraction: Exact Solution and Asymptotics 49 -- 2.1

Classical Solutions / 49 -- 2.2 Transition to Plane Wave Excitation / 55
 -- 2.3 Conversion of the Series Solution to the Sommerfeld Integrals /
 57 -- 2.4 The Sommerfeld Ray Asymptotics / 61 -- 2.5 The Pauli
 Asymptotics / 63 -- 2.6 Uniform Asymptotics: Extension of the Pauli
 Technique / 68 -- 2.7 Fast Convergent Integrals and Uniform
 Asymptotics: The "Magic Zero" Procedure / 72 -- Problems / 76 -- 3
 Wedge Diffraction: The Physical Optics Field 87 -- 3.1 Original PO
 Integrals / 87 -- 3.2 Conversion of PO Integrals to the Canonical Form
 / 90 -- 3.3 Fast Convergent Integrals and Asymptotics for the PO
 Diffracted Field / 94 -- Problems / 100 -- 4 Wedge Diffraction:
 Radiation by Fringe Components of Surface Sources 103.
 4.1 Integrals and Asymptotics / 104 -- 4.2 Integral Forms of Functions
 $f(1)$ and $g(1)$ / 112 -- 4.3 Oblique Incidence of a Plane Wave at a
 Wedge / 114 -- 4.3.1 Acoustic Waves / 114 -- 4.3.2 Electromagnetic
 Waves / 118 -- Problems / 120 -- 5 First-Order Diffraction at Strips
 and Polygonal Cylinders 123 -- 5.1 Diffraction at a Strip / 124 -- 5.1.1
 Physical Optics Part of the Scattered Field / 124 -- 5.1.2 Total
 Scattered Field / 128 -- 5.1.3 Numerical Analysis of the Scattered Field
 / 132 -- 5.1.4 First-Order PTD with Truncated Scattering Sources $j(1)$ h
 / 135 -- 5.2 Diffraction at a Triangular Cylinder / 140 -- 5.2.1
 Symmetric Scattering: PO Approximation / 141 -- 5.2.2 Backscattering:
 PO Approximation / 143 -- 5.2.3 Symmetric Scattering: First-Order
 PTD Approximation / 145 -- 5.2.4 Backscattering: First-Order PTD
 Approximation / 148 -- 5.2.5 Numerical Analysis of the Scattered Field
 / 150 -- Problems / 152 -- 6 Axially Symmetric Scattering of
 Acoustic Waves at Bodies of Revolution 157 -- 6.1 Diffraction at a
 Canonical Conic Surface / 158 -- 6.1.1 Integrals for the Scattered Field
 / 159 -- 6.1.2 Ray Asymptotics / 160 -- 6.1.3 Focal Fields / 166 --
 6.1.4 Bessel Interpolations for the Field $u(1)$ s, h / 167 -- 6.2 Scattering
 at a Disk / 169 -- 6.2.1 Physical Optics Approximation / 169 -- 6.2.2
 Relationships Between Acoustic and Electromagnetic PO Fields / 171 --
 6.2.3 Field Generated by Fringe Scattering Sources / 172 -- 6.2.4 Total
 Scattered Field / 173 -- 6.3 Scattering at Cones: Focal Field / 176 --
 6.3.1 Asymptotic Approximations for the Field / 176 -- 6.3.2
 Numerical Analysis of Backscattering / 179 -- 6.4 Bodies of Revolution
 with Nonzero Gaussian Curvature: Backscattered Focal Fields / 183 --
 6.4.1 PO Approximation / 184 -- 6.4.2 Total Backscattered Focal Field:
 First-Order PTD Asymptotics / 186 -- 6.4.3 Backscattering from
 Paraboloids / 186 -- 6.4.4 Backscattering from Spherical Segments /
 192 -- 6.5 Bodies of Revolution with Nonzero Gaussian Curvature:
 Axially Symmetric Bistatic Scattering / 196.
 6.5.1 Ray Asymptotics for the PO Field / 196 -- 6.5.2 Bessel
 Interpolations for the PO Field in the Region - $\frac{1}{2} < \theta < \frac{3}{2}$;
 $\frac{1}{2} < \theta < \frac{3}{2}$ / 200 -- 6.5.3 Bessel
 Interpolations for the PTD Field in the Region - $\frac{1}{2} < \theta < \frac{3}{2}$;
 $\frac{1}{2} < \theta < \frac{3}{2}$ / 200 -- 6.5.4 Asymptotics
 for the PTD Field in the Region $\frac{1}{2} < \theta < \frac{3}{2}$;
 $\frac{1}{2} < \theta < \frac{3}{2}$; Away from the GO Boundary
 $\frac{1}{2} < \theta < \frac{3}{2}$; = $\frac{1}{2} < \theta < \frac{3}{2}$ / 201 -- 6.5.5 Uniform
 Approximations for the PO Field in the Ray Region $\frac{1}{2} < \theta < \frac{3}{2}$;
 $\frac{1}{2} < \theta < \frac{3}{2}$; $\frac{1}{2} < \theta < \frac{3}{2}$; - $\frac{1}{2} < \theta < \frac{3}{2}$;
 $\frac{1}{2} < \theta < \frac{3}{2}$; Including the GO Boundary $\frac{1}{2} < \theta < \frac{3}{2}$; =
 $\frac{1}{2} < \theta < \frac{3}{2}$ / 202 -- 6.5.6 Approximation of the PO Field in
 the Shadow Region for Reflected Rays / 205 -- Problems / 207 -- 7
 Elementary Acoustic and Electromagnetic Edge Waves 211 -- 7.1
 Elementary Strips on a Canonical Wedge / 212 -- 7.2 Integrals for $j(1)$
 s, h on Elementary Strips / 213 -- 7.3 Triple Integrals for Elementary
 Edge Waves / 217 -- 7.4 Transformation of Triple Integrals into One-

Dimensional Integrals / 220 -- 7.5 General Asymptotics for Elementary Edge Waves / 225 -- 7.6 Analytic Properties of Elementary Edge Waves / 230 -- 7.7 Numerical Calculations of Acoustic Elementary Fringe Waves / 234 -- 7.8 Electromagnetic Elementary Edge Waves / 237 -- 7.8.1 Electromagnetic EEWs on the Diffraction Cone Outside the Wedge / 241 -- 7.8.2 Electromagnetic EEWs on the Diffraction Cone Inside the Wedge / 243 -- 7.8.3 Numerical Calculations of Electromagnetic Elementary Fringe Waves / 245 -- 7.9 Improved Theory of Elementary Edge Waves: Removal of the Grazing Singularity / 245 -- 7.9.1 Acoustic EEWs / 248 -- 7.9.2 Electromagnetic EEWs Generated by the Modified Nonuniform Current / 253 -- 7.10 Some References Related to Elementary Edge Waves / 256 -- Problems / 257 -- 8 Ray and Caustic Asymptotics for Edge Diffracted Waves 261 -- 8.1 Ray Asymptotics / 261 -- 8.1.1 Acoustic Waves / 261 -- 8.1.2 Electromagnetic Waves / 266 -- 8.1.3 Comments on Ray Asymptotics / 267 -- 8.2 Caustic Asymptotics / 269 -- 8.2.1 Acoustic waves / 269 -- 8.2.2 Electromagnetic Waves / 274 -- 8.3 Relationships between PTD and GTD / 275 -- Problems / 276 -- 9 Multiple Diffraction of Edge Waves: Grazing Incidence and Slope Diffraction 285. 9.1 Statement of the Problem and Related References / 285 -- 9.2 Grazing Diffraction / 286 -- 9.2.1 Acoustic Waves / 286 -- 9.2.2 Electromagnetic Waves / 290 -- 9.3 Slope Diffraction in Configuration of Figure 9.1 / 292 -- 9.3.1 Acoustic Waves / 292 -- 9.3.2 Electromagnetic Waves / 295 -- 9.4 Slope Diffraction: General Case / 296 -- 9.4.1 Acoustic Waves / 296 -- 9.4.2 Electromagnetic Waves / 299 -- Problems / 302 -- 10 Diffraction Interaction of Neighboring Edges on a Ruled Surface 305 -- 10.1 Diffraction at an Acoustically Hard Surface / 306 -- 10.2 Diffraction at an Acoustically Soft Surface / 309 -- 10.3 Diffraction of Electromagnetic Waves / 312 -- 10.4 Test Problem: Secondary Diffraction at a Strip / 314 -- 10.4.1 Diffraction at a Hard Strip / 314 -- 10.4.2 Diffraction at a Soft Strip / 317 -- Problems / 318 -- 11 Focusing of Multiple Acoustic Edge Waves Diffracted at a Convex Body of Revolution with a Flat Base 325 -- 11.1 Statement of the Problem and its Characteristic Features / 325 -- 11.2 Multiple Hard Diffraction / 327 -- 11.3 Multiple Soft Diffraction / 328 -- Problems / 330 -- 12 Focusing of Multiple Edge Waves Diffracted at a Disk 333 -- 12.1 Multiple Hard Diffraction / 334 -- 12.2 Multiple Soft Diffraction / 336 -- 12.3 Multiple Diffraction of Electromagnetic Waves / 340 -- Problems / 341 -- 13 Backscattering at a Finite-Length Cylinder 343 -- 13.1 Acoustic Waves / 343 -- 13.1.1 PO Approximation / 343 -- 13.1.2 Backscattering Produced by the Nonuniform Component $j(1)$ / 347 -- 13.1.3 Total Backscattered Field / 352 -- 13.2 Electromagnetic Waves / 354 -- 13.2.1 E-polarization / 354 -- 13.2.2 H-polarization / 360 -- Problems / 362 -- 14 Bistatic Scattering at a Finite-Length Cylinder 365 -- 14.1 Acoustic Waves / 365 -- 14.1.1 PO Approximation / 366 -- 14.1.2 Shadow Radiation as a Part of the Physical Optics Field / 368 -- 14.1.3 PTD for Bistatic Scattering at a Hard Cylinder / 370 -- 14.1.4 Beams and Rays of the Scattered Field / 376 -- 14.1.5 PO Shooting-Through Rays and Their Cancellation by Fringe Rays / 381. 14.1.6 Refined Asymptotics for the Specular Beam Reflected from the Lateral Surface / 382 -- 14.2 Electromagnetic Waves / 386 -- 14.2.1 E-Polarization / 386 -- 14.2.2 H-Polarization / 388 -- 14.2.3 Refined Asymptotics for the Specular Beam Reflected from the Lateral Surface / 390 -- Problems / 393 -- Conclusion 397 -- References 399 -- Appendix to Chapter 4: MATLAB Codes for Two-Dimensional Fringe Waves and Figures (F. Hacivelioglu and L. Sevgi) 411 -- Appendix to Chapter 6: MATLAB Codes for Axial Backscattering at Bodies of

Revolution (F. Hacivelioglu and L. Sevgi) 431 -- Appendix to Section 7.7: MATLAB Codes for Diffraction Coefficients of Acoustic Elementary Fringe Waves (F. Hacivelioglu and L. Sevgi) 439 -- Appendix to Section 7.8.3: MATLAB Codes for Diffraction Coefficients of Electromagnetic Elementary Fringe Waves (F. Hacivelioglu and L. Sevgi) 443 -- Appendix to Section 7.9.2: Field $\mathbf{d} \cdot \mathbf{E}^{(0)}$ mod Radiated by Modified Uniform Currents $\mathbf{J}^{(0)}$ mod Induced on Elementary Strips (P. Ya. Ufimtsev) 447 -- Index 451.

Sommario/riassunto

The book is a complete, comprehensive description of the modern Physical Theory of Diffraction (PTD) based upon the concept of elementary edge waves. The theory is demonstrated with examples of the diffraction of acoustic and electromagnetic waves at perfectly reflecting objects. / Readers develop the skills to apply PTD to solve various scattering problems. The derived analytic expressions clearly illustrate the physical structure of the scattered field. They additionally describe all of the reflected and diffracted rays and beams, as well as the fields in the vicinity of caustics and foci. Shadow radiation, a fundamental component of PTD, is introduced and proven to contain half the total scattered power. The equivalence relationships between acoustic and electromagnetic diffracted waves are established and emphasized. Throughout the book, the author enables readers to master both the theory and its practical applications. / - Plotted numeric results supplement the theory and facilitate the visualization of individual contributions of distinct parts of the scattering objects to the total diffracted field / - Detailed comments help readers understand and implement all the critical steps of the analytic and numeric calculations / - Problem sets in each chapter give readers an opportunity to analyse and investigate the diffraction phenomena.
