This book is a systematic and detailed exposition of different analytical techniques used in studying two of the canonical problems, the wave scattering by wedges or cones with impedance boundary conditions. It is the first reference on novel, highly efficient analytical-numerical approaches for wave diffraction by impedance wedges or cones.

**KEY FEATURES**
- Development of new approaches which lead to exact (but not explicit) solutions of key canonical problems like diffraction by an impedance wedge or cone.
- Calculations of the diffraction or excitation coefficients, including their uniform versions, for the diffracted waves from the edge of the wedge or from the vertex of the cone.
- Study of the far-field behavior in diffraction by impedance wedges or cones, reflected waves, space waves from the singular points of the boundary (from edges or tips), and surface waves.
- Applicability of the reported solution procedures and formulae to existing software packages designed for solving real-world high-frequency problems encountered in antenna, wave propagation, and radar cross section.

**AUDIENCE**
- Researchers in wave phenomena physics.
- Radio, optics and acoustics engineers.
- Applied mathematicians and specialists in mathematical physics.
- Specialists in quantum scattering of many particles.

**ABOUT THE AUTHORS**

**Mikhail A. Lyalinov** is a Professor in the Department of Mathematics and Mathematical Physics at Saint Petersburg University, Russia. He has published more than 50 research papers on different mathematical aspects of diffraction theory and is co-author of two monographs. He is a principal organizer of the annual international "Days on Diffraction" seminars.

**Ning Yan Zhu** is a Privatdozent at the Institute of Radio Frequency Technology, University of Stuttgart, Germany. His research includes rigorous numerical techniques and their applications to antennas and radio wave propagation in complex environments. He has published 25 journal articles and co-authored one monograph in these fields. He is also an editorial advisor of the Alpha Science Series on Wave Phenomena (Oxford, UK).
Scattering of Waves by Wedges and Cones with Impedance Boundary Conditions