An Introduction to Linear and Nonlinear Scattering Theory (Monographs and Surveys in Pure and Applied Mathematics)

by G F Roach

Scattering Theory and Wave Propagation
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This book covers the theory of scattering of waves in various media, including linear and nonlinear scatterings. It includes applications to problems related to quantum mechanics, acoustics, and electromagnetics. The text is comprehensive, covering both theoretical foundations and practical applications, making it a valuable resource for researchers and practitioners in the field of wave propagation.


The content is well-structured, starting with the basics of linear scattering and then gradually introducing more complex nonlinear phenomena. The author provides clear explanations of mathematical models and their physical interpretations, making the material accessible to students with a background in mathematics or physics.

Key topics covered include:
- Introduction to linear scattering
- Nonlinear scattering
- Applications to quantum mechanics
- Acoustic and electromagnetic diffraction
- Scattering in various media

The book is intended for advanced undergraduate and graduate students, as well as researchers in applied mathematics, physics, and engineering.

In summary, the book is a comprehensive guide to the theory of wave scattering, offering a solid foundation for further research and practical applications in the field.