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Nota di contenuto	Frontmatter -- Contents -- Preface -- Chapter One. Introduction and Outline of Contents -- Chapter Two. Some Aspects of Waves on Strings -- Chapter Three. Mathematical Preliminaries -- Chapter Four. Spectral Theory and Spectral Decompositions -- Chapter Five. On Nonautonomous Problems -- Chapter Six. On Scattering Theory Strategies -- Chapter Seven. Echo Analysis -- Chapter Eight. Wave Scattering from Time-Periodic Perturbations -- Chapter Nine Concerning Inverse Problems -- Chapter Ten. Some Remarks on Scattering in Other Wave Systems -- Chapter Eleven. Commentaries and Appendices -- Bibliography -- Index
Sommario/riassunto	This book offers the first comprehensive introduction to wave scattering in nonstationary materials. G. F. Roach's aim is to provide an accessible, self-contained resource for newcomers to this important field of research that has applications across a broad range of areas, including radar, sonar, diagnostics in engineering and manufacturing, geophysical prospecting, and ultrasonic medicine such as sonograms. New methods in recent years have been developed to assess the structure and properties of materials and surfaces. When light, sound, or some other wave energy is directed at the material in question,

"imperfections" in the resulting echo can reveal a tremendous amount of valuable diagnostic information. The mathematics behind such analysis is sophisticated and complex. However, while problems involving stationary materials are quite well understood, there is still much to learn about those in which the material is moving or changes over time. These so-called non-autonomous problems are the subject of this fascinating book. Roach develops practical strategies, techniques, and solutions for mathematicians and applied scientists working in or seeking entry into the field of modern scattering theory and its applications. Wave Scattering by Time-Dependent Perturbations is destined to become a classic in this rapidly evolving area of inquiry.