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Descrizione fisica	1 online resource (398 p.)
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Soggetti	Physics Differential equations Quantum theory Mathematical physics Operator theory Mathematical Methods in Physics Ordinary Differential Equations Quantum Physics Theoretical, Mathematical and Computational Physics Operator Theory
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Geometrically Induced Bound States -- Transport in locally perturbed tubes -- More about the waveguide spectra -- Dirichlet Layers -- Point Perturbations -- Weakly Coupled Bound States -- External Fields and Magnetic Transport -- Graph Limits of Thin Network Systems -- Periodic and Random Systems -- Leaky Waveguides.
Sommario/riassunto	This monograph explains the theory of quantum waveguides, that is, dynamics of quantum particles confined to regions in the form of tubes, layers, networks, etc. The focus is on relations between the confinement geometry on the one hand and the spectral and scattering properties of the corresponding quantum Hamiltonians on the other. Perturbations of such operators, in particular, by external fields are also considered. The volume provides a unique summary of twenty five years of research activity in this area and indicates ways in which the

theory can develop further. The book is fairly self-contained. While it requires some broader mathematical physics background, all the basic concepts are properly explained and proofs of most theorems are given in detail, so there is no need for additional sources. Without a parallel in the literature, the monograph by Exner and Kovarik guides the reader through this new and exciting field.