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| Soggetti | Mathematical analysis Functional analysis Integral equations Differential equations Mathematical physics Analysis Functional Analysis Integral Equations Differential Equations Theoretical, Mathematical and Computational Physics |
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| Nota di bibliografia | Includes bibliographical references (pages [155]-166) and index. |
| Nota di contenuto | Basic concepts -- Short-range interactions. asymptotic completeness -- Short-range interactions. Miscellaneous -- Long-range interactions. The scheme of smooth perturbations -- The generalized fourier transform -- Long-range matrix potentials -- A stationary representation -- The short-range case -- The long-range case -- The relative scattering matrix -- Setting the scattering problem -- Resolvent equations for three-particle systems -- Asymptotic completeness. A sketch of proof -- The scattering matrix and eigenfunctions for multiparticle systems -- New channels of scattering -- The heisenberg model -- Infinite obstacle scattering. |
| Sommario/riassunto | Scattering theory is, roughly speaking, perturbation theory of self- |

adjoint operators on the (absolutely) continuous spectrum. It has its origin in mathematical problems of quantum mechanics and is intimately related to the theory of partial differential equations. Some recently solved problems, such as asymptotic completeness for the Schrödinger operator with long-range and multiparticle potentials, as well as open problems, are discussed. Potentials for which asymptotic completeness is violated are also constructed. This corresponds to a new class of asymptotic solutions of the time-dependent Schrödinger equation. Special attention is paid to the properties of the scattering matrix, which is the main observable of the theory. The book is addressed to readers interested in a deeper study of the subject.
