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Nota di contenuto	Introduction -- Preliminaries on Sturm-Liouville equations -- Finite interval -- Half-line -- Quantum scattering problem on the half-line -- Scattering problem on the line -- Inverse scattering transform method -- Main transmutation operators -- Series representations -- Series representations for the Jost solution -- Sturm-Liouville problems on finite intervals -- Spectral problems on infinite intervals -- The inverse problem on a finite interval -- Solving the inverse problem on a half-line -- Inverse quantum scattering on the half-line -- Inverse scattering on the line.
Sommario/riassunto	This book provides an introduction to the most recent developments in the theory and practice of direct and inverse Sturm-Liouville problems on finite and infinite intervals. A universal approach for practical solving of direct and inverse spectral and scattering problems is presented, based on the notion of transmutation (transformation) operators and their efficient construction. Analytical representations for solutions of Sturm-Liouville equations as well as for the integral kernels of the transmutation operators are derived in the form of functional series revealing interesting special features and lending

themselves to direct and simple numerical solution of a wide variety of problems. The book is written for undergraduate and graduate students, as well as for mathematicians, physicists and engineers interested in direct and inverse spectral problems.
