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Short title: Recurrence relations for the problem of the scattering ...

Publication: Dokl. Akad. Nauk Armen. 98 (1998) 301-6
Control number: 1 700 954
Primary classification: 81Q05
Secondary classification(s): 34L25

Review text:

Schroedinger equation for scattering in one dimension is considered. First, the potential is assumed vanishing outside some N non-overlapping intervals. The semigroup property of the transfer (or monodromy matrix which relates the reflection and transmission coefficients R and T after the N-th interval) is then reinterpreted as a set of three-term recurrences (say, for the complex $D = 1/T$ etc), with coefficients defined in terms of the local reflection r and transmission t over the single interval.

In the special case of the multiple rectangular potentials one may insert the known local coefficients. After a suitable limiting transition to an arbitrary shape of the potential a linear differential equation of the second order (e.g., for $D=D(x)$) is derived.

The letter mentions the compatibility of this approach with the use of Dyson equation. An immediate unanswered question would be the specification of relationship to the similar (albeit nonlinear) Calogero equation.