

[Melin, Anders](#)

Intertwining methods in the problem of inverse scattering. (English) Zbl 0618.35029
Journ. Équ. Dériv. Partielles, St.-Jean-De-Monts 1986, Conf. No. 5, 8 p. (1986).

Let H_v be the Schrödinger operator with a short range potential $v(x)$, A be the intertwining operator: $H_v A = A H_0$. By using a fundamental solution of the ultrahyperbolic operator $\Delta_x - \Delta_y$, the author obtains explicit expressions for the intertwining operator A , for wave operators $W_{\pm} = \lim_{t \rightarrow \pm\infty} e^{itH} v e^{-itH_0}$, and a formula for the scattering operator $S = W_{+}^* W_{-}$.

These results are applied to the inverse scattering problems.

Reviewer: [S.Tajima](#)

MSC:

- [35J10](#) Schrödinger operator, Schrödinger equation
- [35P25](#) Scattering theory for PDEs
- [35R30](#) Inverse problems for PDEs
- [47A40](#) Scattering theory of linear operators

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Keywords:

[Schrödinger operator](#); [short range potential](#); [intertwining operator](#); [fundamental solution](#); [ultrahyperbolic operator](#); [explicit expressions](#); [scattering operator](#)

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