Direct and inverse scattering for the forced non-linear Schrodinger equation with a potential on the half-line

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Abstract

Direct and inverse scattering problems are discussed for non-linear evolution equations when the linearized problem has non-constant coefficients. The case of the forced non-linear Schrodinger equation with a potential on the half-line will be considered in detail. In particular, this includes the construction of the scattering operator, and the unique reconstruction of the potential and the non-linearity.