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Title of the talk: Scattering for certain $\partial, \overline{\partial}$ systems.

Abstract: This is based mainly on joint works with C. Klein and N. Stoilov. In electrical impedance tomography and in the integrable Davey-Stewartson II equations there appears a scattering problem with $\partial, \overline{\partial}$ equations on $\mathbf{C}$, depending on a potential q and a spectral parameter $k \in \mathbf{C}$. We study the asymptotics of the solutions for large values of the spectral parameter k in the case when q has some limited Sobolev regularity and power decay, and in the case when q is the characteristic function of a strictly convex open set with smooth boundary.

In the latter case we discuss two term asymptotics for the reflection coefficient as well as numerical simulations showing the applicability of the asymptotic formulae.

We discuss some very preliminary work with C. Klein and M. Zerzeri about $\partial, \overline{\partial}$ systems with q replaced by the reflection coefficient, aiming at an asymptotic understanding of the inverse scattering method.