Recovery of singularities from fixed angle scattering data for biharmonic operator in dimensions two and three

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Abstract

The inverse fixed angle problem for operator $\Delta^2 u + V(x, |u|)u$ is considered in dimensions $n = 2, 3$. We prove that the difference between the inverse fixed angle Born approximation and the function $V(\cdot, 1)$ is smoother than the function V itself in some Sobolev scale. This allows us to deduce that the main singularities of the perturbation V can be reconstructed from the knowledge of the scattering amplitude with some fixed incident angle.