

An Improvement of Born Approximation Based on the Linear Sampling Method

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We consider the inverse scattering problem of determining the refractive index of an inhomogeneous body from measurements of the far-field pattern at fixed frequency. Under Born approximation conditions this problem can be reduced to a Fourier transform inversion problem with limited data. In this talk we describe a reconstruction approach where the linear sampling method is applied to obtain a priori information on the support of the scatterer and an out-of-band extrapolation procedure is performed by means of a projected iterative algorithm. Applications to two-dimensional examples show that this approach may provide notable super-resolution effects.