

# Abstract

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“An application of the factorization method for some inverse acoustic scattering problems”

We consider the inverse scattering problem of time-harmonic acoustic plane waves by mixed type scatterer. Such a scatterer is given as the union of a bounded impenetrable obstacle and a penetrable obstacle (inhomogeneous medium). For the purpose, we derive the factorization method of Kirsch, which is a sampling method for solving certain kinds of inverse problems where the shape and location of a domain have to be reconstructed. We introduce new results to reconstruct the shape and location of the mixed type scatterer by the factorization method. The main idea is to modify the original factorization method by using a priori known outer and inner estimations for a part of the mixed type scatterer.