

On Nonscattering Anisotropic Inhomogeneities

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Abstract: Nonscattering is a phenomenon that arises when no scattered waves can be observed in the exterior of, say, an inhomogeneity (scatterer) embedded in a homogeneous free space, when it is probed by an incident wave. It corresponds to the case when the far-field (or, relative scattering) operator has a nontrivial kernel. Recent work has shown the always-scattering property of isotropic scatterers with corners, as well as the regularity of isotropic scatterers allowing for nonscattering waves.

I will present recent work concerning the regularity of nonscattering (anisotropic) scatterers, assuming a nondegeneracy condition. It turns out that the anisotropy of the scatterer exhibits different features in scattering and nonscattering, compared to the isotropic case. I will give examples of nonscattering scatterers with corners, which, of course, do not satisfy the nondegeneracy condition.