Numerical simulation of iterative and functional-analytical reconstruction of a refractive-absorbing diffuser

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The paper presents the results of a numerical study of the functional-analytic [1,2] and iterative [3] algorithms for solving the two-dimensional problem of acoustic tomography of a refractive-absorbing heterogeneity. In contrast to the known works on modeling of the considered iterative algorithm [4], the recovery of a complex-valued scatterer function describing the sound speed perturbation and absorption is investigated. The obtained results demonstrate the capabilities of the iterative algorithm in the recovery of refractive-absorptive scatterers of medium strength and the advantages of the functional-analytical approach in the recovery of strong scatterers.

The reported study was funded by the Russian Science Foundation, project number 23-27-00271.