Reconstruction of obstacles immersed in an incompressible fluid

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Abstract

We consider the reconstruction of obstacles inside a bounded domain filled with an incompressible fluid. The flow of the fluid is assumed to be described by the stationary Stokes equation. The measurements are modelled by the associated Dirichlet-to-Neumann map which maps given Dirichlet data to the Cauchy forces of the fluid at the boundary. Our method relies on special complex geometrical optics solutions for the stationary Stokes equation with a variable viscosity.

This is a joint work with Gunther Uhlmann (University of Washington) and Jenn-Nan Wang (National Taiwan University)