

# An inverse problem for the transmission wave equation.

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joint work with  
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We consider a transmission wave equation in two embedded domains in  $\mathbb{R}^2$ , where the speed is  $a_1 > 0$  in the inner domain and  $a_2 > 0$  in the outer domain.

We prove a global Carleman inequality for this problem under the hypothesis that the inner domain is strictly convex and  $a_1 > a_2$ .

As a consequence of this inequality, the Lipschitz stability are obtained for the inverse problem of retrieving a stationary potential for the wave equation with Dirichlet data and discontinuous principal coefficient from a single time-dependent Neumann boundary measurement.

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