Dos Santos Ferreira, David; **Kenig, Carlos E.**; **Sjöstrand, Johannes**; **Uhlmann, Gunther**
On the linearized local Calderón problem. (English) Zbl 1198.31003
Math. Res. Lett. 16, No. 5-6, 955-970 (2009).

The authors prove the following localized version of the linear Calderón problem: If Ω is a connected bounded open subset of $\mathbb{R}^n$, $n \geq 2$, with smooth boundary, then the set of products of harmonic functions in $C^\infty(\overline{\Omega})$ which vanish on a closed proper subset $\Gamma \subsetneq \partial\Omega$ of the boundary is dense in $L^1(\Omega)$.

The proof rests on techniques from the microlocal analysis of analytic singularities of distributions, in particular on the Segal-Bargmann transform. In this context the exponential decay of the transform of an L^∞-function supported in the half-space is proved using properties of harmonic exponentials and the maximum principle, drawing on ideas from the proof of Kashiwara's Watermelon Theorem.

Reviewer: Nils Ackermann (México)

MSC:

31B20	Boundary value and inverse problems for harmonic functions in higher dimensions	Cited in **10** Documents
35R30	Inverse problems for PDEs	
78A30	Electro- and magnetostatics	
35J10	Schrödinger operator, Schrödinger equation	
35A27	Microlocal methods and methods of sheaf theory and homological algebra applied to PDEs	
35A22	Transform methods (e.g., integral transforms) applied to PDEs	
58J32	Boundary value problems on manifolds	

Keywords:

Dirichlet-to-Neumann map; inverse problems; harmonic exponentials; Watermelon Theorem; Segal-Bargmann transform; Calderon's problem

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