

INTERNATIONAL BIWEEKLY ONLINE SEMINAR ON ANALYSIS, DIFFERENTIAL EQUATIONS AND MATHEMATICAL PHYSICS

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

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Inverse problems for screens

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We study the inverse scattering from a screen with using only one incoming time-harmonic plane wave but with measurements of the scattered wave done at all directions. Especially we focus on the (2D)-case i.e. (inverse) scattering from an open bounded smooth curve.

Beside the inverse scattering problems we discuss also the inverse electrostatic problem. This corresponds to case where the wave number is set equal to zero. More exactly the new theorem proved in collaboration with P. Ola and E. Blåsten 2024 states that the Cauchy data on a circle C of one single function u that satisfies

- i) u is bounded and harmonic outside the screen $\Gamma \in \mathbb{R}^2$
- ii) u is continuous in \mathbb{R}^2 and vanishes on Γ

is enough to determine Γ uniquely.

*Seminar website: <https://msrn.sfedu.ru/sl>. The seminar uses Microsoft Teams online platform. Please send questions to ademp.seminar@gmail.com (Tatiana Andreeva, scientific secretary).

The seminar is organized by the coordinators Alexey Karapetyants and Vladislav Kravchenko within the activities of the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the OTHA research group in Operator Theory and Harmonic Analysis.



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