



ЮЖНЫЙ ФЕДЕРАЛЬНЫЙ УНИВЕРСИТЕТ
Региональный математический центр
SOUTHERN FEDERAL UNIVERSITY
Regional Mathematical Center
<https://rmc.sfedu.ru/>, Rostov-on-Don, Russia

International scientific online seminar on Analysis, Differential Equations and Mathematical Physics

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

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16 September 2021, 6 pm (GMT+3)

Pseudo-holomorphic functions and Dirichlet problems on planar domains with rectifiable boundary.

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On a simply connected plane domain with rectifiable boundary, we study Hardy-Smirnov spaces of pseudo holomorphic functions w satisfying $\bar{\partial}w = \alpha\bar{w}$ with square summable coefficient α . When the derivative of some (hence any) conformal mapping from the disk onto the domain satisfy the A_p condition for some $1 < p < \infty$, we show that the M. Riesz problem is solvable with a suitable definition of boundary values. This yields a well-posedness result for the conductivity equation $\nabla \cdot (\sigma \nabla u) = 0$ when $\sigma \geq 0$ and $\log \sigma$ lies in the Sobolev class $W^{1,2}$. We also discuss the necessity of the A_p condition on the derivative of the conformal map.

This is joint work with E. Pozzi and E. Russ.

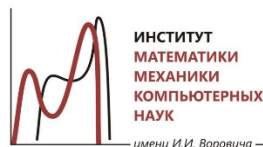
*Seminar website: <https://rmc.sfedu.ru/seminar>. The seminar uses Microsoft Teams online platform. Please send questions to pichugina@sfedu.ru (Olga Pichugina, scientific secretary).

The seminar is organized by 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 special Interest ISAAC-OTHA group in Operator Theory and Harmonic Analysis.

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