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

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

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Integrability properties of integral transforms via Morrey spaces

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We show that integrability properties of integral transforms with kernel depending on the product of arguments (which include in particular, popular Laplace, Hankel, Mittag-Leffler transforms and various others) are better described in terms of Morrey spaces than in terms of Lebesgue spaces. Mapping properties of integral transforms of such a type in Lebesgue spaces, including weight setting, are known. We discover that local weighted Morrey and complementary Morrey spaces are very appropriate spaces for describing integrability properties of such transforms. More precisely, we show that under certain natural assumptions on the kernel, transforms under consideration act from local weighted Morrey space to a weighted complementary Morrey space and vice versa, where an interplay between behavior of functions and their transforms at the origin and infinity is transparent. In case of multidimensional integral transforms, for this goal we introduce and use anisotropic mixed norm Morrey and complementary Morrey spaces.

*Seminar website: <https://rmc.sfedu.ru/seminar>. The seminar uses Microsoft Teams online platform. To join the seminar, please send a request 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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