

Fractional integral operators between Banach function lattices

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We study the generalized fractional integral transforms associated to a measure on a quasi-metric space. We give a characterization of those measures for which these operators are bounded between L_p -spaces defined on nonhomogeneous spaces. We provide necessary and sufficient conditions for some classes of integral operators to be bounded from Lorentz to Marcinkiewicz spaces. The boundedness of multilinear operators generated by quasi-concave functions between weighted Banach function lattices is established. These operators, in particular, generalize the Hardy–Littlewood and fractional maximal functions playing an important role in Harmonic Analysis. Under some general geometrical assumptions on Banach function lattices two-weight estimates for these operators are derived.

The talk is based on the recent papers [1-2].

References:

- [1] V. Kokilashvili, M. Mastlylo and A. Meskhi: Fractional integral operators between Banach function lattices, *Nonlinear Anal.* **117** (2015), 148–158.
- [2] V. Kokilashvili, M. Mastlylo and A. Meskhi: The multilinear maximal type operators in Banach function lattices, *J. Math. Anal. Appl.* **421**(2015), No.1, 656–668.