

WHY THE RIESZ TRANSFORMS ARE AVERAGES OF THE DYADIC SHIFTS?

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Abstract

The first author showed in [18] that the Hilbert transform lies in the closed convex hull of dyadic singular operators —so-called dyadic shifts. We show here that the same is true in any \mathbb{R}^n —the Riesz transforms can be obtained as the results of averaging of dyadic shifts. The goal of this paper is almost entirely methodological: we simplify the previous approach, rather than presenting the new one.

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