

DIRECTIONAL MAXIMAL FUNCTION ALONG THE PRIMES

LAURA CLADEK, POLONA DURCIK, BEN KRAUSE, AND JOSÉ MADRID

Abstract: We study a two-dimensional discrete directional maximal operator along the set of the prime numbers. We show existence of a set of vectors, which are lattice points in a sufficiently large annulus, for which the ℓ^2 norm of the associated maximal operator, with supremum taken over all large scales, grows with an epsilon power in the number of vectors. This paper is a follow-up to a prior work on the discrete directional maximal operator along the integers by the first and third author.

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