ALMOST EVERYWHERE CONVERGENCE OF A
SUBSEQUENCE OF THE NÖRLUND LOGARITHMIC
MEANS OF WALSH–KACZMARZ–FOURIER SERIES

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Abstract. The main aim of this paper is to prove that the maximal operator of a subsequence
of the (one-dimensional) logarithmic means of Walsh-Kaczmarz-Fourier series is of weak type
\((1,1)\). Moreover, we prove that the maximal operator of the logarithmic means of quadratical
partial sums of double Walsh-Kaczmarz-Fourier series is of weak type \((1,1)\), provided that
the supremum in the maximal operator is taken over special indices. The set of Walsh-Kaczmarz
polynomials is dense in \(L^1\), so by the well-known density argument the logarithmic means \(t_{2n}^\kappa f\)
converge a.e. to \(f\) for all integrable function \(f\).


Keywords and phrases: Walsh group, Walsh-Kaczmarz system, double Walsh-Kaczmarz-Fourier se-
ries, logarithmic means, a.e. convergence.

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