

ABSTRACT. Let (X, Σ, μ, T) be a measure-preserving dynamical system, and $\{I_n\}$ a sequence of intervals of nonnegative integers moving to infinity with increasing cardinality. Rosenblatt and Wierdl constructed optimal weights w_n for the averages of the form

$$\frac{1}{w_n} \sum_{k \in I_n} f \circ T^k$$

to converge a.e. in L_1 . In this paper, we provide modified versions of those weights to address the question of optimality for more general weighted averages and their differentiation analogues.