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MOVING AVERAGES OF SUPERADDITIVE PROCESSES WITH RESPECT TO L_p-CONTRACTIONS, $1 < p < \infty$

DOĞAN ÇÖMEZ

ABSTRACT. It is shown that the moving averages of superadditive processes with respect to positive L_p-contractions converge almost everywhere, $1 < p < \infty$. The dominated estimate for the moving averages of such superadditive processes is obtained from the dominated estimate for the moving averages of additive processes.

1. Introduction. When T is an operator induced by a measure preserving point transformation τ on a measure space X, Bellow, Jones and Rosenblatt proved the almost everywhere convergence of the ergodic moving averages along a class of sequences satisfying a "cone condition" [**4**]. In fact, using the Calderón transference principle, they showed that if the sequence satisfies the cone condition, then the associated maximal operator is weak type $(1,1)$ and strong type (p,p) for $1 < p < \infty$ which, in turn, was used to prove the almost everywhere convergence theorem. Later, Jones and Olsen [**8**] extended this strong type (p,p) maximal inequality to the operator setting, $1 < p < \infty$, and used it to generalize some of the results in [**4**]. After the work of Bellow, Jones and Rosenblatt, it was observed that the class of sequences that satisfy the cone condition are the same as the class of sequences later introduced by Akcoglu and Déniel [**1**], known as B-sequences (see the definition below).

In this paper our main aim is to extend the result of Jones and Olsen to the superadditive setting, namely to obtain the almost everywhere convergence of the "moving averages" of type

$$\frac{1}{r_n} T^{a_n} f_{r_n},$$

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