1020-37-252 **R. Daniel Mauldin*** (mauldin@unt.edu), Department of Mathematics, University of North Texas, Box311430, Denton, TX 76205, and **Zoltan Buczolich**. *Divergent Square Averages.* Preliminary report.

We show that the sequence of squares is L^1- universally bad: For each atomless standard probability space and aperiodic ergodic transformation T of the space, there is a nonnegative function f in L^1 such that the ergodic means taken along squares fails to converge in on a set of positive measure. The proof proceeds by showing that there is no weak (1,1) inequality. One can then apply the equivalence shown by Rosenblatt and Wierdl that a sequence is L^1 bad if and only if there is no such inequality. (Received August 29, 2006)