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Ciprian Demeter* (demeterc@indiana.edu), Department of Mathematics, Indiana University,
831 East 3rd Street, Bloomington, IN 47405. *On the Pointwise Ergodic Theorem along
squares*. Preliminary report.

We reprove Bourgain's Pointwise Ergodic Theorem for polynomial averages, in the case of totally ergodic systems, for bounded functions. The argument presented uses almost no Fourier analysis. (Received February 02, 2009)