

1086-05-2070

Anant Godbole* (godbolea@etsu.edu), **Sam Gutekunst**, **Vince Lyzinski** and **Yan Zhuang**.

Representation function of finite additive bases.

In 1990, Erdős and Tetali found an infinite set of integers S such that for each $k \geq 2$ and sufficiently large n , $r_k(n) = \Theta(\log n)$, where $r_k(n)$ is the number of ways to represent n as the sum of k numbers in S . Recently, Godbole et al. considered a finite version of the problem and found a threshold probability p_n for the emergence of an *additive basis*, i.e. a set S' for which $r_k(n) \geq 1$. By slightly increasing p_n we show that for $j \in [\alpha n, (k - \alpha)n]$, $r_k(j) = \Theta(\log n)$ with high probability, thus providing a finite version of the Erdős and Tetali theorem. (Received September 25, 2012)