1067-11-1872 **Chang Mou Lim*** (changmou.lim@yale.edu), P.O. Box 205578, New Haven, CT 06520-5578, and **Nicholas George Triantafillou** (ngtriant@umich.edu). *Random Additive 3-Bases & Sum-free Sets.* Preliminary report.

A set $A \subset \mathbb{Z}$ is an additive 3-basis for $B \subset \mathbb{Z}$ if given any $j \in B$, $j = x + y + z$, where $x, y, z \in A$. We create a random set A by choosing each integer in $[0, n]$ independently with identical probability p, and consider the threshold values of p for which A forms an additive 3-basis for $[n/2, 3n/2]$ as $n \to \infty$. This is found by approximating the distribution of the expected number of missing integers in the random sumset to a Poisson distribution, which is valid under appropriate values of p. The Stein-Chen method and Jansen's inequality are used critically in justifying our approximation. As a comparison, we also study threshold values of p for which random sumsets are sum-free. (Received September 22, 2010)