Yunfeng Hu (yunfeng.hu@wsu.edu), Department of Mathematics and Statistics, Washington State University, PO Box 643113, Pullman, WA 99163, and Enrique Alvarado* (ealvarado@math.wsu.edu), Enrique Alvarado, pullman, WA 99163. On the Measure of a Cantor Set Packing in $\mathbb{R}$.

Let $T$ be a subset of $\mathbb{R}^n$, and let $S$ and $B$ be two subsets in $\mathbb{R}^n$ such that for any $x$ in $S$, there exists an $r > 0$ for which $x + rT$ is a subset of $B$. How small (in measure) can $B$ be if we know the size of $S$?

Stein proved that if $n$ is greater than or equal to 3 and $T$ is a sphere centered at origin, then $S$ having positive measure implies that $B$ has positive measure. He showed this by using the spherical maximal operator. Later, Bourgain and Marstrand independently proved the result for $n = 2$.

However if $n = 1$ then the result is not true. We will show this by constructing a counterexample that involves the 1/3-Cantor set. (Received February 09, 2017)