1090-05-229 **Jeremy F Alm*** (alm.academic@gmail.com), 1101 W. College Ave., 821 W. Douglas, Jacksonville, IL 62650. *An infinite cardinal version of Gallai's Theorem for colorings of* $\mathbb{R}^n$.

Two central results in Euclidean Ramsey Theory, both of which go by the name "Gallai's Theorem", are as follows:

> **Gallai's Theorem on $\mathbb{Z}^n$:** Let S be a finite subset of $\mathbb{Z}^n$. Then any finite coloring of $\mathbb{Z}^n$ contains a monochromatic subset homothetic to S.

> **Gallai's Theorem on $\mathbb{R}^n$:** Let S be any finite subset of $\mathbb{R}^n$. Then any finite coloring of $\mathbb{R}^n$ contains a monochromatic subset homothetic to S.

In this talk we discuss the following strengthening of Gallai's result:

> Let n, $k \in \mathbb{Z}^+$, with $n > k$. Let $\mathcal{S}$ be an n-element subset of $\mathbb{R}^k$, whose points are not all contained in any $(k-1)$-dimensional hyperplane. If the points of $\mathbb{R}^k$ are colored in finitely many colors, then there exist $2^{\aleph_0}$ monochromatic subsets homothetic to $\mathcal{S}$.

We will briefly sketch the proof, which uses Gallai's Theorem on $\mathbb{Z}^n$ along with a partition of Euclidean Space. (Received March 02, 2013)