1102-05-79 **Maria Axenovich*** (maria.aksenovich@kit.edu) and **Torsten Ueckerdt**. *Density of range capturing hypergraphs.*

For a finite set X of points in the plane, a set S in the plane, and a positive integer k, we say that a k-element subset Y of X is captured by S if there is a homothetic copy S' of S such that $X \cap S' = Y$, i.e., S' contains exactly k elements from X. A k-uniform S-capturing hypergraph $H = H(X, S, k)$ has a vertex set X and a hyperedge set consisting of all k-element subsets of X captured by S. In case when $k = 2$ and S is convex these graphs are planar graphs, known as *convex distance function Delaunay graphs.*

We prove that for any $k \geq 2$, any X, and any convex compact set S, the number of hyperedges in $H(X, S, k)$ is at most $(2k-1)|X| + O(k^2)$. Moreover, this bound is tight up to an additive $O(k^2)$ term. This refines a general result of Buzaglo, Pinchasi and Rote stating that every pseudodisc topological hypergraph with vertex set X has $O(k^2|X|)$ hyperedges of size k or less. (Received July 17, 2014)