1009-05-92 **Dhruv Mubayi** and **Yi Zhao*** (yizhao@mathstat.gsu.edu), Department of Mathematics & Statistics, Georgia State University. *On the VC-dimension of Uniform Hypergraphs.*

In the early 70's, Sauer,Perles-Shelah, Vapnik-Chervonenkis independently proved that if a set system $\mathcal{F}$ on $[n]$ contains more than $\binom{n}{0} + \ldots + \binom{n}{d-1}$ sets, then there exists a *shattered* d-element set S of $[n]$, namely, $\{E \cap S : E \in \mathcal{F}\}$ contains all subsets of S. Using the algebraic method, Frankl and Pach showed that for r-uniform $\mathcal{F}$ ($r \geq d$), the same holds whenever $\mathcal{F} > \binom{n}{d-1}$ and conjectured that $\mathcal{F} > \binom{n-1}{d-1}$ suffices. But this was later disproved by Ahlswede and Khachatrian. In this talk, we show that if $d = 2^t + 1$ for positive integer t, then every d-uniform $\mathcal{F}$ on $[n]$ of size $\binom{n}{d-1} - \lg n$ forces a shattered d-element set. We also note that there are infinite many construtions achieving the same effect as the one of Ahlswede and Khachatrian. (Received August 08, 2005)