1058-05-103 **Tao Jiang*** (jiangt@muohio.edu), Department of Mathematics, Miami University, Oxford, OH 45056, and **Oleg Pikhurko** and **Zelealem Yilma**. *Set systems without a strong simplex.*

A *d-simplex* is a collection of $d+1$ sets such that every d of them have non-empty intersection and the intersection of all of them is empty. A *strong d-simplex* is a collection of $d+2$ sets $A, A_1, \ldots, A_{d+1}$ such that $\{A_1, \ldots, A_{d+1}\}$ is a d-simplex, while A contains an element of $\cap_{j\neq i} A_j$ for each i, $1 \leq i \leq d+1$.

Generalizing Chvátal's conjecture on d-simplices (which was proved by Frankl and Füredi for large n and later completely settled by Mubayi and Verstraëte) Mubayi and Ramadurai conjectured that if $k \geq d+1 \geq 3$, $n > k(d+1)/d$, and $\mathcal{F}$ a family of k-element subsets of an n-element set that contains no strong d-simplex, then $|\mathcal{F}| \leq \binom{n-1}{k-1}$ with equality only when $\mathcal{F}$ is a star. We prove their conjecture when $k \geq d+2$ and n is large.

Around the same time as we obtained our result, Füredi and Özkahya proved a stronger result concerning so-called a-clusters. While their approach employs an intensive use of a complex version of the Delta-system method developed in earlier papers, our approach uses stability but is otherwise elementary and self-contained. At the core of the proof is a simple but effective induction. (Received February 11, 2010)