1126-05-128 **Hongliang Lu** and **Xingxing Yu*** (yu@math.gatech.edu). *On rainbow matchings for hypergraphs.*

For any posotive integer m, let $[m] := \{1, \ldots, m\}$. Let n, k, t be positive integers. Aharoni and Howard conjectured that if, for $i \in [t]$, $\mathcal{F}_i \subset [n]^k := \{(a_1, \ldots, a_k) : a_j \in [n] \text{ for } j \in [k]\}$ and $|\mathcal{F}_i| > (t-1)n^{k-1}$, then there exist $M \subseteq [n]^k$ such that $|M| = t$ and $|M \cap \mathcal{F}_i| = 1$ for $i \in [t]$. We show that this conjecture holds when $n \geq 3(k-1)(t-1)$.

Let $n, t, k_1 \geq k_2 \geq \ldots \geq k_t$ be positive integers. Huang, Loh and Sudakov asked for the maximum $\Pi_{i=1}^t |\mathcal{R}_i|$ over all $\mathcal{R} = \{\mathcal{R}_1, \ldots, \mathcal{R}_t\}$ such that each $\mathcal{R}_i$ is a collection of k_i-subsets of $[n]$ for which there does not exist a collection M of subsets of $[n]$ such that $|M| = t$ and $|M \cap \mathcal{R}_i| = 1$ for $i \in [t]$ We show that for sufficiently large n with $\sum_{i=1}^t k_i \leq n(1-(4k \ln n/n)^{1/k})$, $\prod_{i=1}^t |\mathcal{R}_i| \leq \binom{n-1}{k_1-1}\binom{n-1}{k_2-1}\prod_{i=3}^t \binom{n}{k_i}$. This bound is tight. (Received January 09, 2017)