RAINBOW MATCHINGS FOR 3-UNIFORM HYPERGRAPHS

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Abstract: Kühn, Osthus and Treglown and, independently, Khan proved that if H is a 3-uniform hypergraph with n vertices such that $n \in 3\mathbb{Z}$ and large, and the minimum vertex degree of H is greater than $\binom{n-1}{2} - \binom{2n/3}{2}$, then H contains a perfect matching. Huang, Loh, and Sudakov showed that if, for $1 \leq i \leq t$, where $t < n/(3k^2)$, $F_i \subseteq \binom{[n]}{k}$ and $|F_i| > \binom{n}{k} - \binom{n-t+1}{k}$, then $\{F_1, \ldots, F_t\}$ admits a rainbow matching. We show that for $n \in 3\mathbb{Z}$ sufficiently large, if, for $i \in \{1, \ldots, n/3\}$, $F_i \subseteq \binom{[n]}{3}$ and $\delta_1(F_i) > \binom{n-1}{2} - \binom{2n/3}{2}$, then $\{F_1, \ldots, F_{n/3}\}$ admits a rainbow matching. This is joint work with Hongliang Lu and Xingxing Yu.