Rainbow matchings for 3-uniform hypergraphs

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 $\left(\frac{n-1}{2}\right) - \left(\frac{2^{n/3}}{2}\right)$, 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 $|F_i| > \binom{n}{k} - \left(\frac{n-t+1}{k}\right)$, 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 $\delta_i(F_i) > \left(\frac{n-1}{2}\right) - \left(\frac{2^{n/3}}{2}\right)$, then $\{F_1, \ldots, F_{n/3}\}$ admits a rainbow matching.

This is joint work with Hongliang Lu and Xingxing Yu.