2-edge-connected Fair Detachments of Hypergraphs

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A hypergraph $\mathcal{G}$ is a pair $(V,E)$ where $V$ is a finite set called the vertex set, $E$ is the edge multiset, where every edge is itself a multi-subset of $V$. This means that not only can an edge occur multiple times in $E$, but also each vertex can have multiple occurrences within an edge.

Intuitively speaking, an $\alpha$-detachment of $\mathcal{G}$ is a hypergraph obtained by splitting a vertex $\alpha$ into one or more vertices and sharing the incident edges among the subvertices. In this talk, I give necessary and sufficient conditions for the existence of a 2-edge-connected fair detachment of a given $k$-edge-colored hypergraph whose edges are of size at most 3. This provides (among other things) a 2-edge-connected factorization of the complete 3-uniform hypergraph.

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