

1108-05-570

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We consider when a given r -factorization of the complete uniform hypergraph on m vertices, K_m^h , can be extended to an s -factorization of K_n^h . The case of $r = s = 1$ was first posed by Cameron in terms of parallelisms, and solved by Häggkvist and Hellgren. We extend these results, which themselves can be seen as extensions of Baranyai's Theorem. For $r = s$, we show that the “obvious” necessary conditions, together with the condition that $\gcd(m, n, h) = \gcd(n, h)$ are sufficient. For $r < s$ we provide sufficient conditions. (Received January 20, 2015)