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*Cyclic decompositions of complete and complete multipartite uniform hypergraphs*

A decomposition of a complete uniform hypergraph is *cyclic* if the parts are permuted transitively by a permutation of the vertex set. If there are  $t$  parts in the decomposition, each part is called a *t-complementary hypergraph*. We characterize the cycle type of the associated permutations, and consequently determine the feasible orders of a  $t$ -complementary  $k$ -uniform hypergraph, and an algorithm for generating all of these structures of a given order. We also construct cyclic partitions of complete multipartite uniform hypergraphs.

Joint work with A. Pawel Wojda and Artur Szymanski, AGH University of Science and Technology, Krakow, Poland.