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*Near factorizations of complete graphs*

A  $w$ -near  $k$ -factor of a graph  $G$  on  $n$  vertices is a spanning subgraph of  $G$  with  $w$  vertices of degree 0 and  $n - w$  vertices of degree  $k$ . In this talk, we introduce the concept of a  $w$ -near  $k$ -factorization of a graph  $G$ , which is a decomposition of  $G$  into  $w$ -near  $k$ -factors. Thus, for example, a  $k$ -factorization is equivalent to a 0-near  $k$ -factorization, and a near 1-factorization is equivalent to a 1-near 1-factorization. We focus on  $w$ -near 2-factorizations of  $K_n$  and  $K_n - I$ ; when the near factors are required to be pairwise isomorphic, this may be viewed as a generalization of the Oberwolfach problem. We discuss some constructions of  $w$ -near 2-factorizations in which all cycles in the near factors have the same length.

Joint work with Peter Danziger.