

A New Labeling for Decomposing Complete Graphs into Bipartite Graphs

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Let G be a graph with an odd number of edges, m . If G is a subgraph of K_n and $n \equiv 0$ or $1 \pmod{m}$, then a G -decomposition of K_n may exist. In the 1960s, Alex Rosa introduced a new technique for constructing G -decompositions we now know as graph labeling. Since then, his labelings have been added to and generalized, but only address the cases $n \equiv 0$ or $1 \pmod{2m}$. In this talk, we introduce a new kind of labeling for bipartite graphs that addresses the cases $n \equiv m$ or $m + 1 \pmod{2m}$. Participants will leave the talk with a recipe card for constructing the full spectrum of G -decompositions of K_n for certain bipartite graphs G when m is a prime power.

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