

Decompositions of complete bipartite graphs into generalized prisms

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Abstract

Decompositions and factorizations of complete and complete bipartite graphs into regular subgraphs or factors are classical problems in graph theory. In particular, perfect one-factorizations and Oberwolfach problem are among the most popular. The case of cubic graphs has gained more attention only recently.

A *generalized prism*, or more specifically an $(0, j)$ -prism of order $2n$ (where n is even) is a cubic graph consisting of two cycles on vertices u_0, u_1, \dots, u_{n-1} and v_0, v_1, \dots, v_{n-1} respectively, joined by two types of spokes, namely the edges $u_1v_1, u_3v_3, \dots, u_{n-1}v_{n-1}$ and $u_0v_j, u_2v_{j+2}, \dots, u_{n-2}v_{j-2}$.

We will present some recent results on $(0, j)$ -prism factorizations and decompositions obtained in collaboration with Sylwia Cichacz, Mariusz Meszka, and Petr Kovar.

We will also show why one of the methods used for this problem works particularly well in Duluth, Minnesota.

Keywords: Graph decomposition, cubic graph, generalized prism.