

ABOUT THE DETERMINANT OF GRAPH WITH PERFECT MATCHING

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In 2022, Jaume and Molina introduced the FP-KE decomposition, see [1]. This is a structural decomposition of graphs in terms of flowers and posies. Flowers were introduced by Edmonds (1965) in the context of matching theory. Posies were introduced by Sterboul (1979) to characterize König-Egerváry graphs.

The FP-KE Decomposition of a graph breaks the graph into two disjoint subgraphs, one of which may be empty. It always yields a König-Egerváry subgraph, named the KE-part of the graph, and an FP-part, which is a subgraph where every vertex is in a flower or in a posy.

We show that the FP-KE Decomposition of graphs with perfect matchings is multiplicative with respect to the determinant: $\det(G) = \det(\text{FP}(G)) \cdot \det(\text{KE}(G))$.

Trabajo en conjunto con Daniel A. Jaume (Universidad Nacional de San Luis - IMASL - CONICET) y Cristian Pano (Universidad Nacional de San Luis).

Referencias

[1] D. Jaume and G. Molina, A new graph decomposition: the FP-KE Decomposition, submitted.