

Fractional Matching Preclusion for (Burnt) Pancake Graphs

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The matching preclusion number of a graph is the minimum number of edges whose deletion results in a graph that has no perfect matchings or almost perfect matchings. The fractional matching preclusion number generalizes this notion by requiring that the resulting graph have no fractional perfect matchings, which arise from the LP relaxation of the matching problem. Furthermore, the fractional strong matching preclusion number requires that the resulting graph have no fractional perfect matchings but allows the deletion of both edges and vertices. In this paper we obtain the fractional matching preclusion number and fractional strong matching preclusion number for two well-known families of graphs—the pancake graphs and burnt pancake graphs— and classify the optimal sets of edges and vertices.

Keywords: matching preclusion, fractional matching preclusion, strong matching preclusion, pancake graphs, burnt pancake graphs