

The f -matching game on a graph

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An f -factor of a graph G is a subgraph H of G such that $d_H(v) = f(v)$ for all $v \in V(G)$. An f -matching is a subgraph H such that $d_H(v) \leq f(v)$ for all $v \in V(G)$. We study a competitive version of f -matching, in which two players Max and Min alternately choose edges. The game continues until the selected edges form a maximal f -matching in G . Max wants the size of the final f -matching to be large; Min wants it to be small. The game f -matching number is the outcome under optimal play. We extend prior results on the case of game matching, where $f(v) = 1$ for all v , due to Cranston, Kinnersley, O, and West. In particular, we give upper and lower bounds on the game f -matching number and study how much the outcome can depend on which player moves first. The present work is joint with Jennifer Wise.