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Stable-II partitions of graphs

For a set of graphs Π , the STABLE-II problem asks whether a given graph G has an independent set S such that $G - S \in \Pi$. We systematically study the STABLE-II problem with respect to the speed (a term meaning size) of Π . We show that for all hereditary classes Π with a subfactorial speed of growth, STABLE-II is solvable in polynomial time. We then study factorial hereditary classes. We show that, contrary to a conjecture proposed in the literature, the complexity of STABLE-II is polynomial for nearly all minimal factorial hereditary classes Π .

Joint work with Konrad Dabrowski and Vadim Lozin.