Spanning trees with bounded degrees of vertices in a specified independent set

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Abstract

Given a graph G, a set $U \subseteq V(G)$, and sets $\{\alpha_v \mid v \in U\}$ and $\{\beta_v \mid v \in U\}$ of non-negative integers, it is known that the decision problem whether G contains a spanning tree T such that $\alpha_v \leq d_T(v) \leq \beta_v$ for all $v \in U$ is NP-complete. However, if U is an independent set of G, then we obtain a polynomial time algorithm for this problem and a characterization of its positive instances.