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1 Introduction

A graph is an ordered pair $G = (V, E)$ consisting of a finite nonempty set V of vertices and a set E of edges, where each edge is an unordered pair of vertices. A dominating set of $G = (V, E)$ is a set $D \subseteq V$ such that each vertex not in D has at least one neighbor in D . A paired-dominating set is a dominating set whose induced subgraph contains at least one perfect matching [1].

Raz and Safra prove that the dominating set problem has no polynomial-time $(c \log |V|)$ -approximation algorithms for some $c > 0$ unless $P = NP$ [3], Lin and Tu design an $O(E + V)$ -time algorithm for interval graphs and an $O(E(E + V))$ -time algorithm for circular-arc graphs [2].



References

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- [3] R. Raz and S. Safra. A sub-constant error-probability low-degree test, and a sub-constant error-probability PCP characterization of NP. In *Proceedings of the 29th Annual ACM Symposium on Theory of Computing*, pages 475–484, 1998.