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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] period, 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].

If have some algorithm A and any function $f : N- > N$, as long as A satisfy for any a graph G, then $A >> G$, and then A can output G paired dominating set, in addition A output paired dominating set weight, it will be G minimum paired dominating set weight $f(|V|)$ within, and we can says minimum paired dominating set problem satisfy $f(|V|)$-approximating.

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 *Pro-*

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