Characterization of Circular-Arc Overlap Graphs with Domination Number Two

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Abstract

A graph is a circular arc graph if it is the intersection graph of a finite set of arcs on a circle. A circular-arc overlap graph is a special case of circular arc graph; it is an overlap graph defined for a set of arcs on a circle. That is, there is one arc for each vertex of G and two vertices in G are adjacent in G if and only if the corresponding arcs intersect and one is not contained in the other. In this paper, we emphasize on characterizing circular-arc overlap graphs (CAOG) as partite graphs k2,2, k3,3, kn,n and k2,2,2, . . ,2. Furthermore, we do characterize circular-arc overlap graphs having any pair of vertices of the graph as a minimal dominating set in terms of the neighborhood of the arcs of the graph. Apart from that, we present an algorithm to check whether the given CAOG has every pair of vertices as minimal dominating set or not.

References

Index Terms

Computer Science  Applied Mathematics

Keywords
Circular-arc Overlap Graphs  Partite Graphs  Dominating Set  Minimal Dominating Set  Domination Number