

A poly(n) algorithm for testing the isomorphism of circular-arc graphs

ABSTRACT

A circular-arc graph X (shortly CA-graph) is the intersection graph where the base graph is a cycle, i. e. there exists a representation R from the set of vertices into the set of arcs of a cycle such that two vertices u, v are adjacent if and only if $R(u)$ and $R(v)$ intersect.

Every interval graph is a CA-graph, but the class of CA-graphs is much larger than that of interval graphs.

In the proposed talk we present an algorithm computing a tensor of integer invariants associated with each graph. For a CA-graph it provides a full set of invariants to solve the isomorphism problem. The complexity of the algorithm is $O(n^5 \log(n))$. The complexity of the isomorphism problem for CA-graphs was investigated at least since 1983, two fake proofs of polynomiality were published.

Joint work with I. Ponomarenko (POMI St. Petersburg) and P. Zeman (KAM MFF UK).