

On the computational efficiency of the spectral splitting algorithm for checking graph isomorphism

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Abstract

The article considers a heuristic algorithm for checking graph isomorphism. The algorithm is based on successive splitting of multiple eigenvalues of matrices associated with graphs: the matrices processed by the algorithm are the modifications of the graph adjacency matrices. The algorithm is based on successive perturbation of matrices and the solution of the corresponding systems of linear algebraic equations. The matrices are transformed into positive definite matrices, this allows to solve the systems of linear equations associated with them. The article proves computational efficiency of the algorithm in one of the fundamentally complicated situations for checking the graph isomorphism.

Keywords: spectral splitting, graph isomorphism, heuristic algorithm, matrix, linear algebraic equation.

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