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GRAPH SPECTRAL TECHNIQUES IN COMPUTER SCIENCES

Content :

We present a survey of graph spectral techniques used in computer sciences. The survey consists of description of particular topics from the theory of graph spectra independently of areas of computer science where they are used. We have described the applications of some important graph eigenvalues (spectral radius, algebraic connectivity, least eigenvalue etc.), eigenvectors (principal eigenvector, Fiedler eigenvector and other), spectral reconstruction problems, spectra of random graphs, Hoffman polynomial, integral graphs etc. However, for each described spectral technique we indicate fields where they are used (e.g. in modelling and searching Internet, in computer vision, data mining, multiprocessor systems, statistical databases, and in several other areas).

Primary authors : Prof. CVETKOVI■, Dragoš (University of Belgrade, Belgrade, Serbia)

Co-authors : Prof. SIMI■, Slobodan (Mathematical Institute, Belgrade)

Presenter : Prof. CVETKOVI■, Dragoš (University of Belgrade, Belgrade, Serbia)

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