Alfaro, Carlos A.; Valencia, Carlos E.; Vázquez-Ávila, Adrián

Digraphs with at most one trivial critical ideal. (English) [Zbl 1395.05066] Linear Multilinear Algebra 66, No. 10, 2036-2048 (2018).

Summary: Critical ideals generalize the critical group, Smith group and the characteristic polynomials of the adjacency and Laplacian matrices of a graph. We give a complete characterization of the digraphs with at most one trivial critical ideal. Which implies the characterizations of the digraphs whose critical group has one invariant factor equal to one, and the digraphs whose Smith group has one invariant factor equal to one.

MSC:
05C20 Directed graphs (digraphs), tournaments
05C50 Graphs and linear algebra (matrices, eigenvalues, etc.)
05E99 Algebraic combinatorics

Cited in 6 Documents

Keywords:
critical ideal; critical group; Smith group; Laplacian matrix; forbidden induced subgraph; Smith normal form

Software:
nauty

Full Text: DOI arXiv

References:
[7] Rushanan, JJ, Topics in integral matrices and abelian group codes [dissertation], (1986), ProQuest LLC, California Institute of Technology, Ann Arbor (MI)


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.