Ding, Guoli; Zang, Wenan
Packing circuits in matroids. (English) Zbl 1188.90176

The aim of the paper is to present a characterization of the matroids that satisfy a given minimax relation concerning packing circuits in matroids, namely a characterization of all good matroids. The proposed characterization contains a solution to the 2-edge-connected subgraph polyhedra problem introduced by Cornuèjols et al. in 1985 and solved by D. Vandenbussche and G. L. Nemhauser [J. Comb. Optim. 9, No. 4, 357–379 (2005; Zbl 1093.90051)].

The authors define as well the notion of good graphs and establish as well several characterizations of the good matroids and good graphs: a structural characterization of the good matroids based on decomposition, the property that being a good graph is preserved under summing operation, the equivalence between the truncatable graphs and good graphs.

The proposed approach is different from those already developed in the literature.

Reviewer: Petrica Pop (Baia Mare)

MSC:
90C10 Integer programming
90C27 Combinatorial optimization
90C57 Polyhedral combinatorics, branch-and-bound, branch-and-cut
05B35 Combinatorial aspects of matroids and geometric lattices
05B40 Combinatorial aspects of packing and covering

Keywords:
matroid; circuit; polyhedron; total dual integrality; traveling salesman problem

Full Text: DOI Link

References:

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