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The membership problem in jump systems. (English) Zbl 0884.05028

Summary: A jump system is a set of lattice points satisfying a certain exchange axiom. This notion was introduced by A. Bouchet and W. H. Cunningham [SIAM J. Discrete Math. 8, No. 1, 17-32 (1995; Zbl 0821.05010)], as a common generalization of (among others) the sets of bases of a matroid and degree sequences of subgraphs of a graph. We prove, under additional assumptions, a min-max formula for the distance of a lattice point from a jump system. The conditions are met in the examples, and so our formula contains, as special cases, Tutte's $f$-factor theorem and Edmond matroid intersection theorem.

MSC:
05B35 Combinatorial aspects of matroids and geometric lattices
05C70 Edge subsets with special properties (factorization, matching, partitioning, covering and packing, etc.)

Keywords:
jump system; lattice points; exchange axiom; min-max formula; Tutte's $f$-factor theorem; Edmond matroid intersection theorem

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References:

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