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Counting sets of lattice points in the plane with a given diameter under the Manhattan and Chebyshev distances. (English) Zbl 1395.68277  

Summary: In this paper we present new algorithms for counting the sets of lattice points in the plane whose diameter is a given value $D$, under the Manhattan ($L_1$) and Chebyshev ($L_\infty$) distances. We consider two versions of the problem: counting all sets within a given lattice $U \times V$, and counting all sets that are not equivalent under translations.

MSC:

68U05 Computer graphics; computational geometry (digital and algorithmic aspects)

Keywords:
lattice points; Chebyshev distance; Manhattan distance; diameter