Ageev, A. A.; **Kel'manov, A. V.**; **Pyatkin, A. V.**

Complexity of the weighted max-cut in Euclidean space. (Russian, English) Zbl 1324.05188

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Summary: The max-cut problem is considered in an undirected graph whose vertices are points of a q-dimensional Euclidean space. The two cases are investigated, where the weights of the edges are equal to (i) the Euclidean distances between the points and (ii) the squares of these distances. It is proved that in both cases the problem is NP-hard in the strong sense. It is also shown that under the assumption $P \neq NP$ there is no fully polynomial time approximation scheme (FPTAS).

MSC:

05C85 Graph algorithms (graph-theoretic aspects)
68Q17 Computational difficulty of problems (lower bounds, completeness, difficulty of approximation, etc.)
05C22 Signed and weighted graphs

Keywords:

cut; Euclidean space; NP-hard problem

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