
Zbl 444.52008
Erdős, Paul; Pach, János
On a problem of L. Fejes Toth. (In English)
Discrete Math. 30, 103-109 (1980). [0012-365X]

Let $0 \leq x_1 \leq x_2 \leq x_3 \leq \dots$ be a sequence of real numbers, $\lim x_i = +\infty$. The authors prove that if $\sum_i l/x_i^{n-k} = +\infty$ then there exists a point-system $P = \{z_1, z_2, \dots\}$ in the n-dimensional space $\mathbb{E}^n$, for which $|z_i| = x_i$ holds ($i = 1, 2, \dots$), and any k- dimensional plane comes arbitrarily near to P. this result is best possible in the sense that if $P\{z_1, z_2, \dots\}$ is a point-system satisfying $\sum_i l/|z_i|^{n-k} < +\infty$ then for every $C > 0$ there exists a k- dimensional plane in $BbbE^n$, whose distance from all members of P is at least C. A generalization is also proved. This settles a problem of *L. Fejes Tóth* [Mat. Lapok 25 (1974), 13-20 (1976; Zbl 359.52010)].

Classification:
52A37 Other problems of combinatorial convexity
52A40 Geometric inequalities, etc. (convex geometry)

Keywords:
countable point-system in E^2; plane comes arbitrarily near to P