Seminar on Combinatorial Computing
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365 Fifth Avenue, New York

An Erdős-Szekeres type problem in the plane

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Abstract

The Erdős–Szekeres convex polygon theorem asserts that among sufficiently many points, in general position in the plane, one can always find the vertices of a convex n-gon. In this talk we survey some results and intriguing open problems related to this theorem, and study in detail the following problem:

Let $f(k,n)$, $n \geq k \geq 3$, denote the smallest positive integer such that any set of $f(k,n)$ points, in general position in the plane, contains n points whose convex hull has at least k vertices.

We give lower and upper estimates on $f(k,n)$, both in the form $c_1kn + 2^{c_2k}$, obtained together with Gyula Károlyi.

For further information contact Janos Pach at pachcims.nyu.edu, or visit our website: http://cs.gc.cuny.edu/~pach/