Seminar on Combinatorial Computing
September 28, Wednesday, 6:30 p.m.
Room 6417, Graduate Center
365 Fifth Avenue, New York

The Halving Line Problem

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Abstract

More than thirty years ago, Erdős, Lovász, Simmons, and Straus raised the following question: For even n, what is the maximum number of distinct ways in which a set of n points in general position in the plane can be cut into two halves, each of cardinality $n/2$? This problem turned out to play an important role in the analysis of many geometric algorithms. The best known upper bound, $O(n^{4/3})$, is due to Tamal Dey. From the other direction, Géza Tóth found a construction establishing an $\Omega(ne^{\sqrt{\log n}})$ lower bound. We present a simplified construction, recently found by Gabriel Nivasch (Tel Aviv University), that leads to the same bound, and sketch the history of the problem.

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or visit our website
http://www.math.nyu.edu/~pach/public_html/combinatorics_seminar.html