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Abstract
Separators in Geometric Graphs

Let a, b be real numbers such that $0 < a < b$ and d a positive integer. A graph $G = (V, E)$ is said to be a *d-dimensional a-b-graph* if there is a function $f : V \to \mathbb{R}^d$ such that

- $\|f(x) - f(y)\|_2 \geq a$ for all distinct vertices $x, y \in V$

- $\|f(x) - f(y)\|_2 \leq b$ for all edges $\{x, y\} \in E$.

Here, $\|x\|_2$ denotes the euclidean norm in $\mathbb{R}^d$.

In my talk I will present a separation result for d-dimensional a-b-graphs in the spirit of the planar separator theorem of Lipton and Tarjan [1]. The result is related to a similar result by Linial, London and Rabinovich [2] from 1995.

[1] Lipton, R., Tarjan, R.E., A separator theorem for planar graphs, SIAM Journal on Applied Mathematics, 36 (2) 615-627 (1979).

[2] Linial, N., London, E., and Rabinovich, Y. The geometry of graphs and some of its algorithmic applications. Combinatorica 15, 215–245 (1995).