

COMBINATORICS
COLLOQUIUM

Robust sublinear expanders

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Abstract: Expander graphs are perhaps one of the most widely useful classes of graphs ever considered. In this talk, we will focus on a fairly weak notion of expanders called sublinear expanders, first introduced by Komlós and Szemerédi around 25 years ago. They have found many remarkable applications ever since. In particular, we will focus on certain robustness conditions one may impose on sublinear expanders and some applications of this very recent idea, which include: - recent progress on one of the most classical decomposition conjectures in combinatorics, the Erdős-Gallai Conjecture, - essentially tight answer to the classical Erdős unit distance problem in "almost all" real normed spaces of any fixed dimension and - Rainbow Turan problem for cycles, raised by Keevash, Mubayi, Sudakov and Verstraete, including an application of this result to additive number theory.

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