

Lecture Hall **M1**, 4:00 pm, 13 March, 2024

Speaker: **Matija Bucić** (Princeton University), <https://sites.google.com/princeton.edu/matija-bucic>

Title: **Robust sublinear expanders**

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 30 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 idea, which include:

- recent progress on the classical Erdős-Gallai cycle decomposition conjecture,
- essentially tight answer to the classical Erdős unit distance problem for "most" real normed spaces, and
- an asymptotic solution to the rainbow Turán problem for cycles, raised by Keevash, Mubayi, Sudakov and Verstraete, with an interesting corollary in additive number theory.