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**UNIVERSITÄT
HEIDELBERG**
ZUKUNFT
SEIT 1386

STRUCTURES JOUR FIXE

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“An introduction to expanders”

June 24, 2022 1:30 PM

**HYBRID: Great lecture hall in Philosophenweg 12 and
Zoom. Meeting ID: 935 6549 3662, Code: 928036
Contact: office@structures.uni-heidelberg.de**



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ABSTRACT

Expanders are families of objects (graphs, for example) having a prescribed local geometry, with the property that the frequencies of vibration do not decrease when the object's size increases. This is a priori counter-intuitive: we expect in principle that large objects have lower vibration frequencies. The existence of expanders is not at all obvious, and is linked to the existence of non-Euclidean geometries. We know that if we construct an object "at random", it will very often have this property. The topic has been very much studied in mathematics for the last 30 years, but an ever-present question is to find the precise numerical value of the fundamental frequency of these families of expanders. The presentation will be aimed at non-specialists.

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