
THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Geometric Functional Analysis and Probability Seminar

Room 261 ,Ziskind Building
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Metric distortion between random finite subsets of the interval

Abstract:

Consider a random finite metric space X given by sampling n points in the unit interval uniformly, and a deterministic finite metric space U given by placing n points in the unit interval at uniform distance. With high probability, X will contain some pairs of points at distance roughly $1/n^2$, so any bijection from X to U must distort distances by a factor of roughly n . However, with high probability, two of these random spaces, X_1 and X_2 , have a bijection which distorts distances by a factor of only about $n^{2/3}$. The exponent of $2/3$ is optimal.