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

Room 261 ,Ziskind Building
on Thursday, May 07, 2015at 11:05

Ehud FriedgutWeizmann Institute of Science

An information theoretic proof of a hypercontractive inequality

Abstract:

In the famous KKL (Kahn-Kalai-Linial) paper of 1988 the authors "imported" to combinatorics and theoretical computer science a hypercontractive inequality known as Beckner's inequality (proven first, independently, by Gross and Bonami). This inequality has since become an extremely useful and influential tool, used in tens of papers, in a wide variety of settings. In many cases there are no proofs known that do not use the inequality.

In this talk I'll try to illuminate the information theoretic nature of both the inequality and its dual, touch upon a proof of the dual version from about a decade ago, (joint with V. Rodl), and a fresh (and unrelated) information theoretic proof of the primal version.

No prior knowledge will be assumed regarding discrete Fourier analysis, Entropy, and hypercontractivity.