מכון ויצמן למדע

# THE WEIZMANN INSTITUTE OF SCIENCE

## FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Geometric Functional Analysis and Probability Seminar

Room 290C ,Ziskind Building
on Thursday, Jun 15, 2017
at 11:15

Piotr Nayar
Technion

## Gaussian mixtures with applications to entropy inequalities and convex geometry

Abstract:

We say that a symmetric random variable X is a Gaussian mixture if X has the same distribution as YG, where G is a standard Gaussian random variable, and Y is a positive random variable independent of G. In the first part of the talk we use this simple notion to study the Shannon entropy of sums of independent random variables. In the second part we investigate, using Gaussian mixtures, certain topics related to the geometry of B_p^n balls, including optimal Khinchine-type inequalities and Schur-type comparison for volumes of section and projections of these sets. In the third part we discuss extensions of Gaussian correlation inequality to the case of p-stable laws and uniform measure on the Euclidean sphere. Based on a joint work with Alexandros Eskenazis and Tomasz Tkocz.