On improvement of the concavity of convex measures under symmetry assumptions

Arnaud Marsiglietti (Université Paris-Est Marne-la-Vallée)

Abstract

The Brunn-Minkowski inequality, which asserts that for every compact subsets A, B of $\mathbb{R}^n$ and for every $\lambda \in [0,1]$, one has $Vol((1-\lambda)A + \lambda B)^{1/n} \geq (1-\lambda)Vol(A)^{1/n} + \lambda Vol(B)^{1/n}$, is a fundamental inequality in geometry. Very recently, it has been shown by Gardner and Zvavitch that the Gaussian measure satisfies a Brunn-Minkowski type inequality when restricted to symmetric sets. In this talk, we generalize this result to more general measures called convex measures, which include the log-concave ones, i.e. measures with log-concave density. We will also discuss other assumptions that permit one to establish Brunn-Minkowski type inequalities for convex measures