The effect of dimensionality on the stability in the Brunn-Minkowski inequality: A blessing or a curse?

Ronen Eldan
Tel Aviv University

A joint work with Bo'az Klartag

We prove stability estimates for the Brunn-Minkowski inequality for convex sets. Unlike existing stability results, our estimates improve as the dimension grows. In particular, we obtain a non-trivial conclusion in high dimensions already when
$$ Vol_n \left(\frac{K + T}{2} \right) \leq 5 \sqrt{ Vol_n(K) Vol_n(T) }. $$ Our results are equivalent to a {\it thin shell} bound, which is one of the central ingredients in the proof of the central limit theorem for convex sets.