

# EMPIRICAL FORMS OF ISOPERIMETRIC INEQUALITIES FOR CONVEX SETS

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ABSTRACT. I will discuss randomized versions of classical inequalities for convex sets such as the Brunn-Minkowski inequality and Bieberbach (or isodiametric) inequality. One can view these as global inequalities that arise through random approximation procedures in which stochastic dominance holds. By laws of large numbers, these versions recover the classical inequalities. I will discuss when such stochastic dominance arises and applications to small deviation probabilities for operator norms of random matrices and norms of random vectors.