

Impact of Asymmetry in Convex Geometry

Katherina von Dichter (TU München)

The arithmetic-harmonic mean inequality can be generalized for convex sets, considering the intersection, the harmonic and the arithmetic mean, as well as the convex hull of two convex sets. We study those relations of symmetrization of convex sets, i.e., dealing with the means of some convex set C and $-C$. We determine the dilatation factors, depending on the asymmetry of C , to reverse the containments between any of those symmetrizations, and tighten the relations proven by Firey and show a stability result concerning those factors near the simplex.