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On Rogers-Shephard type inequalities for (n-1)-dimensional volumes

The difference body $K - K$ of a convex body $K \in \mathbb{R}^n$, formed by taking the Minkowski sum of K and $-K$, has been extensively studied, notably following the conjectured Rogers-Shephard inequality, $V_n(K-K) \leq \binom{2n}{n} V_n(K)$, with equality if and only if K is a simplex. Although this inequality holds for n-dimensional volumes, very little is known about the upper bound for the $(n-1)$-dimensional volume of $K - K$. In this talk, we first introduce some preliminaries on convex analysis, and discuss our asymptotic upper bound for $\frac{V_{n-1}(K-K)}{V_{n-1}(K)}$, supported by estimates for some classes of polytopes and nonsmooth bodies in $\mathbb{R}^3$.