

1104-52-257

Susanna Dann, Grigoris Paouris and Peter Pivovarov* (pivovarovp@missouri.edu).

Functional analogues of Busemann-type inequalities. Preliminary report.

Busemann's intersection inequality concerns central hyperplane sections of a convex body $K \subset \mathbb{R}^n$ and can be stated as

$$\int_{S^{n-1}} |K \cap \theta^\perp|^n d\sigma(\theta) \leq \frac{\omega_{n-1}^n}{\omega_n^{n-1}} |K|^{n-1};$$

equality holds only for origin-symmetric ellipsoids. Here $|\cdot|$ denotes Lebesgue measure, ω_n is the volume of the Euclidean ball B_2^n , S^{n-1} is the sphere, equipped with the Haar probability measure σ . I will discuss functional forms of the latter inequality and its various generalizations. Examples include the analogue for k -dimensional sections $|K \cap E|$, where E is an element of the Grassmannian manifold $G_{n,k}$ of k -dimensional linear subspaces of \mathbb{R}^n , due to Busemann-Straus and Grinberg, as well as the related affine versions due to Schneider. (Received September 02, 2014)