1125-52-537 **S Brazitikos**, **S Dann*** (susanna.dann@tuwien.ac.at), **A Giannopoulos** and **A Koldobsky**.
On the average volume of sections of convex bodies.

The average section functional $\mathrm{as}(K)$ of a centered convex body in $\mathbb{R}^n$ is the average volume of the central hyperplane sections of K:

$$\mathrm{as}(K) = \int_{S^{n-1}} |K \cap \xi^{\perp}|\, d\sigma(\xi).$$

We study the question if there exists an absolute constant $C > 0$ such that for every n, for every centered convex body K in $\mathbb{R}^n$ and for every $1 \leq k \leq n-1$,

$$\mathrm{as}(K) \leq C^k |K|^{\frac{k}{n}} \max_{E \in \mathrm{Gr}_{n-k}} \mathrm{as}(K \cap E).$$

We observe that the case $k = 1$ is equivalent to the hyperplane conjecture. We show that this inequality holds true in full generality if one replaces C by CL_K or $Cd_{\mathrm{ovr}}(K, \mathcal{BP}_k^n)$, where L_K is the isotropic constant of K and $d_{\mathrm{ovr}}(K, \mathcal{BP}_k^n)$ is the outer volume ratio distance from K to the class $\mathcal{BP}_k^n$ of generalized k-intersection bodies. We also compare $\mathrm{as}(K)$ to the average of $\mathrm{as}(K \cap E)$ over all k-codimensional sections of K. We examine separately the dependence of the constants on the dimension in the case where K is in some of the classical positions as well as the natural lower dimensional analogue of the average section functional. (Received September 06, 2016)