Short Reports

THE INTERSECTION OF STRICTLY CONVEX SETS ON THE SPHERE OF S^N

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We study convex sets $M \leq S^n$, where S^n is an n-dimensional sphere.

The set $M \leq S^n$ is strictly convex [1] when it doesn't contain diametrically opposite points of the sphere and with any pair of points it contains a small arc of a great or a certain (definable) circle.

We prove the following

Theorem. Let there exists the set of closed strictly convex sets $A = \{A_1, ..., A_m\}$, $m \geq n+1$ such that 1) $\bigcap A = \varnothing$, 2) for all sets $B \subseteq A$ s.t. $|B| = n+1$ and $\bigcap B \neq \varnothing$ and for all natural numbers k satisfying conditions $n+2 \leq k \leq m-1$ minimal number of subsets $P \subseteq A$, $|P| = k$, $\bigcap P \neq \varnothing$ is equal to C_{m-n-1}^{k-n-1}, so maximal number of subsets A, containing k elements with the empty intersection is $C_m^k - C_{m-n-1}^{k-n-1}$.

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