

המחלקה למתמטיקה, בן-גוריון

קולוקוויום

ביום שלישי, 14 ביוני, 2016

בשעה 14:30 – 15:30

ב-101 Math

ההרצאה

Debrunner Hadwiger the on bounds Improved numbers

חינתן על-ידי

(BGU) Smorodinsky Shakhar

תקציר: The classical Helly's theorem states that if a family of compact convex sets in \mathbb{R}^d has the property that every subfamily of size at most $d+1$ has a non-empty intersection, then the whole family has a non-empty intersection. Debrunner and Hadwiger (1957) generalized Helly's theorem to attempt an In result celebrated in later years. It was proved that a conjecture posed by Alon and Kleitman: For any p, q and constant $C=C(p, q, d)$ exists there $d < q \leq p$. For every family of compact convex sets, if C of them intersect, then some members p of the family can be pierced by a closed ball of radius q . Debrunner and Hadwiger showed that suffices. $C=p-q+1$

and $C=O(p^{d^2+d})$, bound huge a yields Kleitman and Alon of proof The
open wide a remains C possible minimal the on bounds upper sharp providing
problem.

all for C on bound known best the of improvement an show we talk this In
the all C reduce we q, of values of range wide a for particular, In (p,q) . pairs
tight near first the is This $p-q+1 \leq C \leq p-q+2$. bound optimal almost the to way
theorem. Hadwiger-Debrunner 1957 the since C of estimate
Tardos. Gabor and Keller Chaya with work Joint