TECHNISCHE UNIVERSITÄT WIEN
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E I N L A D U N G

im Rahmen des Seminars in Geometric Analysis and Physics
(GAP Seminar)

zum Vortrag
von

Felix Dorrek

(Institute of Discrete Mathematics and Geometry, T.U. Wien)

über

„The Class of j-Projection Bodies“

Zeit: Donnerstag, 21.01.2016, 11:00

Ort: Arbeitsgruppe Gravitation, Seminarraum A,
Währinger Straße 17, 2. Stock

gez.: M. Bauer (Fak. Math, T.U.)
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The Class of j-Projection Bodies

Felix Dorrek
(joint work with Franz Schuster)

In convex geometry there exist a number of ways to analyticly describe a convex body in $\mathbb{R}^n$. Most common is the use of the support function but there are interesting alternatives. By a theorem of Aleksandrov an origin symmetric convex body (of dimension at least $j+1$) is uniquely determined by its j-th projection function

$$E \mapsto vol_j(K|E),$$

where E is a j-dimensional subspace of $\mathbb{R}^n$. This fact invites the study of classes of convex bodies based on the properties of their projection functions.
Generalizing Minkowski's classical notion of projection bodies of convex bodies we call a convex body K the j-projection body of another convex body L if

$$vol_j(K|E^{\perp}) = vol_{n-j}(L|E),$$

for all $(n-j)$-dimensional subspaces E.
In contrast to the dual concept of j-intersection bodies very little is known about the class of j-projection bodies. A fundamental Fourier-analytic characterization result for j-intersection bodies turned out to be important for further understanding of that class. Here we discuss a dual version of this theorem for j-projection bodies describing them in terms of their area measures.