

Analysis and Probability Seminar

Tuesday, February 2, 2016 at 3:00 p.m. in Yost 306

Speaker: Olaf Mordhorst, PhD Student, University of Kiel

Title: Affine invariant points

Abstract: An affine invariant point p is a continuous map from the set of d -dimensional convex bodies to \mathbb{R}^d such that for every affine linear and invertible map T and every convex body C we have $p(T(C)) = Tp(C)$. As classical examples of affine invariant points we may think of the centroid, the Santaló point, the center of the John-ellipsoid and the center of the Loewner ellipsoid. The set of affine invariant points of a convex body is the set of values of affine invariant points on this convex body.

In this talk we present a proof of a conjecture of B. Grünbaum. The conjecture states that the set of affine invariant points of a convex body equals to the set of points in \mathbb{R}^d which are invariant under all symmetries of a convex body. The second half of the talk is dedicated to some consequences of this conjecture.