

Fixed Points of mean section operators

Leo Brauner

Technische Universität Wien

In this talk, we characterize rotation intertwining bounded linear maps from $C(\mathbb{S}^{n-1})$ to $C^2(\mathbb{S}^{n-1})$ by the mass distribution of the spherical Laplacian of the kernel function on small polar caps. Using this characterization, we show that every continuous, homogeneous, translation invariant, rotation equivariant Minkowski valuation Φ that is weakly monotone maps the space of convex bodies with a C^2 support function into itself.

As an application, we show that if Φ is a mean section operator, then Euclidean balls are its only fixed points in some C^2 neighborhood of the unit ball. Our approach unifies and extends previous results by M. Ivaki (2017) and O. Ortega-Moreno and F. Schuster (2021). This is joint work in progress with O. Ortega-Moreno.