Jonas Knörr (TU Wien)

Translation equivariant curvature measures on convex functions and Monge-Ampère-type operators

Abstract: The Monge-Ampère measure plays a very important role in many geometric problems arising in differential and convex geometry. On the space of convex functions, one may consider this functional as a continuous, dually epi-translation invariant valuation with values in the space of signed Radon measures that satisfies certain equivariance properties and a locality condition. We show that the Monge-Ampère measure is the unique simple valuation in this class of functionals, which we will call translation equivariant curvature measures. We then use this characterization of the Monge-Ampère measure to obtain a characterization of arbitrary translation equivariant curvature measures and give a simple geometric construction of these functionals.