

Jan Kotrbaty (Goethe-Universität Frankfurt)

Hodge-Riemann relations for valuations

Abstract: In geometry, valuations are finitely additive measures on the space of convex bodies. A central structure in the modern valuation theory is the Alesker product of smooth, translation-invariant valuations. Among other properties, the product satisfies a Poincaré-type duality and the hard Lefschetz theorem. In this talk, recent joint work with Thomas Wannerer will be discussed that shows that even a version of Hodge-Riemann relations holds in the valuation algebra and that it encompasses geometric inequalities between mixed volumes of convex bodies.