

Daniel Hug
KIT Karlsruhe

Integral geometry of tensorial curvature measures and applications

In various settings, integral-geometric formulas have been thoroughly studied, partly in view of applications in stochastic geometry. In recent years, integral-geometric formulas for tensor valuations and their local generalizations have come into focus. We describe new intersectional kinematic and Crofton formulas for tensor valuations and (generalized) tensor-valued curvature measures (joint work with Jan Weis). The structural understanding of these formulas has been prepared by joint work with Rolf Schneider on local tensor valuations, joint work with Andreas Bernig on translation invariant tensor valuations, and is connected to various other contributions. While most of these use tools from Fourier analysis, representation theory, differential geometry or the theory of valuations, we follow a more direct approach.