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On some classes of sets admitting curvature measures

Joint with Dušan Pokorný and Luděk Zajíček

Federer (1959) introduced curvature measures and proved the Gauss-Bonnet formula and principal kinematic formula for sets with positive reach (PR sets), generalizing simultaneously convex bodies and C^2 smooth domains. Recently, the same has been achieved for a larger class of WDC sets defined by means of DC functions (Fu et al., arXiv:1505.03388). In this talk we present some properties of the classes of WDC sets and compare them with those of PR sets. For example, it can be shown that the boundary of a WDC (PR) set can be covered by locally finitely many DC (semiconcave) surfaces. Another result states that if a compact WDC set has topological dimension k then it can be covered by finitely many k -dimensional DC surfaces.