

“Affine” isoperimetric inequalities in real space forms

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In this talk we discuss a new line of research dealing with the problem to understand which *affine* constructions and isoperimetric inequalities from flat space \mathbb{R}^n allow for generalizations to other spaces of, say, constant curvature (then no longer compatible with affine transformations, but the isometry group of the respective space). The origins of these investigations go back to a paper by F. Gao, D. Hug, and R. Schneider from 2003 who established a counterpart of the famous Blaschke-Santaló inequality in spherical space. In our presentation we will focus on the very recent progress in the generalization of other affine invariants (such as Blaschke’s affine surface area or centroid bodies) and their related inequalities. In order to keep the exposition sufficiently succinct, we will restrict our considerations mostly to n -dimensional spherical space, even though some of the results discussed were also treated in hyperbolic space or even more general settings.