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Santaló's Problem and Minkowski-Type Inequalities in Cartan-Hadamard Three-Manifolds

The classical Minkowski inequality states that spheres minimize total mean curvature among convex surfaces of prescribed area in Euclidean three-space. In hyperbolic space, the corresponding problem, posed by L. A. Santaló, exhibits a richer geometry. In this talk, we will survey Minkowski-type inequalities in Cartan–Hadamard three-manifolds and present a refinement of Ghomi–Spruck's inequality. We will then discuss Santaló's minimization problem and recent results on the geometry of its minimizers.