

Publicacions més rellevants de la línia de recerca:
Geometria Integral

Referència: Solanes, G. Integral geometry and the Gauss-Bonnet theorem in constant curvature spaces. *Trans. Amer. Math. Soc.* **358(3)** (2006), 1105–1115 (electronic).

Abstract: We give an integral-geometric proof of the Gauss-Bonnet theorem for hypersurfaces in constant curvature spaces. As a tool, we obtain variation formulas in integral geometry with interest in its own.

Referència:

Gallego, E.; Reventós, A.; Solanes, G. and Teufel, E., Width of convex bodies in spaces of constant curvature. *Manuscripta Math.* **126 (1)** (2008), pp. 115–134.

Abstract:

We consider the measure of points, the measure of lines and the measure of planes intersecting a given convex body K in a space form. We obtain some integral formulas involving the width of K and the curvature of its boundary ∂K . Also we study the special case of constant width. Moreover we obtain a generalisation of the Heintze-Karcher inequality to space forms.

Referència: Gallego, E.; Reventós, A.; Solanes, G. and Teufel, E., A kinematic formula for the total absolute curvature of intersections, *Advances in geometry*.

Abstract:

Given two surfaces in three dimensional euclidean space, one fixed and the other moved by rigid motions, we consider the total absolute curvature of the intersection curves. In this paper we investigate the integral of the total absolute curvatures over all motions. Under some geometric conditions we obtain kinematic formulas, and with weaker conditions we get upper and lower bounds. Finally, as applications we obtain upper bounds for the average number of connected components of the intersections, and we give Hadwiger conditions for a convex domain to be able to contain another one.