



Colloquium del Departamento de Análisis Matemático

Ignacio Villanueva Díez

U. C. M.

**“Radial continuous rotation invariant
valuations on star bodies”**

Jueves 25 de febrero de 2016
a las 13:00 horas en el seminario 222

Abstract:

Valuations are a generalisation of the notion of measure. Valuations on convex bodies have been studied for a long time now, starting with the solution of Hilbert's Third Problem in 1901. In the 1950's, Hadwiger initiated a systematic study of valuations on convex bodies and, in particular, he proved the result which we now know as Hadwiger's Theorem, which characterizes continuous rotation and translation invariant valuations on convex bodies as linear combinations of the quermassintegrals.

Valuations on convex bodies belong naturally to the Brunn-Minkowski Theory. The Dual Brunn-Minkowski Theory deals with star bodies, rather than convex bodies. It played a key role in the solution of the Busemann-Petty problem.

In our talk, we present the results of <http://arxiv.org/abs/1503.06064> (Adv. Math, 291 (2016) 961-981), where we characterise the positive radial continuous and rotation invariant valuations V defined on the star bodies of \mathbb{R}^n as the applications on star bodies which admit an integral representation with respect to the Lebesgue measure. That is, $V(K) = \int_{S^{n-1}} \theta(\rho_K) dm$, where θ is a positive continuous function, ρ_K is the radial function associated to K and m is the Lebesgue measure on S^{n-1} . As a corollary, we obtain that every such valuation can be uniformly approximated on bounded sets by a linear combination of dual quermassintegrals.

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