Seminari de Geometria Algebraica 2013/2014 (UB-UPC)

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http://www.ub.edu/sga/

Polar maps, foliations, characteristic classes

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To each hypersurface X in the projective n-space, we associate a rational map $\mathbb{P}^n \dashrightarrow \mathbb{P}^n$, called its *polar map*, given simply by the partial derivatives of the polynomial that defines X. This is a classical theme in projective geometry; the central problem is the classification of *homaloidal hypersurfaces*, that is, those with a birational polar map. There were significant progress on the subject in the last two decades, with new results coming from many different areas.

In these two talks we present our approach, which is done via two different perspectives: holomorphic foliations and characteristic classes. We also give some applications and a brief report on ways to deal with more general situations.
