

# SEMINARIO DE GEOMETRÍA ALGEBRAICA

Jueves 20 de octubre de 2016, **18:00**, Seminario 238

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Impartirá la conferencia

## On the Hilbert curves of some special varieties

### *Resumen.*

Given a polarized manifold  $(X, L)$ , consider the polynomial  $p(x, y) := \chi(\mathcal{O}_X(xK_X + yL))$ . The Hilbert curve of  $(X, L)$  is the complex affine plane algebraic curve  $\Gamma_{(X,L)}$  defined by  $p(x, y) = 0$ , regarding  $x$  and  $y$  as complex variables. A natural expectation is that properties of  $(X, L)$  are encoded by its Hilbert curve. In fact, the main property of  $\Gamma_{(X,L)}$  is that of being sensitive with respect to fibrations of  $X$  induced by some adjoint linear system to  $L$ . In particular, if  $X$  is a projective bundle over a smooth curve with  $L$  inducing  $\mathcal{O}_{\mathbb{P}}(r)$  on every fiber, it turns out that  $\Gamma_{(X,L)}$  has the shape of a comb, and, conjecturally, this special shape determines the structure of  $(X, L)$ . I will discuss the case of scrolls (i. e.,  $r = 1$ ) as an evidence for this conjecture. Moreover, in the case of 3-dimensional scrolls over a smooth surface, I will show that a related conjecture of Beltrametti, Sommese and the author has a positive answer if and only if the vector bundle giving rise to the scroll is properly semistable in the sense of Bogomolov.