

Course 1

Curves of low degrees on Fano varieties

(Olivier Debarre - ENS, France)

Abstract:

Fano manifolds are smooth complex projective varieties whose canonical bundle is anti-ample. In dimensions at most 3, they are all classified. However, for most of them, their very rich geometry remains mysterious. Classification of Fano threefolds was classically obtained by analyzing curves of low degrees (lines, conics, cubics...) lying on the variety. Although more efficient methods are now available, it is important, in many other situations, to understand the varieties that parametrize these curves.

I will explain the main tools used to study these curves and their parameter spaces and, on some examples, how they can help for the main questions that can be asked about Fano threefolds (birationalities, rank-2 vector bundles, period maps...).