

Séminaire d'algèbre, topologie et géométrie

Mardi 26 juin à 9h20

Salle I

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The blow-up of \mathbb{P}^4 at 8 points and its Fano model, via moduli of vector bundles on a del Pezzo surface

Mukai has realised the blow-up X of \mathbb{P}^4 in 8 general points as a moduli space of vector bundles on a degree 1 del Pezzo surface S . With the same construction, we associate to S a (smooth) Fano 4-fold Y , which is isomorphic to X in codimension 1. We will explain the interplay between S , X , and Y , which allows to describe many geometrical properties of X and Y , in particular in relation to birational geometry. For instance, we can describe the relevant cones of divisors and the Mori chamber decomposition of these 4-folds. The Fano 4-fold Y has an interesting geometry; it has $b_2(Y) = 9$, $(K_Y)^4 = 13$, and $\dim | - K_Y | = 5$. The linear system $| - K_Y |$ has non-empty base locus, while $| - 2K_Y |$ is base-point-free. The second cohomology group $H^2(Y, \mathbb{Z})$ has a lattice structure such that the orthogonal of the canonical class is an E_8 -lattice; the associated Weyl group fixes the cones of effective, movable and nef divisors, and permutes the chambers of the Mori chamber decomposition. This is a joint work with Giulio Codogni and Andrea Fanelli.