Instanton sheaves of low charge on Fano threefolds

Gaia Comaschi[1]

[1] UNICAMP

Let X be a Fano threefold of Picard number one and of index $2+h$, $h=0,1$. An *instanton sheaf of charge k on X* is defined as a semi-stable rank 2 torsion free sheaf F with Chern classes $c_1 = -h$, $c_2 = k$, $c_3 = 0$ and such that $F(-1)$ has no cohomology. Locally free instantons, originally defined on the projective space and later generalised on other Fano threefolds X, had been largely studied from several authors in the past years; their moduli spaces present an extremely rich geometry and useful applications to the study of curves on X. In this talk I will illustrate several features of non-locally free instantons of low charge on 3 dimensional quadrics and cubics. I will focus in particular on the role that they play in the study of the Gieseker-Maruyama moduli space $M_X(2;-h,k,0)$ and describe how we can still relate these sheaves to curves on X.