

Intermediate Jacobians and hyperKähler manifolds

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In recent years, there have been more and more connections between cubic 4folds and hyperkähler manifolds (aka holomorphic symplectic manifolds). The first instance of this was noticed by Beauville—Donagi, who showed that the Fano varieties of lines on a cubic 4fold X is holomorphic symplectic. This talk, which develops some aspects of the talk by R. Laza, aims to describe another instance of this phenomenon, which is carried out in *joint work with R. Laza and C. Voisin*. Given a general cubic 4fold X , we can consider the universal family $Y_U \rightarrow U$ of smooth hyperplane sections of X and the relative Intermediate Jacobian fibration $f : J_U \rightarrow U$. In 1995 Donagi and Markman constructed a holomorphic symplectic form on J_U , with respect to which the fibration f is Lagrangian. Since then, there have been many attempts to find a smooth hyperkähler compactification of J_U . This was conjectured to exist and to be deformation equivalent to O’Grady’s 10-dimensional exceptional example. With R. Laza and C. Voisin, we solve this conjecture by using relative compactified Prym varieties.

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