Workshop Holomorphic Symplectic Manifolds, March 9, 2015.

Kieran O'Gray (Università degli Studi di Roma "La Sapienza")

Rivestimenti doppi di sestiche EPW

Abstract: Le sestiche EPW sono particolari ipersuperfici in $\mathbf{P}^5$, che ammettono un rivestimento doppio che è una varietà hyperkähler, deformazione del quadrato di Hilbert di una K3. Darò alcuni risultati fondamentali su queste varietà, e illustrerò l'analogia con la varietà delle rette su una ipersuperficie cubica in $\mathbf{P}^5$.

Maria Donten-Bury (Freie Universität Berlin)

On 81 symplectic resolutions of a 4-dimensional quotient by a group of order 32

Abstract: In a joint project with Jaroslaw Wisniewski we study the symplectic quotient singularity $\mathbf{C}^4/G$ where G is a certain matrix group with 32 elements, generated by Dirac matrices. The existence of a symplectic resolution of this singularity was proved by Bellamy and Schedler by non-constructive methods. We give a construction of all its symplectic resolutions using the Cox rings: the idea is to determine the Cox ring of a resolution X of $\mathbf{C}^4/G$ without knowing any explicit description of X and then to obtain all the sympletic resolutions as GIT quotients of the spectrum of the ring $Cox(X)$. A motivation for this work is a possibility of using the results in the framework of the generalized Kummer construction, which might lead to finding new compact hyperkähler manifolds.

Grzegorz Kapustka (Polish Academy of Sciences/Jagiellonian University)

Twenty incident planes in $\mathbf{P}^5$

Abstract: Answering to a problem of O'Grady we show a construction of a complete family of 20 incident planes in $\mathbf{P}^5$. The construction is related to the geometry of the IHS fourfold constructed by Donten-Bury and Wisniewski and with the Debarre-Varley abelian fourfold. This is a joint work in progress with M. Donten-Bury, M. Kapustka, B. van Geemen, J. Wisniewski.