

# New Perspectives on Hyperkähler Manifolds - A Celebration of Dimitri Markushevich's (60+2)nd Birthday

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## Instanton sheaves of low charge on Fano threefolds

*Monday, 13 June 2022 11:30 (1 hour)*

Let  $X$  be a Fano threefold of Picard number one and of index  $i_X$ . A rank 2 instanton sheaf of charge  $k$  on  $X$  is defined as a  $\mu$ -semistable rank 2 torsion-free sheaf  $F$  having Chern classes  $c_1(F) = -r_X$ ,  $c_2(F) = k$ ,  $c_3(F) = 0$ , with  $r_X \in \{0, 1\}$  such that  $r_X \equiv i_X \pmod{2}$ . Locally free instantons, originally defined on the projective space and later generalised on other Fano threefolds  $X$ , had been largely studied by 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  $X$ .

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