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K3 surfaces associated to varieties of generalized Kummer type and applications to the Hodge conjecture

Wednesday, 25 September 2024 13:30 (1 hour)

Varieties of generalized Kummer type (Kum^n-type) are one of the two infinite series of known hyper-Kähler varieties, the other being given by deformations of Hilbert schemes of points of K3 surfaces. I will explain how any variety K of Kum^n-type has an associated K3 surface S which is geometrically related to it via a moduli of stable sheaves on S. Building upon the work of O'Grady, Markman, Voisin and Varesco, we use this construction to prove the Hodge conjecture for all powers of many K3 surfaces of Picard rank 16. We further deduce that the Hodge conjecture holds for any abelian fourfold of Weil type with discriminant 1 as well as its powers, extending a result of Markman.

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