

Rational points on Kummer K3 surfaces via variation of the Selmer group

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Abstract:

Rational points on Kummer varieties can be studied through the variation of Selmer groups of quadratic twists of the underlying abelian variety, using an idea of Swinnerton-Dyer. Under mild additional assumptions one proves the Hasse principle assuming the finiteness of relevant Shafarevich-Tate groups. In this talk I will discuss the generic case when the Galois action on 2-torsion has a large image but also the case of rational or partly rational 2-torsion. The approach is inspired by the work of Mazur and Rubin, and is simpler than the previously used approach via Selmer symmetrisation linear algebra machinery. The talk is based on joint work and correspondence with Yonatan Harpaz.