**Rational points on certain Kummer surfaces**

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Let $D_1$ and $D_2$ be 2-coverings of elliptic curves $E_1$ and $E_2$, respectively. Consider the Kummer surface $Z$ that is the minimal desingularization of the quotient of $D_1 \times D_2$ by the antipodal involution. An example of such a Kummer surface is the surface with equation

$$z^2 = f(x)g(y),$$

where $f(x)$ and $g(y)$ are separable polynomials of degree 4.

If the ground field $k$ is a number field we prove that $k$-points on $Z$ exist provided they exist over all the completions of $k$, the Tate–Shafarevich groups of all the quadratic twists of $E_1$ and $E_2$ are finite, and a certain explicit arithmetic condition holds. This arithmetic condition is shown to imply the vanishing of the (algebraic) Manin obstruction.

Similarly to a recent work of Swinnerton-Dyer on the Hasse principle on diagonal cubic surfaces (to appear in Annales E.N.S) we make no recourse to the Schinzel Hypothesis used in the previous variants of the method. The heart of the method is a search for an elliptic curve with small Selmer group in a 1-parameter family of quadratic twists.

This is a joint work with Sir Peter Swinnerton-Dyer (Cambridge).