

Jean-Louis Colliot-Thélène

Université Paris-Sud

The set of non- n -th powers in a number field is Diophantine

(joint work with J. Van Geel)

In joint work with J. Van Geel, we prove: For any natural integer n , the complement of the set of n -th powers in a number field k is the image of the set of k -rational points of some k -variety X under some k -morphism from X to the affine line. For $n = 2$, this is a result of B. Poonen (2009). His proof uses local-global theorems (CT, Coray, Sansuc, 1980) for rational points on Châtelet surfaces. Our proof for n arbitrary combines Poonen's method and local-global theorems (CT, Swinnerton-Dyer, Skorobogatov, 1994, 1998) for zero-cycles on higher dimensional analogues of Châtelet surfaces.

Reference :

<http://www.math.u-psud.fr/~colliot/CTVanGeel10janv14.pdf>