Algebra
Seminar

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

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Abstract: In a 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 Poonens method and local-global theorems (CT, Swinnerton-Dyer, Skorobogatov, 1994, 1998) for zero-cycles on higher dimensional analogues of Châtelet surfaces.

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