

Congruences mod q for the number of rational points of an algebraic variety over a field with q elements

Pierre Berthelot
Universite de Rennes 1

Abstract: Starting with classical results of Chevalley-Warning, Ax and Katz, it is known that, for certain algebraic varieties over a finite field k with q elements, the cardinality of their set of k -rational points is divisible by q . I will explain how Serre's Witt vector cohomology can be extended so as to define a cohomology with compact supports for arbitrary algebraic varieties over k , providing a general criterion for the existence of congruences modulo q on the number of k -rational points (joint work with S. Bloch and H. Esnault).