
SUNIL CHEBOLU B, University of Western Ontario
Towards a refinement of the Bloch–Kato conjecture

Let F be a field that has a primitive p -th root ζ_p of unity.

The Bloch–Kato conjecture which has been recently proved by Voevodsky and Rost claims that the map

$$K_*(F)/pK_*(F) \longrightarrow H^*(F, \mathbb{F}_p)$$

from the reduced Milnor K -theory to the Galois cohomology of F is an isomorphism. This gives a presentation of the rather mysterious Galois cohomology $H^*(F, \mathbb{F}_p)$ by generators and relations. In particular, this tells us that every cohomology class in $H^*(F, \mathbb{F}_p)$ decomposes into one dimensional classes. In this talk I will talk about a refinement of this conjecture which asks for a more precise information on how the indecomposable cohomology classes decompose under inflation maps (will be made precise in the talk). In work with Minac, we have obtained (using the Bloch–Kato conjecture!) the second cohomology refinement of the Bloch–Kato conjecture. Together with Benson and Swallow we plan to study the higher cohomology refinements of Bloch–Kato.