1041-12-24   **Sunil K Chebolu*** (`schebol@ilstu.edu`), Department of Mathematics, Illinois State University, Campus box 4520, Normal, IL 61790, and **Jan Minac**. *A new interpretation of the quadratic closure of a field.*

Let F be a field that has a primitive p-th root of unity. The Bloch-Kato conjecture which has been recently proved by Voevodsky and Rost claims that the norm-residue 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 ring $H^*(F, \mathbb{F}_p)$ by generators and relations. In joint work with Minac, we have obtained (using the Bloch-Kato conjecture!) a second cohomology refinement of the Bloch-Kato conjecture. As a consequence we are able to characterise the quadratic closure of a field, and more generally, the maximal p-extension of F, as the "splitting field" for the Galois cohomology of the absolute Galois group. Together with Benson and Swallow we plan to study the higher cohomology refinements of the Bloch-Kato conjecture. (Received July 13, 2008)