1035-20-237 **Jorge Maciel*** (maciel@cims.nyu.edu), The City University of New York-BMCC, 199 Chambers Street, New York, NY 10007. *Cohomology Groups in Algebra and in Geometry.*

We study the invariant $B_0(G) \subset H^2(G, \mathbb{Q}/\mathbb{Z})$ which has an analogue, denoted by $H^i_{nr}(G)$, for group cohomology in any dimension. In this notation, $B_0(G) = H^2_{nr}(G)$. According to the Bloch-Kato conjecture all the cohomology of Galois groups of algebraic closures of function fields are, roughly speaking, induced from the Abelian quotients of these Galois groups. A more geometric version of these conjectures is that, in fact, most of the finite birationally invariant classes in the cohomology of algebraic varieties are induced from the similar birational classes of special p-groups. Somehow it looks like finite simple groups do not produce nontrivial birational invariants of algebraic varieties which leads to the general hypothesis, formulated by F. Bogomolov, that all nonramified cohomologies of a finite simple group are trivial. Unfortunately, the computation of general nonramified cohomology groups is a highly nontrivial task. However, there is a description of all groups $H^2(G, \mathbb{Q}/\mathbb{Z})$ for all finite simple groups G. This fact leads to the following conjecture, which is a particular case of the above general hypothesis: **Conjecture** (Bogomolov) If G is a finite simple group, then $H^2_{nr}(G) = B_0(G) = 0$. (Received August 22, 2007)