

1061-14-76

**E. Javier Elizondo\*** (javier@javier.math.unam.mx), Ciudad Universitaria, 04510 Mexico, DF, Mexico, and **Paulo Lima-Filho, Frank Sottile** and **Zach Teitler**. *Arithmetic toric varieties*. Preliminary report.

We study toric varieties over a field  $k$  that split in a Galois extension  $K/k$  using Galois cohomology with coefficients in the toric automorphism group. This Galois cohomology fits into an exact sequence induced by the presentation of the class group of the toric variety. This perspective helps to compute the Galois cohomology, particularly for cyclic Galois groups. We use Galois cohomology to classify  $k$ -forms of projective spaces when  $K/k$  is cyclic, and we also classify  $k$ -forms of surfaces. (Received April 05, 2010)