1102-14-152 **Laurentiu Maxim*** (maxim@math.wisc.edu), Department of Mathematics, University of Wisconsin-Madison, 480 Lincoln Dr, Madison, WI 53706, and **Joerg Schuermann**. *Characteristic classes of singular toric varieties.*

We discuss the computation of the homology Hirzebruch characteristic classes of (possibly singular) toric varieties. We present two different perspectives for the computation of these characteristic classes. First, we take advantage of the torus-orbit decomposition and the motivic properties of the homology Hirzebruch classes to express the latter in terms of the (dual) Todd classes of closures of orbits. The obtained formula is then applied to weighted lattice point counting in lattice polytopes. Secondly, in the case of simplicial toric varieties, we make use of the Lefschetz-Riemann-Roch theorem in the context of the geometric quotient description of such varieties. In this setting, we define mock Hirzebruch classes of simplicial toric varieties and investigate the difference between the (actual) homology Hirzebruch class and the mock Hirzebruch class. We show that this difference is localized on the singular locus, and we obtain a formula for it in which the contribution of each singular cone is identified explicitly. This is joint work with Joerg Schuermann. (Received July 27, 2014)