Higher K-theory of toric stacks

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Abstract. In this paper we develop several techniques for computing the higher G-theory and K-theory of quotient stacks. Our main results for computing these groups are in terms of spectral sequences. We show that these spectral sequences degenerate in the case of many toric stacks, thereby providing an efficient computation of their higher K-theory.

We apply our main results to give an explicit description for the higher K-theory of many quotient stacks, including smooth toric stacks. We also show that our techniques apply to compute the higher K-theory of all spherical varieties over fields of characteristic 0 and all projective smooth spherical varieties over fields of arbitrary characteristics. As another application, we describe the higher K-theory of toric stack bundles over smooth base schemes.

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