1146-14-383   **James Tao*** (`jamestao@mit.edu`) and **Yifei Zhao** (`yifei@math.harvard.edu`). *Extensions by* $\mathbf{K}_2$ *and factorization line bundles.*

Let k be a perfect field, let X be a smooth, geometrically connected curve over k, and let G be a connected reductive group over k. Brylinski and Deligne classified the central extensions of G by $\mathbf{K}_2$ as sheaves on the big Zariski site of X. Gaitsgory defined a functor from such data to factorization line bundles on the Beilinson-Drinfeld affine Grassmannian Gr_G. We prove that this functor is an equivalence, which affirms a conjecture of Gaitsgory and Lysenko and classifies factorization line bundles on Gr_G. (Received January 27, 2019)