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**Masaki Kashiwara** and **Mark Shimozono\*** ([mshimo@vt.edu](mailto:mshimo@vt.edu)), Department of Mathematics,  
Virginia Tech, Blacksburg, VA 24061-0123. *Equivariant K-theory of affine flag manifolds and  
affine Grothendieck polynomials.*

We study the equivariant K-group of the affine flag manifold with respect to the Borel group action. We prove that the structure sheaf of the (infinite-dimensional) Schubert variety in the K-group is represented by a unique Laurent polynomial, which we call the affine Grothendieck polynomial. (Received February 28, 2006)