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David E. Anderson, Stephen Griffeth (griffeth@umn.edu) and **Ezra Miller*** (ezra@math.duke.edu). *Positivity and Kleiman transversality in equivariant K -theory of homogeneous spaces.*

We prove the conjectures of Graham–Kumar and Griffeth–Ram concerning the alternation of signs in the structure constants for torus-equivariant K -theory of generalized flag varieties G/P . These results are immediate consequences of an equivariant homological Kleiman transversality principle for the Borel mixing spaces of homogeneous spaces, and their subvarieties, under a natural group action with finitely many orbits. The computation of the coefficients in the expansion of the equivariant K -class of a subvariety in terms of Schubert classes is reduced to an Euler characteristic using the homological transversality theorem for non-transitive group actions due to S. Sierra. A vanishing theorem, when the subvariety has rational singularities, shows that the Euler characteristic is a sum of at most one term—the top one—with a well-defined sign. The vanishing is proved by suitably modifying a geometric argument due to M. Brion in ordinary K -theory that brings Kawamata–Viehweg vanishing to bear. (Received February 05, 2009)