1125-VA-2547 **Nathaniel Bushek*** (nbushek@alaska.edu), Department of Mathematics and Statistics, University of Alaska, Anchorage, SSB # 158 A, Anchorage, AK 99508. *Tensor product multiplicities and descent of line bundles to GIT quotients.*

A classic question of representation theory is to determine the multiplicity of one irreducible representation in the tensor product of two other irreducible representations. This question has been extensively studied and an interesting subquestion is how the multiplicities change as the irreducible representations change. It is known that this change is piecewise polynomial. However, explicit constructions of these polynomials have not been given. We aim to give such a construction through the use of geometric invariant theory on the triple product of flag varieties, $X = G/B \times G/B \times G/B$. In particular, we consider conditions when line bundles descend to $X//G$. When descent occurs we can use intersection theory to construct the multiplicity polynomial. While much is understood in this construction, some important questions remain unanswered. (Received September 20, 2016)