1051-05-116 **Michael W. Hero** and **Jeb F. Willenbring*** (willenbring@gmail.com), University of Wisconsin - Milwaukee, Department of Mathematical Sciences, P. O. Box 0413, Milwaukee, WI 53201-0413. *Stable Hilbert series and the Kronecker coefficients.* Preliminary report.

This talk will describe a problem in invariant theory motivated by the concept of quantum entanglement. Specifically, we compute a stable formula for the Hilbert series of the invariant algebra of polynomial functions on a tensor product of defining representations of unitary groups. The example may be interpreted physically as the quantum analog of a classical system consisting of several particles in which each has a finite number of classical states.

The stable formula involves elementary combinatorics. The derivation involves the representation theory of the symmetric group. In particular, the Kronecker coefficients play an important role. (Received August 20, 2009)