

1129-14-255

Jihyeon Jessie Yang* (jyang@marian.edu). *Bott Canonical Bases of Representations.*

Raoul Bott showed that if a compact torus $(S^1)^n$ acts holomorphically on a complex n -dimensional manifold M with an isolated fixed point and equivariant line bundle L , the induced representation on the space of sections $\Gamma(M, L)$ splits into complex lines. Motivated by this fact it was hoped that there was such an action on a manifold closely related to the flag manifold G/B of a complex semi-simple Lie group G so that this would lead to a geometrically constructed canonical basis for G -representations via Borel-Weil-Bott theory. Bott succeeded to find a maximal dimensional torus action on a Bott-Samelson manifold (a birational model for G/B). This action, however, turned out to be non-holomorphic and this idea was not successful in the original context. Instead of the original Bott-Samelson manifold, we constructed its deformation that admits a nice action. This action extends the natural maximal torus action on G/B and provides a decomposition of the irreducible representation V_λ with highest weight λ into complex lines, as Bott hoped to achieve. This work is motivated by a suggestion from J. Berenstein and also filtrations induced by test configurations introduced by D. W. Nystöm. This is a joint work with Yael Karshon. (Received March 17, 2017)