JACQUES HURTUBISE, McGill UNiversity
Pseudo-real bundles on Kahler varieties

Let X be a compact connected Kähler manifold equipped with an anti-holomorphic involution which is compatible with the Kähler structure. Let G be a connected complex reductive affine algebraic group equipped with a real form σ_G. We define pseudo-real principal G–bundles on X; these are generalizations of real algebraic principal G–bundles over a real algebraic variety. Next we define stable, semistable and polystable pseudo-real principal G–bundles. Their relationships with the usual stable, semistable and polystable principal G–bundles are investigated. We then prove that the following Donaldson–Uhlenbeck–Yau type correspondence holds: a pseudo-real principal G–bundle admits a compatible Einstein-Hermitian connection if and only if it is polystable. A bijection between the following two sets is established: 1) The isomorphism classes of polystable pseudo-real principal G–bundles such that all the rational characteristic classes of the underlying topological principal G–bundle vanish. 2) The equivalence classes of twisted representations of the extended fundamental group of X in a σ_G–invariant maximal compact subgroup of G. (The twisted representations are defined using the central element in the definition of a pseudo-real principal G–bundle.) All these results are also generalized to the pseudo-real Higgs G–bundle. (with I. Biswas, O. Garcia-Prada)