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Vanishing theorems in the cohomology ring of the moduli space of parabolic bundles

Let Σ be a compact connected oriented 2-manfiold of genus g, and let p be a point on Σ. We define a space $S_g(t)$ consisting of certain irreducible representations of the fundamental group of $\Sigma \setminus p$, modulo conjugation by $SU(N)$. This space has interpretations in algebraic geometry, gauge theory and topological quantum field theory; in particular if Σ has a Kähler structure then $S_g(t)$ is the moduli space of parabolic vector bundles of rank N over Σ.

For $N = 2$, Weitsman considered a tautological line bundle on $S_g(t)$, and proved that the $(2g)^{th}$ power of its first Chern class vanishes, as conjectured by Newstead. In this talk I will present his proof and then outline my extension of his work to $SU(N)$ and to $SO(2n + 1)$.