

Hodge structures of the moduli spaces of bundles.

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Abstract

Let X be a smooth projective complex curve of genus at least two, and denote by $M = M(r, d)$ the moduli space of stable bundles of rank r and degree d . We prove that all simple summands of the (mixed) Hodge structures $H^k(M)$ are sub-Hodge structures of tensor products of $H^1(X)$. In order to prove this, we study the moduli spaces of pairs (E, ϕ) consisting of a bundle $E \rightarrow X$ and a section $\phi \in H^0(E)$. These moduli spaces depend on a parameter τ , and change with the parameter by a birational transformation. Studying this transformation allows us to get knowledge on their Hodge structures.