

Complex Structures on Product of Circle Bundles over Compact Complex Manifolds

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Abstract

Let $L_i \rightarrow X_i$ be a holomorphic line bundle over a compact complex manifold, for $i = 1, 2$. With respect to any hermitian inner product over L_i , we denote the associated circle bundle by $S(L_i)$. The aim of this talk is to describe a family of complex structures on $S(L_1) \times S(L_2)$. As a special case when X_i are projective space \mathbb{P}^{n_i} and the line bundles are tautological line bundles, Calabi-Eckmann obtained a family of complex structures on the product of odd dimensional spheres, $S^{2n_1+1} \times S^{2n_2+1}$. Later Loeb and Nicolau constructed a more general family of complex structures on $S^{2n_1+1} \times S^{2n_2+1}$. We generalize the Loeb-Nicolau construction to obtain the complex structures on $S(L_1) \times S(L_2)$. This is joint work with Prof. P Sankaran.