

1014-60-1283

Matthew S Cecil* (mcecil@math.ucsd.edu), Department of Mathematics, University of California, San Diego, 9500 Gilman Drive, Dept. 0112, La Jolla, CA 92093. *The "Taylor" Map on a Hilbert Space of Holomorphic Functions on the Path Space of a Complex Simply Connected Lie Group.*

Let G be a complex simply connected Lie group with Lie algebra \mathfrak{g} , $\mathcal{W}(G)$ be the infinite dimensional group of continuous paths in G based at the identity, and $H(G)$ be the finite energy subgroup of $\mathcal{W}(G)$. We construct a "heat kernel" measure, ν_T , associated to a natural Laplacian on $\mathcal{W}(G)$. An isometric map, T , is established from the space of $L^2(\nu_T)$ – holomorphic functions on $\mathcal{W}(G)$ to a subspace, J_T^0 , of the dual of the universal enveloping algebra of $\text{Lie}(H(G))$. Surjectivity of T has been shown for certain nilpotent Lie groups. The results are a non commutative extension of the classical Fock space isomorphism. Indeed, if G is \mathbb{R}^d , then J_T^0 is the standard Bosonic Fock space and T is the standard Fock space isomorphism. (Received September 27, 2005)