962-60-936 **Maria Gordina*** (mgordina@math.ucsd.edu), Department of Mathematics, University of California at San Diego, La Jolla, CA 92093-0112. *Heat kernel analysis on complex infinite dimensional groups.*

The heat kernel measure μ_t is constructed on $GL(H)$, the group of invertible operators on a complex Hilbert space H, and on a L^2-completion of a II_1-factor. This measure is determined by an infinite dimensional Lie algebra $\mathfrak{g}$ and a Hermitian inner product on it. To construct the heat kernel measure we use a diffusion in an ambient Hilbert space. Then we define the Cameron-Martin subgroup G_{CM} and describe its properties. In particular, there is an isometry from the $L^2_{\mu_t}$-closure of holomorphic polynomials into a space $\mathcal{H}^t(G_{CM})$ of functions holomorphic on G_{CM}. This means that any element from this $L^2_{\mu_t}$-closure of holomorphic polynomials has a version holomorphic on G_{CM}. In addition, there is an isometry from $\mathcal{H}^t(G_{CM})$ into a Hilbert space associated with the tensor algebra over $\mathfrak{g}$. The latter isometry is an infinite dimensional nonlinear analog of the Taylor expansion. As examples we will discuss a complex orthogonal group and a complex symplectic group. When $GL(H)$ is replaced by $\mathbb{C}^n$ this Taylor map is one of the isomorphisms between the Hilbert spaces which are different realizations of a bosonic Fock space. (Received September 29, 2000)