1014-Z1-939 **Adrian P. C. Lim*** (plim@math.ucsd.edu), 9268 Regents Road, Apt H, La Jolla, CA 92037.
Finite Dimensional Approximations to Wiener Measure on a Compact Manifold with Positive Curvature.

Let $H(M)$ be the Hilbert manifold of finite energy paths into a compact Riemannian manifold, M. We will equip $H(M)$ with its natural G^1 metric. Given a partition, $\mathcal{P}$ of $[0,1]$, let $H_{\mathcal{P}}(M)$ be the finite dimensional Riemannian submanifold of $H(M)$ consisting of piecewise geodesic paths adapted to $\mathcal{P}$. Under certain curvature restrictions on M, it is shown that

$$\frac{1}{Z_{\mathcal{P}}} e^{-\frac{1}{2}E(\sigma)} dVol_{H_{\mathcal{P}}}(\sigma) \to \rho(\sigma) d\nu(\sigma) \text{ as } \mathrm{mesh}(\mathcal{P}) \to 0,$$

where $Z_{\mathcal{P}}$ is a “normalization” constant, $E : H(M) \to [0,\infty)$ is the energy functional, $Vol_{H_{\mathcal{P}}}$ is the Riemannian volume measure on $H_{\mathcal{P}}(M)$, ν is Wiener measure on continuous paths on M, and ρ is a certain density determined by the curvature tensor of M. (Received September 26, 2005)