1077-60-2511 **Thomas Albert Laetsch*** (tlaetsch@math.ucsd.edu), 9500 Gilman Dr #0112, La Jolla, CA 92037-0112. *An L^2 metric limit theorem for Wiener measure on manifolds with non-positive sectional curvature.*

An interpretation is given for the informal path integral expression

$$\frac{1}{Z}\int_{\sigma\in H(M)} f(\sigma)e^{-E(\sigma)}\mathcal{D}\sigma,$$

where Z is a "normalization" constant and $H(M)$ is the collection of paths on M with energy $E(\sigma)<\infty$. Given an equally spaced partition, $\mathcal{P}$, of $[0,1]$, we let $H_{\mathcal{P}}$ be the finite dimensional manifold consisting of piecewise geodesic paths adapted to $\mathcal{P}$, which is given the L^2 metric, G. It is proved that

$$\frac{1}{Z_{\mathcal{P}}}e^{-\frac{1}{2}E(\sigma)}d\,\mathrm{Vol}_G(\sigma)\to\exp\left(-\frac{1}{10}\int_0^1 \mathrm{Scal}(\sigma(s))ds\right)d\nu(\sigma)$$

where $Z_{\mathcal{P}}$ are appropriate normalization constants and ν is the Wiener measure associated to M. (Received September 22, 2011)