

1112-60-616

Lee Gibson and **Melanie Pivarski*** (mpivarski@roosevelt.edu), Chicago, IL 60605. *The Rate of Decay of the Wiener Sausage in Local Dirichlet Space.*

In the context of a heat kernel diffusion which admits a Gaussian type estimate with parameter β on a local Dirichlet space, we consider the log asymptotic behavior of the negative exponential moments of the Wiener sausage. We show that the log asymptotic behavior up to time $t^\beta V(x, t)$ is $-V(x, t)$, which is analogous to the Euclidean result. Here $V(x, t)$ represents the mass of the ball of radius t about a point x of the local Dirichlet space. The proof of the upper asymptotic uses a known coarse graining technique which must be adapted to the non-transitive setting. This result provides the first such asymptotics for several other contexts, including diffusions on complete Riemannian manifolds with non-negative Ricci curvature. (Received August 11, 2015)