

Functional inequalities on loop space over a general non-compact manifold

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Abstract. We will prove several asymptotic gradient estimates for heat kernel on a general non-compact manifold. Based on these estimates, we could construct an O-U Dirichlet form on loop space over a general non-compact manifold which is only complete and stochastically complete. Moreover, a local log-Sobolev inequality and a log-Sobolev inequality with potential term will also be established. This talk is based on a joint work with Xue-Mei Li and Bo Wu.