Upul H Rupassara* (upul@siu.edu), Southern Illinois University, Department of Mathematics, 1245 Lincoln Drive, Carbondale, IL 62901. Joint exit time and place distribution for Brownian motion on Riemannian manifolds. Preliminary report.

We derive the formulas for the joint distribution of first exit time $T$, and place $X_T$ of Brownian motion from normal balls of sufficiently small radius, in terms of the curvature of the Riemannian Manifolds. We use the asymptotic expansion of the Laplace transform of $T$ to obtain the formulas for the different moments of the exit time. Additional curvature conditions are derived for the case where $T$ and $X_T$ are statistically independent. (Received September 17, 2018)