Dienstag, 18. Juni 2019, 14:15 Uhr, Hörsaal WK (Raum 1230|001)

**Vera Nobis (Lehrstuhl A für Mathematik):**

*Surface Measures on Path Spaces of Riemannian manifolds*

In this talk I will present results to better understand a known definition of surface measures on path spaces of Riemannian manifolds, which are generated by a Brownian motion. Let $L$ be a closed Riemannian submanifold of the Riemannian manifold $(M, g)$. It turns out that conditioning Brownian motion on $M$, which starts in $x \in L$, to the event that the paths do not leave small tubular neighborhoods of the submanifold (up to a finite time horizon), gives a (weakly) convergent sequence of probability measures $\mu^x$.

The limit measure $\mu^0$ is equivalent to the Wiener measure $\mathbb{W}_L$ on the path space $\Omega_L$ of $L$ and the associated Radon-Nikodym density $\rho = \frac{d\mu^0}{d\mathbb{W}}$ depends on a smooth potential $W_0 \in C^\infty(L)$.

In the first part of the talk I will introduce the relevant quantities and give a formula for $W_0$. Afterwards, I will discuss the potential for a totally geodesic embedding.

In the second part I will explain, which functions occur as a potential for such limit processes. As we will see, for any smooth function $\tilde{W} \in C^\infty(L)$ on a given (closed) Riemannian manifold $L$, there exists an embedding into an ambient space, such that $\tilde{W}$ is exactly the potential.

Wir laden alle Interessierten herzlich ein.