

Exponential asymptotics for time-space Hamiltonians

Xia Chen

Joint work with Yaozhong Hu, Jian Song and Fei Xing

In this talk, we investigate the long term asymptotics for the exponential moment of the time-space Hamiltonian

$$\int_0^t \int_0^t \frac{\gamma(B_u - B_v)}{|u - v|^{\alpha_0}} dudv$$

run by a d -dimensional Brownian motion $\{B_s; s \geq 0\}$, where the space kernel $\gamma(x) \geq 0$ is a homogenous function with singularity at zero. The problem is partially motivated by the studies of the strong coupling polaron, short range self-intersection and the parabolic Anderson models with potential driven by the fractional white noise.