

Quenched Asymptotics for Brownian Motion in Generalized Gaussian Potential

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Abstract:

Recall that the notion of generalized function is introduced for the functions that can not be defined pointwise, and is given as a linear functional over the test functions. The same idea applies to random fields. In this talk, we study the long term asymptotics for the quenched moment

$$E_0 \exp \left\{ \int_0^t V(B_s) ds \right\}$$

consisting of a d -dimensional Brownian motion $\{B(s); s \geq 0\}$ and a generalized Gaussian field $V(\cdot)$. The major progress made in this paper includes: Solution to an open problem posted by Carmona and Molchanov with an answer different from what was conjectured; the quenched laws for Brownian motions in Newtonian-type potentials, and in the potentials driven by white noise or by fractional white noise.

References

- [1] Chen, X. Quenched asymptotics for Brownian motion in generalized Gaussian potential. *Ann. Probab.*, to appear.