Séminaire

Lundi 19 juin 2023 à 10h30
Amphithéâtre Henri Benoît

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Fluctuations and Adsorption of a Stretched Fractal Polymer near a Sticky Disc

We provide an "optimal fluctuations" approach which allows us to examine the statistics of a stretched 2D fractal polymer chain near a disc of radius R. We find that the span, H, of the polymer away from the surface scales as $H \sim R^{\beta}$, with the KPZ growth exponent $\beta=1/3$, for any fractal dimension of the polymer chain. We discuss the mathematical analogy of the model under consideration with several well-known problems in condensed matter physics, such as 1D Anderson localization and Donsker-Varadhan survival probability of 1D random walk in a Poissonian array of traps. We also discuss the adsorption of a stretched polymer at a sticky surface paying attention to the similarities and distinctions with the standard polymer adsorption at the point well.

Les personnes souhaitant rencontrer S. Nechaev sont priées de prendre contact avec Albert Johner.