SEMPARIS – Séminaires en région parisienne

`http ://string.lpthe.jussieu.fr/semparis/`

Forum de Physique Statistique @ ENS

Mercredi 12 Mai 2021, 14 :30
LPENS, online(Gotomeeting : https ://www.gotomeet.me/forumphystat)
Domaines : cond-mat.stat-mech

Titre : *Universal first-passage properties for a d-dimensional run-and-tumble particle*

Orateur : **Gregory Schehr (LPTHE)**

Résumé : *The run-and-tumble particle, or persistent random walk, is one of the simplest non-Markovian random walk model, which is currently of much interest, in particular in the context of active matter. In this talk, I will consider an active run-and-tumble particle (RTP) in d dimensions and present exact results for the probability S(t) that the x-component of the position of the RTP does not change sign up to time t. Remarkably, when the tumblings occur at a constant rate, S(t) turns out to be independent of d for any finite time t (and not just for large t), which is a consequence of the celebrated Sparre Andersen theorem for discrete-time random walks in one dimension. Moreover, this universal result holds for a much wider class of RTP models in which the speed v of the particle after each tumbling is random, drawn from an arbitrary probability distribution.*