ICTS Statistical Physics Journal Club Seminar

Title   : Universal survival probability for a d-dimensional run-and-tumble particle

Speaker : Satya Majumdar (Laboratory of Theoretical Physics and Statistical Models, France)

Date   : Thursday, 29th October 2020

Time   : 03:00 pm (IST)

Abstract : We consider an active run-and-tumble particle (RTP) in d dimensions and compute exactly the probability S(t) that the x component of the position of the RTP does not change sign up to time t. When the tumblings occur at a constant rate, we show that S(t) is independent of d for any finite time t (and not just for large t), as a consequence of the celebrated Sparre Andersen theorem for discrete-time random walks in one dimension. Moreover, we show that 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. We further demonstrate, as a consequence, the universality of the record statistics in the RTP problem.

Online Seminar : Please click on the below link to join the seminar

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Meeting ID: 944 0383 2346

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