Abstract Submitted
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Kinetics of Brownian Maxima ELI BEN-NAIM, Los Alamos National Laboratory, PAUL KRAPIVSKY, Boston University — We study extreme-value statistics of Brownian trajectories in one dimension. We define the maximum as the largest position to date and compare maxima of two particles undergoing independent Brownian motion. We focus on the probability $P(t)$ that the two maxima remain ordered up to time t, and find the algebraic decay $P \sim t^{-\beta}$ with exponent $\beta = 1/4$. When the two particles have diffusion constants D_1 and D_2, the exponent depends on the mobilities, $\beta = \frac{1}{\pi} \arctan \sqrt{D_2/D_1}$. We also use numerical simulations to investigate maxima of multiple particles in one dimension and the largest extension of particles in higher dimensions.

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