

Abstract Submitted  
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**Anomalous yet Brownian** SUNG CHUL BAE, BO WANG, JUAN GUAN, STEVE GRANICK, University of Illinois — The items on the growing list of exceptions to Gaussian statistics have been given system-specific interpretations that fail to provide a universal picture of how Fickian diffusion can be non-Gaussian for diffusion over distances that much exceed the size of the diffusing object. Here, based on experiments in four separate systems, we present a general reasoning which indicates that the measured dynamics can be decomposed into a wide set of diffusivities that reflect slowly-varying, heterogeneous microscopic fluctuations. The identification of non-Gaussian yet Fickian diffusivity with long-lived environmental fluctuations allows us to conclude that non-Gaussian diffusivity should characterize much mobility in soft matter.

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