

Statistical Physics and Anomalous Dynamics of Foraging

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A famous paradigm for understanding biological foraging based on stochastic processes is the *Lévy flight hypothesis*. It states that under certain mathematical conditions Lévy flights lead to an optimal search strategy for foraging organisms. I will briefly review this hypothesis by discussing examples of experimental data supporting and questioning it. On this basis an embedding of the Lévy hypothesis and a way beyond will be outlined [1]. I then sketch new theoretical results on analyzing Lévy walks, Lévy flights and combinations of the latter with Brownian motion in view of optimality for finding targets.

[1] Advanced Study Group MPIPKS Dresden, www.mpipks-dresden.mpg.de/~asg.2015