

Statistical Physics and Anomalous Dynamics of Foraging

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This is a brief review talk about the question whether biologically relevant search strategies can be identified by statistical data analysis and mathematical modeling. A famous paradigm in this field is the *Lévy hypothesis*. It states that under certain mathematical conditions Lévy dynamics, which defines a key concept in the theory of anomalous stochastic processes, leads to an optimal search strategy for foraging organisms. This hypothesis is discussed very controversially in the current literature. I will give examples and counterexamples of experimental data and their analyses confirming and refuting it. I will also outline cross-links to biological cell migration, and to own work.