

Diffusion generated by deterministic chaos and anomalous dynamics with applications to biology

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This is perhaps a bit an unusual group seminar, as I will give a rough survey about different topics I am currently interested in:

1. biological foraging: I briefly elaborate on some projects related to our recent Advanced Study Group at PKS
2. anomalous stochastic processes: I discuss intermittent motion, fluctuation relations and possible cross-links to climate dynamics
3. chaotic diffusion: models that I am studying are simple maps, Hamiltonian particle billiards and soft periodic potentials, partially under random perturbations.

Literature: (files / further info can be found on my homepage)

R. Klages, Extrem gesucht, Physik Journal 14 (12), 22-23 (2015) (News and Views article related to the foraging topic - if you want to test your German...)

R.Klages, Weak chaos, infinite ergodic theory, and anomalous dynamics, book chapter in: X.Leoncini and M.Leonetti (Eds.), From Hamiltonian Chaos to Complex Systems (Springer, Berlin, July 2013), p.3-42 (introduction to these topics)

R.Klages, Microscopic Chaos, Fractals and Transport in Nonequilibrium Statistical Mechanics, monograph, Advanced Series in Nonlinear Dynamics Vol.24 (World Scientific, Singapore, June 2007)