

Abstract Submitted
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Random Walk Model with Waiting Times Depending on the Preceding Jump Length VASILY ZABURDAEV, Max Planck Institute for Dynamics and Self-Organization — In the present work the generalized continuous time random walk model with a coupled transition kernel is considered. The coupling occurs through the dependence of the waiting time probability distribution on the preceding jump length. The method, which involves the details of the microscopic distribution over the waiting times and arrival distances at a given point, is suggested for its description. In the particular case of coupling, when a waiting time is a simple function of a preceding jump length, a close analogy to the problem of a random walk with finite velocity is demonstrated. With its help an analytical solution for the generalized random walk model, including both effects (finite velocity and jump dependent waiting times) simultaneously, is found. Considered examples indicate a possibility to apply the developed approach to the biological problems where the random walk together with the recovery processes and the finite velocity are present, such as e.g. the foraging movements of animals or the motion of zooplankton.

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