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**Brown movement in complex asymmetric periodic potential under the influence of colored noise** MIKHAIL SVIRIDOV, SERGEY GUZ, Moscow Institute of Physics and Technology — The idea of the molecular motor in an asymmetric periodic potential is a well-known problem. The motion of a Brownian particle is often studied when the system is subjected to the action of white noise. In practical situations noise is colored (“red”) random process. The red noise is the Ornstein-Uhlenbeck process. In this work we consider noise when the spectral density of the external noise is equal to zero on the zeroth frequency. In our previous works such a noise is been called as “green” noise. For the analytical study of green noise action, we use an approach based on a Krylov-Bogoliubov averaging method which is modified to study the action of noise with arbitrary intensity. A certain effective potential can be built which determines the basic features of the system dynamics. Further, we compare two numerical cases. The first one is the time-derivative of the Ornstein-Uhlenbeck process (green noise). The complex potentials when the system does not work as a molecular motor in the case of red noise, i.e. the average motion of the particle does not exhibit a drift in a given direction. If green noise operates on the same system, it turn out the effective molecular motor. We demonstrate this fact by a histograms for realizations of these processes.

Mikhail Sviridov  
Moscow Institute of Physics and Technology

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