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Poisson pulsed control of particle escape[1] MARIE MCCRARY, LORA BILLINGS, Montclair State University, IRA SCHWARTZ, Naval Research Laboratory, Washington, DC, MARK DYKMAN, Michigan State University — We consider the problem of escape in a double well potential. With a weak background Gaussian noise, the escape rate is well known and follows an exponential scaling with the noise intensity D. Here, we consider adding a small Poisson noise to the Gaussian noise. We compute the change in escape time as we add Poisson distributed pulses of a given duration and amplitude. The escape rate acquires an extra factor which is determined by the characteristic functional of the Poisson noise calculated for a function, which is determined by the system dynamics and is inversely proportional to D. As a result, for small D even weak Poisson pulses can lead to a significant change of the escape rate. The Poisson noise induced factor depends sensitively on the interrelation between the noise correlation time and the relaxation time of the system. We compare analytical results with extensive numerical simulations. The numerical computation of escape rates for multiple interacting particles in a well will also be shown.

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Lora Billings
Montclair State University

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