Stochastic dynamics of cold atoms in a modulated magneto-optical atom trap was investigated. The studies focused on the phenomena related to switching between the parametrically excited period-2 states. The rates of single-atom activated transitions were analyzed. When the atom density was increased, there were observed Ising-class phase transitions where the symmetric population of period-2 states was spontaneously broken [1,2]. Anomalous fluctuations in the decay of the unstable state were investigated [3].


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Switching and phase transitions in a parametrically-excited cold atom trap.¹
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