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Prametric Excitation in a Magneto-optical Trap with Modulating the Magnetic Field Gradient DAHYUN YUM, MYOUNG-SUN HEO, YOUNGHEE KIM, Seoul National University, HEUNG-RYOUL NOH, Chonnam National Univesity, WONHO JHE, Seoul National Universtiiy — Parametric resonance is a very interesting and important mechanism in divergent systems. There were a lot of researches relating to the parametric excitation in the magneto-optical trap system. However, the previous works were executed by modulating the cooling laser intensity only. While the intensity modulation shows limit cycle, Hopf-bifurcation and Ising like phase transition, due to its driven amplitude, magnetic field gradient modulation could reveal more interesting phenomena such as period doubling, chaos and so on. We have studied the transition problems between two attractors in period doubling area which are much far from equilibrium. The magnetic field modulation methods could give quantitative comprehensions of transition problems in the nonequilibrium system.

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