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**Study of critical dynamics in a dynamic double-well system of driven cold atoms** MYOUNG-SUN HEO, KI-HWAN LEE, CHANGIL RYOO, DAHYUN YUM, YONGHEE KIM, Seoul National University, KIHWAN KIM, University of Innsbruck, WONHO JHE, Seoul National University — While critical phenomena in equilibrium systems has been well known both in theory and in experiments, those studies in non-equilibrium or far-from-equilibrium systems are still challenging subjects. These have been studied in a number of systems. Laser cooled confined atoms also can be a good candidate since we are able to easily change its temperature and numbers. By parametrically modulating magneto-optical trap we have observed several interesting phenomena such as dynamic double well, Hopf bifurcation and spontaneous symmetry-breaking(SSB). Particularly SSB is approximately identified as Ising-like phase transition. It is well known that fluctuation near critical point causes the relaxation time longer. We have measured critical slowing down approaching the critical point varying the total number.

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