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Measurement of the trap parameters of a magneto-optical trap by optically driving laser intensity GEOL MOON, MYOUNG-SUN HEO, YONGHEE KIM, JIHYOUN KIM, School of Physics, Seoul National University, HEUNG-RYOUL NOH, Department of Physics, Chonnam National University, WONHO JHE, School of Physics, Seoul National University — We report a simple method for trap parameter measurement by realizing forced harmonic oscillation in a magneto-optical trap (MOT). Through the resonance curve of the vibrational amplitude of the harmonic oscillation on the driving frequency of the laser intensity, we measured the damping coefficient and trap frequency of trapped atoms in the MOT under various conditions and compared them with those obtained from the parametric resonance. In particular, we report a significant effect of a transverse laser on one-dimensional harmonic oscillation. This effect is expected to explain the discrepancies in other previous experiments between the experimental and theoretical results.

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