Photoassociation spectroscopy of $^{174}$Yb Bose-Einstein Condensate using the $^{1}S_0 \leftrightarrow ^3P_1$ transition$^1$ JONGCHUL MUN, JEONGWON LEE, JAE HOON LEE, KRISS, MIN-SEOK KIM, YONG-IL SHIN, Seoul National University — We studied the photoassociation spectrum of $^{174}$Yb Bose-Einstein condensate (BEC) using an optical Feshbach resonance near the intercombination transition ($^{1}S_0 - ^3P_1$, 578 nm). The optical length $l_{opt}$, which characterize the interaction strength of optical Feshbach resonances, of four least-bound molecular levels ($\nu = -1 \sim -4$) were precisely determined by measuring the two-body loss rate at various optical powers. We also found the parameter $\eta = \Gamma_{spon}/\Gamma_{mol}$, which characterizes the enhancement of molecular loss, to be $>1$ as in the previous studies$^{[1,2]}$. Our BEC apparatus and experimental scheme are also introduced in this presentation.


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