

Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

Spin-sensitive photoassociation in Rb-87 BEC with spin and spin-momentum superposition dressed states DAVID BLASING, SU-JU WANG, JESS PREZ-ROS, CHUAN-HSUN LI, Purdue University, SOURAV DUTTA, Raman Research Institute, CHRIS GREENE, YONG CHEN, Purdue University — We present our experimental studies of spin-sensitive photoassociation in Rb-87 $F=1$ spinor Bose-Einstein condensate (BEC) with and without the presence of Raman light-induced mf spin coupling. Without the Raman coupling, the photoassociation transition is only allowed between two atoms of bare mf spin states $(0,0)$ or $(1,-1)$. Copropagating or counterpropagating Raman beams couple bare mf spin states, and can create new dressed eigenstates of superpositions between either just mf spin or mf spin-momentum states. We report our observations on how either type of coupling and dressed states affect the PA process.

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Date submitted: 01 Feb 2016

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