

Abstract Submitted
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Effects of quantum superposition and interference in spin-dependent photoassociation of 87Rb Bose-Einstein condensates.¹ DAVID BLASING, Purdue University, JESUS PEREZ-RIOS, Universidad del Turabo, YANGQIAN YAN, CHUAN-HSUN LI, Purdue University, SOURAV DUTTA, Indian Institute of Science Education and Research, QI ZHOU, YONG CHEN, Purdue University — We have studied spin-dependent photoassociation in 87Rb Bose-Einstein condensates both with and without Raman induced spin-momentum coupling. Such Raman induced spin-momentum coupling creates superpositions of the bare m_f spin states within the F=1 hyperfine manifold of 87Rb. These m_f spin superposition states simultaneously access two photoassociation channels, thus opening the possibility to observe quantum interference effects. I will report our experimental results in comparison with a theoretical model considering the interference effects.

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