Towards Photoassociation in 87Rb BEC with Raman light-induced synthetic gauge fields

DAVID BLASING, YONG CHEN, Purdue University — We present our experimental studies of photoassociation in 87Rb Bose-Einstein condensate (BEC) both without and with the presence of Raman light-induced gauge fields. These gauge fields couple the three bare $m_f$ spins in the $F=1$ manifold of 87Rb, with the new eigenstates being superpositions of the bare $m_f$ states. Some photoassociation channels are allowed or forbidden depending the $m_f$ spin of the colliding atoms. We will report the progress in our measurements, with the goal of investigating the role of synthetic gauge fields on the photoassociation process.

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