

Abstract Submitted
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Photoassociation of ^{85}Rb Atoms in 0_u^+ States Near the $5\text{S}+5\text{P}$ Atomic Limits¹ T.H. BERGEMAN², SUNY Stony Brook, YE HUANG, HYE-WON K. PECHKIS, JIANBING QI³, DAJUN WANG, P.L. GOULD, E.E. EYLER, W.C. STWALLEY, University of Connecticut, R.A. CLINE, J.D. MILLER, D.J. HEINZEN, University of Texas, Austin — Analysis of photoassociation data on ^{85}Rb atoms in a MOT (U. Conn.) or FORT (U. Texas) into 0_u^+ states below the $5\text{S}+5\text{P}_{1/2}$ (U. Conn.) and $5\text{P}_{3/2}$ (U. Texas) limits reveals perturbations between the manifolds of states dissociating to these two limits. These perturbation effects are exhibited most clearly as peaks in values of $B(v)$ vs. v below the $5\text{P}_{1/2}$ limit where intermixings with levels associated with the $5\text{P}_{3/2}$ limit are maximal. From precision experimental data, we have fit long range and medium long range potentials and R-dependent spin-orbit functions. We will comment on deviations of observed energies from well known near-dissociation-limit expansion formulae.

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