

Abstract Submitted
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Photoassociation and ionization spectroscopy of ultracold ${}^7\text{Li}$ - ${}^{85}\text{Rb}$ molecules IAN STEVENSON, Purdue Univ, ADEEL ALTAF, Intel, JOHN LORENZ, Purdue University, SOURAV DUTTA, Raman Research Institute, D.S. ELLIOTT, YONG CHEN, Purdue University — We measured ${}^7\text{Li}$ - ${}^{85}\text{Rb}$ vibrational levels in the $d^3 \Pi$ electronic state through laser spectroscopy of ultracold molecules. In a dual species MOT, we bind pairs of ultracold atoms via photoassociation (PA). Our molecule formation rate can be as high as $3.5 \times 10^7 \text{ s}^{-1}$ for the $v=3$ line of the $3(0^+)$ state and our PA rate coefficient, $1.3 \times 10^{-10} \text{ cm}^3/\text{s}$, is the highest among heteronuclear bi-alkali-metal molecules. These excited molecules decay to a triplet ($a^3 \Sigma^+$) ground state; once there, they are detected using resonantly-enhanced-two-photon-ionization (RE2PI). Using known ground state vibrational levels we are able to determine the vibrational levels of the $d^3 \Pi$.

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