

Abstract Submitted
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Measurement of the KRb ground-state dissociation energy using cw depletion of ultracold molecules DAJUN WANG, JIN-TAE KIM¹, EDWARD E. EYLER, PHILLIP L. GOULD, WILLIAM C. STWALLEY, Physics Department, University of Connecticut, Storrs, CT 06269 — We have combined previous spectroscopic data [1] on the $X\ ^1\Sigma^+$ state of KRb with our recent binding energy measurements of high vibrational levels to obtain an improved value of the dissociation energy. Our measurement is carried out with ultracold KRb molecules formed by spontaneous emission following photoassociation of ultracold atoms. Pulsed laser ionization detection with vibrational selectivity and cw laser ion depletion with rotational resolution are used to measure the binding energies of high- v'' molecules directly. Using a common vibrational level, the term energy given in [1] is combined with our binding energy measurement to yield the dissociation energy of the $X\ ^1\Sigma^+$ state: $D_e = 4217.822 \pm 0.003\ \text{cm}^{-1}$. We acknowledge support from NSF.

[1] C. Amiot et al., J. Chem. Phys., **112**, 7068(2002).

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