

Abstract Submitted
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Employing Resonance-Enhanced Multi-Photon Dissociation for measuring the dissociation energy of LiO^{-1} BEN BERRY, BETHANY JOCHIM, T. SEVERT, PEYMAN FEIZOLLAH, KANAKA RAJU P., K. D. CARNES, B. D. ESRY, I. BEN-ITZHAK, J.R. Macdonald Laboratory, Department of Physics, Kansas State University, Manhattan KS, USA — We have evaluated the dissociation energy of LiO^{-} through photo-fragmentation by measuring the kinetic energy release (KER) upon dissociation into $\text{Li}+\text{O}^{-}$. Resonance-enhanced two-photon absorption was used to increase the rate of dissociating LiO^{-} by about two orders of magnitude over single-photon photodissociation. This REMPI-like process involves exciting LiO^{-} to an intermediate state from which photodissociation is more efficient. Using the measured KER distribution, we set a lower limit on the dissociation energy of 3.0 ± 0.1 eV, which is 0.3 eV larger than the value based on theory.

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