

Abstract Submitted
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Precision laser spectroscopy of Li isotopes for probing the nuclear size J.D. GILLASPY, C.J. SANSONETTI, National Institute of Standards and Technology, C.E. SIMIEN, National Institute of Standards and Technology (and West Virginia University), S.M. BREWER, J.N. TAN, R.C. BROWN, S.J. WU, J.V. PORTO, National Institute of Standards and Technology — We have performed a new measurement of the isotope shift of the ${}^6\text{Li}$ and ${}^7\text{Li}$ D lines. Our results resolve large discrepancies between theory and all other measurements of the splitting isotope shift (isotopic difference in the 2P fine structure). Our probe laser was heterodyned to a frequency comb to determine absolute transition frequencies. The laser-atom interaction was modeled to accurately determine the line centers of the hyperfine components, some of which are separated by less than their natural widths. The overall accuracy of our measured frequencies is four parts in 10^{11} . These results can be combined with accurate atomic theory to determine relative nuclear charge radii.

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