

Abstract Submitted
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Polarizability of Kr^{6+} from High-L Kr^{5+} Fine Structure Measurements¹ S.R. LUNDEEN, Colorado State University, C.W. FEHRENBACH, Kansas State University — The transition between $n=55$ and $n=109$ Rydberg levels of Kr^{5+} has been studied at high resolution using the RESIS method. Resolved excitation of $L = 6, 7, 8,$ and 9 levels in $n=55$ lead to a determination of the fine structure energies of these levels. Interpreted with the long-range polarization model, this leads to a measurement of the dipole polarizability of Zn-like Kr^{6+} , $\alpha_d = 2.53(2) a_0^3$. Considerations involved in deducing a value of the quadrupole polarizability from the data and factors contributing to the signal and noise levels in measurements of this type will be discussed.

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