Abstract Submitted
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Improved dipole transition strengths in Ba^+ from Ba Rydberg spectroscopy[1] SHANNON L. WOODS, STEPHEN R. LUNDEEN, Colorado State University, ERICA L. SNOW, SUNY Fredonia — Recent determinations of the dipole transition strengths between the $6^2S_{1/2}$ ground state of Ba^+ and the $6^2P_{1/2}$ and $6^2P_{3/2}$ levels combined two types of Rydberg Ba fine structure measurements, perturbed binding energy measurements and K-splitting measurements, to determine both transition strengths and their ratio more precisely than allowed by existing lifetime measurements [1]. The precision of these results, however, was limited not by the Rydberg measurements, but by uncertainty in the calculation of the polarizability of Ba^{2+} which had not been measured directly. The recently reported measurement of this polarizability [2] allows an improved analysis of existing Rydberg data and reduces the uncertainty in the inferred transition strengths.

[1] Shannon L. Woods, S. R. Lundeen, and Erica L. Snow, Phys. Rev. A 80, 042516 (2009)
[2] Erica L. Snow, et. al. private communication.

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