Abstract Submitted
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QED, Nuclear Size, and the Cosmos: Applications of High Precision Atomic Spectroscopy[1] JOHN GILLASPY, NIST, Gaithersburg, MD 20899 — I will survey some recent results from the Atomic Spectroscopy Group at NIST, focusing on topics that are most relevant to this Meeting, including evidence for a discrepancy between experiment and calculation based on three-body quantum electrodynamics (QED) [PRL, 109, 153001 (2012)], testing a method for determining nuclear sizes at the sub-attometer scale [PRL, 107, 023001 (2011)], and determining x-ray line ratios for astrophysical plasma diagnostics [ApJ, 728, 132 (2011)]. A common theme underlying these studies is to establish a basis for understanding discrepancies between prior results from various groups. This work was done in collaboration with S. Brewer, N. Brickhouse, R. Brown, C. Chantler, G.-X. Chen, A. Henins, L. Hudson, J. Kimpton, M. Kinnane, J. Laming, T. Lin, K. Makonyi, A. Payne, J. Pomeroy, J. Porto, C. Sansonetti, E. Silver, C. Simien, L. Smale, E. Takacs, J. Tan, L. Tedesco, and S. Wu.

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