

Proton structure corrections to electronic and muonic hydrogen hyperfine splitting

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We will present a precise determination of the polarizability and other proton structure dependent contributions to the hydrogen hyperfine splitting, based heavily on the most recent published data on proton spin dependent structure functions from the EG1 experiment at the Jefferson Laboratory [1]. As a result, the total calculated hyperfine splitting now [2] has a standard deviation slightly under 1 part-per-million, and is about 1 standard deviation away from the measured value. We also will present results for muonic hydrogen hyperfine splitting, taking care to ensure the compatibility of the recoil and polarizability terms.

[1] Y. Prok *et al.*, arXiv:0802.2232 [nucl-ex].

[2] C. E. Carlson, V. Nazaryan, and K. A. Griffioen, submitted to ArXiv, May, 2008.