

**MEASUREMENT OF THE SPIN-DEPENDENT STRUCTURE
FUNCTION $g_1(x)$ OF THE PROTON**

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Abstract

We have measured the spin-dependent structure function g_1^p of the proton in deep inelastic scattering of polarized muons off polarized protons, in the kinematic range $0.003 < x < 0.7$ and $1 \text{ GeV}^2 < Q^2 < 60 \text{ GeV}^2$. Its first moment, $\int_0^1 g_1^p(x) dx$, is found to be $0.136 \pm 0.011 \text{ (stat.)} \pm 0.011 \text{ (syst.)}$ at $Q^2 = 10 \text{ GeV}^2$. This value is smaller than the prediction of the Ellis–Jaffe sum rule by two standard deviations, and is consistent with previous measurements. A combined analysis of all available proton, deuteron and neutron data confirms the Bjorken sum rule to within 10% of the theoretical value.

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