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Particles and Fields*Invited***Measurements of the Proton and Deuteron Spin Structure Functions**

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The spin spin structure functions  $g_1^p$  and  $g_1^d$  were measured by inclusive deep inelastic scattering of polarized muons off polarized protons and deuterons. The first moments of the measured structure functions,  $\Gamma_1 = \int_0^1 g_1(x) dx$  provide experimental tests of the Bjorken sum rule and the Ellis-Jaffe sum rules. Results obtained by the Spin Muon Collaboration (SMC) at CERN will be presented. They are in good agreement with the theoretical prediction of the Bjorken sum rule, but disagree with the predictions of the Ellis-Jaffe sum rules by more than 2 standard deviations. The singlet axial charge  $a_0$  of the nucleon was deduced from the experimental first moments. In the naive quark parton model it is equal to the contribution of the quark spins to the nucleon spin. A combined analysis of all available spin structure function data gives  $a_0 = \Delta\Sigma = 0.29 \pm 0.06$ .