

Abstract Submitted  
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**Polarized structure functions from AdS/CFT**<sup>1</sup> BOWEN XIAO, Lawrence Berkeley National Lab, JIAN-HUA GAO, University of Science and Technology of China — We investigate deep inelastic and elastic scattering on a polarized spin- $\frac{1}{2}$  hadron using gauge/string duality. AdS/CFT correspondence provides us new insights into gauge theories in strong coupling regime. This spin- $\frac{1}{2}$  hadron corresponds to a supergravity mode of the dilatino. The polarized deep inelastic structure functions are computed in supergravity approximation at large t' Hooft coupling  $\lambda$  and finite  $x$  with  $\lambda^{-1/2} \ll x < 1$ . Furthermore, we discuss the moments of all structure functions, and propose an interesting sum rule  $\int_0^1 dx g_2(x, q^2) = 0$  for  $g_2$  structure function which is known as the Burkhardt-Cottingham sum rule in QCD. In addition, we discuss the possible small-x contributions for  $g_1$  due to the consideration of the angular momentum sum rule. In the end, the elastic scattering is studied and elastic form factors of the spin- $\frac{1}{2}$  hadron are calculated within the same framework.

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