Theoretical description of the spin structure function g1 at small x and arbitrary Q2

Tuesday 17 April 2007 15:20 (20 minutes)

Standard Approach (SA) for description of g_1 is based on the DGLAP evolution equations and the special fits for the initial parton densities. SA accounts for the total resummation of logs of Q2 and lacks the total resummation of leading ln(1/x). In order to meet the small -x experimental data, SA includes phenomenological singular factors in the fits. They mimic the resummation of ln(1/x) and lead to the steep rise of g_1 at small x . When the resummation is accounted for, the fits can be drastically simplified. The further advantage of our approach lays in analysis of DIS at small Q2. Indeed, DGLAP cannot be applied to the region of small Q2 presently studied by COMPASS collaboration. Contrary to it, our approach works in this kinematics and predicts a very week x-dependence of g_1 at small Q2 even at very small values of x. Instead, experimental investigation of the g 1 dependence on the invariant energy 2pq would extremely interesting because it allows one to estimate the impact of the gluon initial density.

Primary author: ERMOLAEV, Boris (Ioffe Physico-Technical Institute)

Presenter: ERMOLAEV, Boris (Ioffe Physico-Technical Institute)

Session Classification: Spin Physics

Track Classification: Spin Physics