

# The flavor symmetry breaking of nucleon sea in the valon model framework

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Next-to-leading order approximation of the quark helicity distributions are used in the frame work of polarized valon model. The flavor-asymmetry in the light-quark sea of the nucleon can be obtained from the contributions of unbroken sea quark distributions. We employ the polarized valon model and extract the flavor-broken light sea distributions which are modeled with the help of a Pauli-blocking ansatz. Using this ansatz, we can obtain broken polarized valon distributions. From there and by employing convolution integral, broken sea quark distributions are obtainable in this frame work. Our results for  $\delta u$ ,  $\delta d$ ,  $\delta \bar{u}$ ,  $\delta \bar{d}$  and  $\delta s$  are in good agreement with recent experimental data for polarized parton distribution from HERMES experimental group and also with GRSV model. Some information on orbital angular momentum as a main ingredient of total nucleon spin are given. The  $Q^2$  evolution of this quantity, using the polarized valon model is investigated.

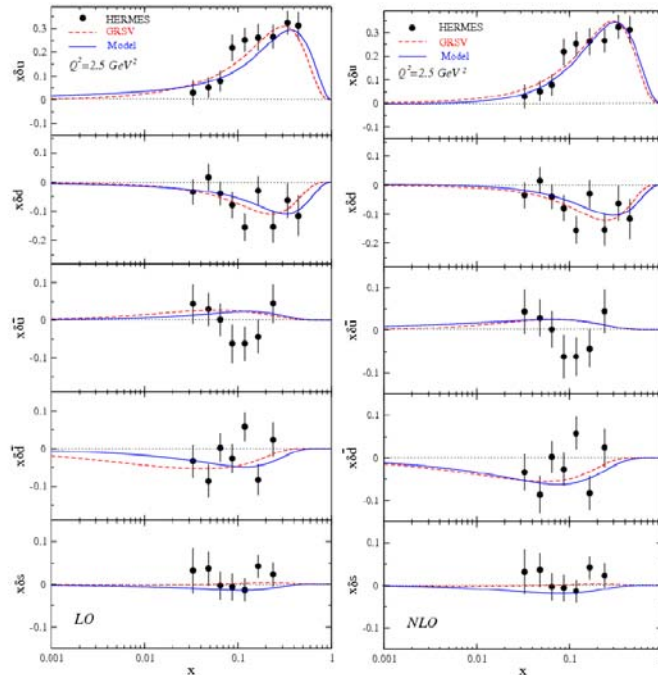


Fig. 5. The quark helicity distributions  $x\delta q(x, Q^2)$  evaluated at value of  $Q^2 = 2.5 \text{ GeV}^2$  as a function of  $x$  in the LO and NLO approximations. The dashed line is the GRSV model [15] (ISET=2 for the NLO and ISET=4 for the LO approximation) and the solid line is our model.