

Abstract Submitted
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An investigation of the \bar{u} - \bar{d} asymmetry in the proton sea through a combined Statistical and Meson Cloud Model LUCAS EHINGER, MARY ALBERG, Seattle Univ — Recent experimental investigations have found an asymmetry in the distributions of \bar{u} and \bar{d} within the proton; a result which cannot be well explained through simple perturbative gluon splitting. Instead, this result is better explained by fluctuation of the proton into meson-baryon pairs. We use the Light Front formulation of the Meson Cloud Model (MCM) to describe this proton-pion cloud system as an expansion of the proton with meson-baryon pairs. Using the principle of detailed balance, we develop statistical models for the proton and the meson and baryon parton distributions. To avoid double counting of expanded states within our MCM, we determine a bare proton distribution by subtracting these expanded meson-baryon states from our proton statistical model. We then use Monte Carlo analysis to determine the momentum-dependence of our \bar{u} - \bar{d} asymmetry, after which we evolve our results to higher Q^2 to allow for comparison with experimental data.

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