Abstract Submitted
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Monte Carlo Calculations of the Light Flavor Asymmetry in the Proton Sea[1] ETHAN HUNT, Seattle University — The E866/ NuSea experiment has shown a light flavor asymmetry of $\bar{d}$ and $\bar{u}$ in the proton sea. The excess of $\bar{d}$ over $\bar{u}$ can be explained using a statistical model in which the proton is considered a superposition of parton states for which transitions include gluon radiation by quarks and gluons, quark-antiquark pair creation by gluons, and the inverse processes. We use a Monte Carlo simulation to calculate transitions between the states. The advantage of a Monte Carlo simulation is that it is not restricted to detailed balance between states, and that probabilities for different types of transitions can be varied. We use this model to find the probability of each state in the superposition. We extend the model to calculate the momentum distribution for each n-parton state, which allows us to determine the $\bar{d}$ and $\bar{u}$ momentum distributions. Our model is evolved in Q^2 and compared to E866/ NuSea results. We make predictions for the E906 experiment running at FermiLab.

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