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Investigating $\bar{d}\bar{u}$ asymmetry in the proton sea by combining Statistical and Meson Cloud Models[1] AARON FISH, CHRISTOPHER RILEY, Seattle University — From perturbative processes, such as gluon splitting, we expect there to be symmetric distributions of $\bar{d}$ and $\bar{u}$ partons in the proton. However, experiment has shown an excess of $\bar{d}$ over $\bar{u}$. This has been qualitatively explained by the Meson Cloud Model (MCM), in which the non-perturbative processes of proton fluctuations into meson-baryon pairs, allowed by the Heisenberg uncertainty principle, create the flavor asymmetry. We have developed a hybrid MCM to describe the x-dependence of $\bar{d}$ and $\bar{u}$ in the nucleon sea. We use a convolution of parton distribution functions from a simple statistical model and splitting functions from the Light-Cone Model, (LCM). We show that two-body LCM wave functions are a good representation of MCM splitting functions. The results of our model are compared to experimental data from the Fermilab E866/NuSea experiment. We present predictions for the $\bar{d}/\bar{u}$ ratio that is currently being examined by Fermilab's SeaQuest experiment, E906.

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