Abstract Submitted
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Combining the Statistical and Meson Cloud models of the Proton[1] TYLER MATOSSIAN, Seattle University — The meson cloud model of [1] of the proton is extended to include the statistical model of [2] to study the $\overline{d}$, $\overline{u}$ asymmetry in the population of sea quarks in the proton. The meson cloud model represents the proton in terms of non-perturbative fluctuations into meson-baryon pairs. The statistical model has the proton built up of states which include valence quarks, gluons, and sea quarks, connected in detailed balance through perturbative quark-gluon processes. Although both models provide good agreement with the E866 measurements of $\overline{d}(x) - \overline{u}(x)$, they fail to agree with the $\overline{d}(x)/\overline{u}(x)$ distribution. In our hybrid model, parton distributions calculated in the statistical model are used for the meson and baryon terms in the meson cloud model. Results will be compared to the E866 experiment.

[1] J. Speth and A. W. Thomas, Adv. Nucl. Phys. 24 (1997) 83
[2] Y-J. Zhang et al, Phys. Lett. B 523 (2001) 260; Y-J. Zhang et al., Phys. Lett. B 528 (2002) 228

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