Parton Distributions of the Kaon and the Tetraquark BONNIE CANION, Seattle University — The goal of this research is to describe parton distributions for the K^+ meson (kaon) and the tetraquark. We used the statistical model of Zhang et al. [1,2], which describes a particle as an expansion in quark-gluon Fock states, assumes detailed balance, and does not use any free parameters. The K^+ meson and tetraquark are each made up of a set number of valence quarks, and a sea of light quark-antiquark pairs and gluons. The K^+ meson has two valence quarks, u and $\bar{s}$. The tetraquark, an exotic meson recently discovered [3] by the Belle collaboration at KEKB, is composed of four valence quarks, u, $\bar{d}$, c and $\bar{c}$. To find the parton seas for these particles, three processes were considered, $g \leftrightarrow qg$, $g \leftrightarrow q\bar{q}$, and $g \leftrightarrow gg$. Similar to the proton, there is an asymmetry in the parton sea of the K^+ meson, which was found to be $\bar{d} - \bar{u} \approx 0.264$. The tetraquark light quark sea was found to be symmetrical. These mesons are further described by their parton momentum distributions, which were determined by using a Monte Carlo code. Understanding the parton distributions of particles is increasingly important as we approach the opening of the LHC. This research has been supported in part by the Research in Undergraduate Institutions Program of the National Science Foundation, Grant no. 0555706. **References** [1] Y-J. Zhang et al, Phys. Lett. B 523 (2001) 260. [2] Y-J. Zhang et al, Phys. Lett. B 528 (2002) 228. [3] S. -K. Choi et al. (Belle collaboration), Phys. Rev. Lett. 100 (2008) 142001.

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