

An interesting observations using the exclusive meson electroproduction ratios from CLAS experiment

Kijun Park¹

¹ Old Dominion University & Thomas Jefferson National Accelerator Facility

I will present the ratio of the electroproduction cross-sections for three meson-baryon final states: $K^+\Lambda$, $p\pi^0$, and $n\pi^+$. This measurement is from data collected during the CLAS (*e1f*) run period. Presenting the ratio results help us to have better understanding and insight common elements for the $q\bar{q}$ production mechanism. An averaging over the angle between leptonic and hadronic production planes we observe only a moderate kinematic dependence of the ratios with respect to Q^2 , W and $\cos\theta$. The results agree well with a simple calculation based on the “Lund model” for hadronization in which the color flux-tube is broken by the creation of $q\bar{q}$ pairs and which works well up to center-of-mass energies equal to the Z^0 mass.

The measured global average in this analysis for $K^+\Lambda/n\pi^+$, $p\pi^0/n\pi^+$ production ratios will be presented. Interestingly, they agree with the nominal value of the “strangeness suppression factor” of the Lund model. In addition, our measurement of the $p\pi^0/n\pi^+$ ratio is consistent with equality of the $u\bar{u}$ and $d\bar{d}$ pair creation probabilities.