High Energy Physics - Phenomenology

Normalization discrepancies in photoproduction reactions

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Recent CLAS photoproduction results using a tagged bremsstrahlung photon beam for the ground-state pseudoscalar meson photoproduction channels ($K^+ \Lambda$, $K^+ \Sigma^0$, ηp, $\pi^+ n$ and $\pi^0 p$) show a normalization discrepancy with older results from SLAC, DESY and CEA that used an untagged bremsstrahlung beam. The CLAS results are roughly a factor of two smaller than the older data. The CLAS $K^+\Lambda$ and $K^+\Sigma^0$ results are in excellent agreement with the latest LEPS results that also employed a tagged beam. For the vector meson (ωp and ϕp) channels, CLAS agrees with SLAC results that employed a linearly polarized beam using laser back-scattering, as well as Daresbury data that also came from tagged photon experiment. We perform a global survey of these normalization issues and stress on their significant effect on the coupling constants used in various partial wave analyses.

Comments:	This expands upon a talk given at NSTAR'11. It is also a preliminary draft only
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