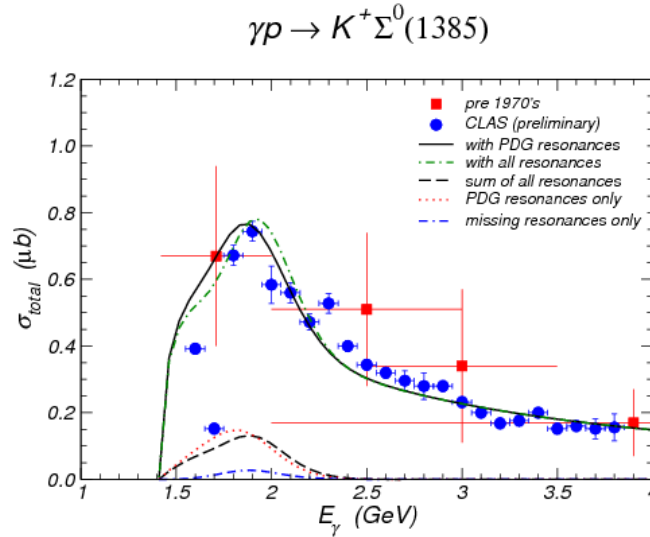


## Nucleon and $\Delta$ resonances in $K\Sigma(1385)$ photoproduction from nucleons

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The reaction mechanisms for  $\Sigma K(1385)$  photoproduction from the reaction  $\gamma p \rightarrow K^+ \Sigma^0(1385)$  in the resonance energy region are investigated in a hadronic model [1]. Both contributions from N and  $\Delta$  resonances of masses around 2 GeV as given in the Review of Particle Data Group and by the quark model predictions are included. The Lagrangians for describing the decays of these resonances into  $K\Sigma(1385)$  are constructed with the coupling constants determined from the decay amplitudes predicted by a quark model. Comparing the resulting total cross section for the reaction  $\gamma p \rightarrow K^+ \Sigma^0(1385)$  with the preliminary data from the Thomas Jefferson National Accelerator Facility, we find that the most important contributions are from the two-star rated resonances  $\Delta(2000) F_{35}$ ,  $\Delta(1940) D_{33}$ , and N(2080)  $D_{13}$ , as well as the missing resonance N  $3/2(2095)$  predicted in the quark model as shown in Fig. 1. We have also predicted the differential cross section and photon asymmetry in this reaction.



**Figure 1.** Total cross sections for the  $\gamma p \rightarrow K^+ \Sigma^0(1385)$  reaction with various resonances.

[1] Y. Oh, C. M. Ko, and K. Nakayama, Phys. Rev. C **77**, 045204 (2008).