

Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Hadronic description for the ϕ -photoproduction near the threshold HUIYOUNG RYU, ATSUSHI HOSAKA, Research Center for Nuclear Physics (RCNP), Ibaraki, Osaka 567-0047, Japan, HYUN-CHUL KIM, Department of Physics, Inha University, Incheon 402-751, Korea — The Pomeron-exchange plays an important role in the ϕ -photoproduction from the nucleon. It describes well the increasing behavior of the production rate at high energies, a consequence of the Regge theory with the Pomeron trajectory $\alpha(t)$. Recently LEPS has reported a bump-like structure in $d\sigma/dt$ near the threshold energy. Within the Regge theory, the second Pomeron is examined, but it is difficult to reproduce such a narrow bump structure. Besides the Pomeron-exchange, we could expect hadronic processes relevant in the threshold region. In this work, we attempt a hadronic description for the ϕ -photoproduction. Since the OZI mechanism suppresses Born diagrams at the tree level, we consider loop contributions. We pay special attention to the gauge invariant set of diagrams and momentum (s, t and u) dependence of the amplitude. We discuss that some features of momentum dependence may help to understand the underlying reaction mechanism. We also discuss that some correlated loops may express effectively a meson exchange diagram, for instance, in the t -channel.

Huiyoung Ryu

Date submitted: 30 Jun 2009

Electronic form version 1.4