

Single Meson Photoproduction

$$\gamma p \rightarrow \pi^0 p$$

physics

s-channel quantum numbers: N^* and Δ resonances

t-channel quantum numbers:

vector meson: $(1, 3, \dots)^-$ ω, ρ

axial-vector meson: $(1, 3, \dots)^+$ b, h

$(0, 2, \dots)^-$

Primakoff effect at very low t

dip at $|t| \sim 0.5 \text{ GeV}^2$ in $d\sigma/dt$

data

all Durham data: [http://hepdata.cedar.ac.uk/search/re_gamma_p_--\\$003e_pi0_p_/all](http://hepdata.cedar.ac.uk/search/re_gamma_p_--$003e_pi0_p_/all)

High energy data:

Anderson et al: <http://inspirehep.net/record/67154>

$d\sigma/dt$ for $E_g = 6, 9, 12, 15 \text{ GeV}$ and $|t|$ between 0.1 and 1.4 GeV^2

References

Mathieu et al: <http://arxiv.org/abs/1505.02321>

Regge

Worden: <https://inspirehep.net/record/75321>

FESR and Regge

$$\gamma p \rightarrow \eta p$$

physics

s-channel quantum numbers: N^* resonances

t-channel quantum numbers:

vector meson: $(1, 3, \dots)^{-}$ ω, ρ

axial-vector meson: $(1, 3, \dots)^{+-}$ b, h

$(0, 2, \dots)^{-}$

Primakoff effect at very low t

NO dip in $d\sigma/dt$

data

all Durham data: [http://hepdata.cedar.ac.uk/search/re_gamma_p_--\\$003e_eta_p_/all](http://hepdata.cedar.ac.uk/search/re_gamma_p_--$003e_eta_p_/all)

Recent data:

William et al: <http://inspirehep.net/record/830257>

$d\sigma/dt$ for $W = 1.7-2.8$ GeV and all \cos range

References

Worden: <https://inspirehep.net/record/75321>

FESR and Regge

Single Meson Hadroproduction

$$\pi^- p \rightarrow \pi^0 n$$

physics

s-channel quantum numbers: N^* and Δ resonances

t-channel quantum numbers:

isovector vector meson: $(1, 3, \dots)^- \rho$

dip at $|t| \sim 0.5 \text{ GeV}^2$ in $d\sigma/dt$

data

all Durham data: [http://hepdata.cedar.ac.uk/search/re_pi-p_--\\$003e_pi0_n/all](http://hepdata.cedar.ac.uk/search/re_pi-p_--$003e_pi0_n/all)

High energy data:

Barnes et al: <http://inspirehep.net/record/108646>

$d\sigma/dt$ for E_{lab} from 20.8 to 199.3 GeV and $|t|$ between 0.0 and 1.4 GeV^2

References