

Efek Resonans Nukleon Dengan Spin $3/2$ Dan $5/2$ Pada Kanal-U Terhadap Fotoproduksi Meson Di Dalam Model Isobar = The Effect of Nucleon Resonance with Spin $3/2$ and $5/2$ on Channel-u for Photoproduction of $\hat{\pi}$ -Meson in Isobar Model

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Abstrak

Kita menghitung penampang lintang differensial, penampang lintang total, dan polarisasi foton dari fotoproduksi meson- $\hat{\pi}$ pada nukleon dengan menggunakan model isobar dan pendekatan lagrangian efektif. Kita menghitung amplitudo transisi dengan memasukkan suku Born, suku pertukaran meson, serta suku nukleon resonans $N(1895)1/2^-$, $N(1900)3/2^+$, dan $N(2000)5/2^+$, untuk kanal-s dan kanal-u. Penampang lintang differensial kemudian di-plot dalam rentang energi 1898-1956 MeV dengan variasi sudut, $\cos \hat{\theta}_s = \pm 0.1, \pm 0.3, \pm 0.5, \pm 0.7$ dan ± 0.9 serta membandingkannya dengan data eksperimen kolaborasi A2 (2017).We calculate the differential cross section, total cross section, and photon polarization of $\hat{\pi}$ -meson photoproduction in nucleons using the isobar model and an effective lagrangian approach. We calculate the transition amplitude by including the Born term, the meson exchange term, as well as the $N(1895)1/2^-$, $N(1900)3/2^+$, and $N(2000)5/2^+$ nucleon resonance term for s-channel and u-channel. The differential cross section is then plotted with energy range 1898-1956 MeV and angular variations, $\cos \hat{\theta}_s = \pm 0.1, \pm 0.3, \pm 0.5, \pm 0.7$ and ± 0.9 and compare it with the A2 collaboration experimental data (2017).