

# The importance of vector meson-baryon dynamics on meson production reactions around 2 GeV

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## Collaboration

## Abstract content

The theoretical description of meson photoproduction reactions off the proton at energies around 2 GeV requires the consideration of channels involving vector mesons and baryons together with a proper implementation of unitarization. A clear example is provided by the  $\gamma p \rightarrow K^0 \Sigma^+$  reaction in the energy region around the  $K^* \Lambda$  and  $K^* \Sigma$  thresholds, where the CBELSA/TAPS cross section shows a sudden drop [1]. This is due to a baryon interaction, which is obtained from the hidden gauge formalism. We find that the cross section in this energy region results from the  $K^* \Lambda$  reaction. Another manifestation of the importance of the vector meson-baryon dynamics may be found on the medium properties of the vector mesons. We have analyzed the contribution to the vector meson self-energies in nuclear matter at 260 MeV while that of the  $\omega$  meson is  $\Gamma_{\omega} = 121$  MeV, both substantially larger than their free space values.

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