

Resonance Parameters from $\pi^+\pi^-p$ Photo- and Electroproduction¹

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Studies of the transition $N \rightarrow N^*$ photo- and electroexcitation amplitudes (i. e. $\gamma_{r,v}NN^*$ photo- and electrocouplings) from the data of exclusive $\pi^+\pi^-p$ channel will be reviewed. The meson-baryon reaction model JM [1] is the only available approach worldwide that provided $\gamma_{r,v}NN^*$ photo-, electrocouplings, and $\pi\Delta$ and ρp hadronic decay widths of most resonances in the mass range up to 1.8 GeV and at photon virtualities up to 1.5 GeV² from the data of this exclusive channel. The recent model developments will be presented, including the special procedure allowing us to eliminate double counting between the resonance contributions to s- and t-channel processes in $\pi\Delta$ isobar channels, the evidences for three-body final state interactions from the preliminary CLAS $\pi^+\pi^-p$ photoproduction data. Preliminary results on the electrocouplings and the $\pi\Delta$ and ρp hadronic decay widths of several high-lying N^* states ($M > 1.6$ GeV) that decay preferentially to the $N\pi\pi$ final states have become available from the data on $\pi^+\pi^-p$ electroproduction for the first time [2]. New evidence in support of a $3/2^+(1720)$ candidate N^* state come from these studies. The prospects for the future exploration of exclusive $\pi^+\pi^-p$ electroproduction extending the coverage of photon virtualities up to 12.0 GeV² with the CLAS12 detector will be outlined.

References

- [1] V.I. Mokeev *et al.* (*CLAS Collaboration*), Phys. Rev. C **86**, 035203 (2012).
- [2] V.I. Mokeev and I.G. Aznauryan, Int. J. of Mod. Phys. Conf. Ser. **26**, 1460080 (2014).

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