

Charged neutrino-nucleon cross section in a consistent dynamical model*

Alejandro Mariano¹, Cesar Barbero¹, Gabriel López Castro²

¹Departamento de Física, Facultad de Ciencias Exactas Universidad Nacional de La Plata,
cc.67, 1900 La Plata, Argentina..

²Departamento de Física, Centro de Investigación y de Estudios Avanzados del IPN, Apdo.
Postal 14-740, 07000 México, D.F., Mexico.

It is now well recognized that an important challenge in nuclear research is to understand the hadron structure within QCD. One of the important information for pursuing this research is the electromagnetic and weak N- Δ form factors. We have already developed a dynamical model which have described satisfactorily π N scattering, π N bremsstrahlung [1] and γ N \rightarrow π N pion photoproduction [2]. With this model we were able to fix some parameters related with the Δ resonance in a model independent way, as for example the mass, width, dipolar magnetic moment and the M1 and E2 transition moments closely related with the hadron deformation. Following this program and for the sake of consistence in treating reactions involving hadronic and electromagnetic probes on the same footing, we extend the model in order to describe the ν N \rightarrow μ N π weak pion production process. Our objective is to extract now the axial vector N- Δ form factors from the data of neutrino-induced pion production reactions and to establish the role played by the background contributions and final state interactions.

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