Publishing the NuSTEC White Paper

NuSTEC Board Meeting
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Example: Coherent and Diffractive Scattering

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Section: Coherent and Diffractive Scattering

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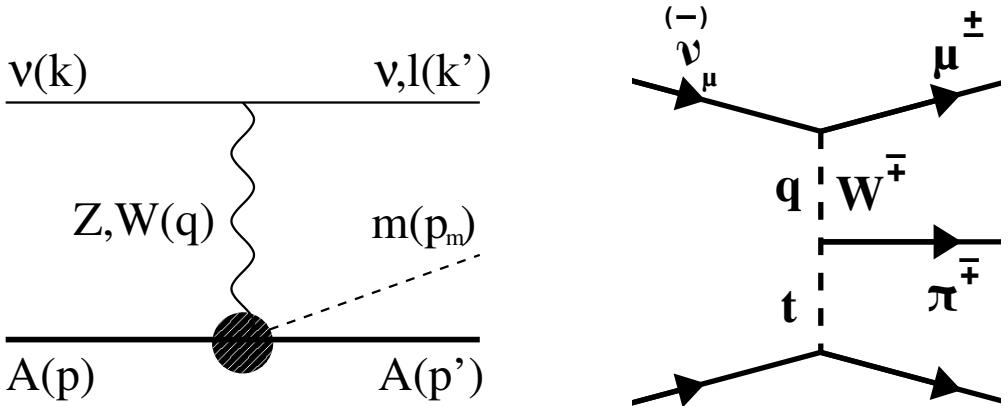

FIG. 20. Left panel: generic diagram for coherent particle production by neutrino-nucleus scattering. Four-momenta of the incoming neutrino (k) and nucleus (p), outgoing lepton (k') and nucleus (p'), coherently produced particle (p_m), and the four-momentum transferred by the lepton (q) are indicated. Right panel: diagram for coherent CC pion production highlighting $t = (p' - p)^2$ as the square of the 4-momentum transferred to the nucleus.

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- From reference 450

[450] D. I. Scully, *Neutrino Induced Coherent Pion Production*, Ph.D. thesis, Warwick U. (2013).

- A thesis - need permission from author (and university?)

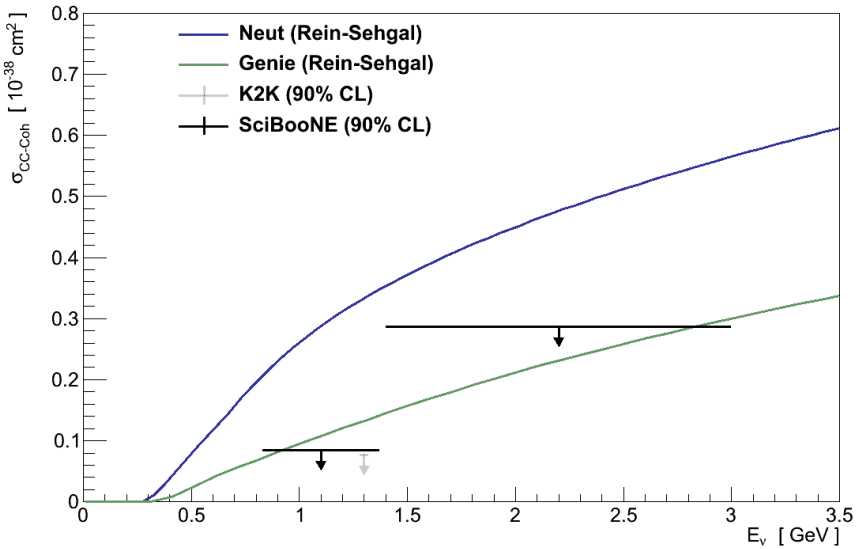

FIG. 21. Differences in the cross section predictions of the Cohπ RS model within the NEUT and GENIE simulation programs as a function of the neutrino energy (figure from Ref. [450]). The predictions are compared to the 90% CL upper limits set for CC coherent pion production on ^{12}C by the K2K [445–447] and SciBooNE [448, 449] experiments.

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- From reference 465: [465] A. Higuera *et al.* (MINERvA), Phys. Rev. Lett. **113**, 261802 (2014), arXiv:1409.3835 [hep-ex].
- A MINERvA publication so we have permission of the authors (email) but still need permission from Phys. Rev. Lett.

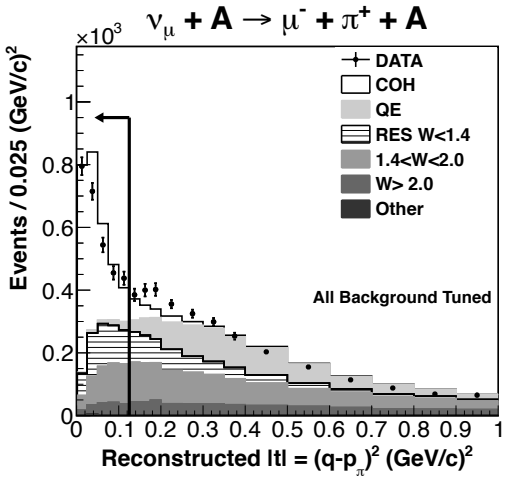

FIG. 22. An example of an experimental $|t|$ distribution from Ref. [465] showing the signal distribution peaking near zero and the relative size of the (GENIE) predicted background.

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- From reference 471:
- Already have authors permission. In principle need permission from proceedings publisher.

[471] L. Alvarez-Ruso, E. Hernandez, J. Nieves, and M. J. Vicente Vacas, in *10th International Workshop on Neutrino-Nucleus Interactions in the Few GeV Region (NuInt15) Osaka, Japan, November 16-21, 2015* (2016) arXiv:1602.05562 [hep-ph].

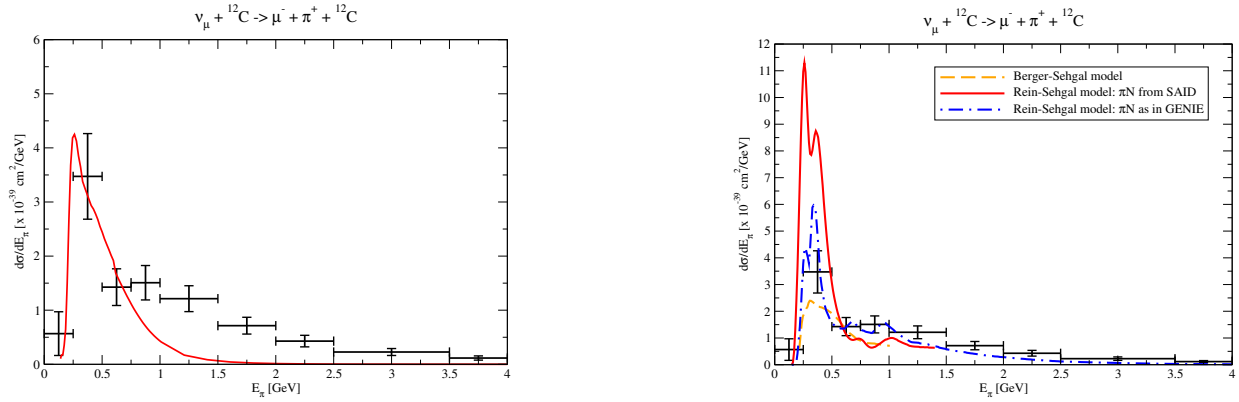

FIG. 23. Cohπ^+ MINERvA data [465] confronted with different theoretical models (also in Ref. [471]). Left: microscopic model of Ref. [440]. Right: implementations of Rein-Sehgal [433] and Berger-Sehgal [435] models. For the Rein-Sehgal model, input as in GENIE [472] and from SAID [473] have been used.