

Table of Contents

WG2: Cross-section (Theory) and generators.....	1
Topics.....	2
Documentation	

Topics

- Review status of theoretical models and neutrino generators vs data, identify areas of development.
- Comparisons with electron scattering data if available in the generators.
- Generate a test database with available data.
- Stimulate new/complementary experimental programs where needed.
- Address in detail the electron-muon and neutrino-antineutrino differences, extrapolate achievable precision.
- Lattice calculation of form factors.
- Breemstrahlung correction for electron neutrino interactions.
- Active promotion of the field inside the nuclear physics community in Europe.

Documentation

Recent review papers

- NuSTEC White Paper: Status and Challenges of Neutrino-Nucleus Scattering [↗](#), L. Alvarez-Ruso et al.
- Neutrino-Nucleus Cross Sections for Oscillation Experiments [↗](#), T. Katori, M. Martini
- Neutrino Interactions with Nucleons and Nuclei: Importance for Long-Baseline Experiments [↗](#), U. Mosel
- Neutrino-nucleus interactions and the determination of oscillation parameters [↗](#), O. Benhar, P. Huber, C. Mariani, D. Meloni
- Recent Advances and Open Questions in Neutrino-induced Quasi-elastic Scattering and Single Photon Production [↗](#), G. T. Garvey et al.
- Progress and open questions in the physics of neutrino cross sections [↗](#), L. Alvarez-Ruso, Y. Hayato, J. Nieves

Recent review talks

- Present status of neutrino cross sections [↗](#), L. Alvarez-Ruso, EPS-HEP 2017 [↗](#)
- Theory of Neutrino Cross Sections [↗](#), J. Nieves, Neutrino Telescopes 2017 [↗](#)
- Status and challenges of neutrino cross-sections [↗](#), M. Martini, NuPhys2016 [↗](#), arXiv:1704.08903 [↗](#)
- Neutrino-Interactions with nuclei and Long Baseline Experiments [↗](#), U. Mosel, ICHEP 2016 [↗](#), PoS ICHEP2016 (2016) 504 [↗](#)
- Theoretical challenges in neutrino scattering studies [↗](#), J. Nieves, Neutrino 2016 [↗](#)
- Review of progress in measurements of neutrino-nucleus scattering [↗](#), K. Mahn, Neutrino 2016 [↗](#)
- Future experimental programme for neutrino cross sections [↗](#), S. Bolognesi, Neutrino 2016 [↗](#)
- The physics of neutrino cross sections: theoretical studies [↗](#), L. Alvarez-Ruso, NuPhys2015 [↗](#), arXiv:1605.04861 [↗](#)
- Cross Sections - current status [↗](#), F. Sanchez, NuPhys2015 [↗](#)
- Theoretical models of neutrino-nucleus cross sections [↗](#), M. Martini, EPS-HEP 2015 [↗](#), PoS EPS-HEP2015 (2015) 088 [↗](#)
- Neutrino Cross Sections: Models [↗](#), M. Martini, Neutrino Telescopes 2015 [↗](#), PoS NEUTEL2015 (2015) 012 [↗](#)
- Theory and Phenomenology of Neutrino Interactions [↗](#), J. Sobczyk, Neutrino 2014 [↗](#), AIP Conf.Proc. 1666 (2015) 060001 [↗](#)
- Review of Neutrino Interactions [↗](#), F. Sanchez, Neutrino 2014 [↗](#), AIP Conf.Proc. 1666 (2015) 060003 [↗](#)

Conferences and workshops

- NuFact 2017 [↗](#)
- NuInt 2017 [↗](#)
- IPPP/NuSTEC topical meeting on neutrino-nucleus scattering [↗](#)
- INT Seattle Workshop 2016: Theoretical Developments in Neutrino-Nucleus Scattering [↗](#)
- NuFact 2016 [↗](#)
- Neutrino Cross-section Data Tensions Workshop, Pittsburgh 2016 [↗](#)
- Workshop on Global Fits to Neutrino Scattering Data and Generator Tuning (NuTune2016) [↗](#)
- Two-body current contributions in neutrino-nucleus scattering, ESNT-CEA 2016 [↗](#)
- NuInt 2015 [↗](#)
- NuFact 2015 [↗](#)
- FUNFACT JLAB 2015 [↗](#)
- NuInt 2014 [↗](#)
- INT Seattle Workshop 2013: Neutrino-Nucleus Interactions for Current and Next Generation Neutrino Oscillation Experiments [↗](#)

Comparison theory-experiment

- CCQE, CCQE-like and CC0pi
 - ◆ MiniBooNE (neutrino [↗](#) and antineutrino [↗](#)): Martini, M. et al. Phys.Rev. C80 (2009) 065501 [↗](#); Nieves, J. et al. Phys.Rev. C83 (2011) 045501 [↗](#); Bodek, A. et al. Eur.Phys.J. C71 (2011) 1726 [↗](#); Martini, M. et al. Phys.Rev. C84 (2011) 055502 [↗](#); Nieves, J. et al. Phys.Lett. B707 (2012) 72-75 [↗](#); Nieves, J. et al. Phys.Lett. B721 (2013) 90-93 [↗](#); Martini, M. et al. Phys.Rev. C87 (2013) 065501 [↗](#); Gallmeister, K. et al. Phys.Rev. C94 (2016) 035502 [↗](#); Pandey, V. et al. Phys.Rev. C94 (2016),054609 [↗](#); Megias, G.D. et al. Phys.Rev. D94 (2016), 093004 [↗](#)
 - ◆ MINERvA (neutrino [↗](#) and antineutrino [↗](#)): Gran, R. et al. Phys.Rev. D88 (2013) 113007 [↗](#); Mosel, U. et al. Phys.Rev. D89 (2014) 093003 [↗](#); Meucci, A. et al. Phys.Rev. D89 (2014) 117301 [↗](#); Megias, G.D. et al. Phys.Rev. D94 (2016), 093004 [↗](#)
 - ◆ MINERvA (nu_e [↗](#)): Megias, G.D. et al. Phys.Rev. D94 (2016), 093004 [↗](#)
 - ◆ T2K on carbon: Abe, K. et al. Phys.Rev. D93 (2016) 112012 [↗](#) (comparisons with Martini et al. and Nieves et al. models); Megias, G.D. et al. Phys.Rev. D94 (2016), 093004 [↗](#); Van Cuyck, T. et al. Phys.Rev. C95 (2017) 054611 [↗](#)
 - ◆ T2K on water: Abe, K. et al. arXiv:1708.06771 [↗](#) (comparisons with Martini et al. and Megias et al. models)
- CC inclusive
 - ◆ T2K (nu_mu [↗](#) and nu_e [↗](#)): Martini, M. et al. Phys.Rev. C90 (2014) 025501 [↗](#); Meucci, A. et al. Phys.Rev. D91 (2015) 093004 [↗](#); Martini, M. et al. Phys.Rev. C94 (2016) 015501 [↗](#); Gallmeister, K. et al. Phys.Rev. C94 (2016) 035502 [↗](#); Megias, G.D. et al. Phys.Rev. D94 (2016), 093004 [↗](#); Pandey, V. et al. Phys.Rev. C94 (2016),054609 [↗](#); Van Cuyck, T. et al. Phys.Rev. C95 (2017) 054611 [↗](#)

Comparisons with electron scattering data [↗](#)

- Large comparisons: Ankowski, A. et al. Phys.Rev. D91 (2015) 033005 [↗](#); Pandey, V. et al. Phys.Rev. C92 (2015) 024606 [↗](#); Megias, G.D. et al. Phys.Rev. D94 (2016) 013012 [↗](#)
- Some comparisons: Gil, A. et al. Nucl.Phys. A627 (1997) 543-598 [↗](#); Leitner, T. et al. Phys.Rev. C79 (2009) 034601 [↗](#); Martini, M. J.Phys.Conf.Ser. 408 (2013) 012041 [↗](#); Rocco, N. et al. Phys.Rev.Lett. 116 (2016) 192501 [↗](#); Lovato, A. et al Phys.Rev.Lett. 117 (2016) 082501 [↗](#); Gallmeister, K. et al. Phys.Rev. C94 (2016) 035502 [↗](#); Van Cuyck, T. et al. Phys.Rev. C94 (2016) 024611 [↗](#); Van Cuyck, T. et al. Phys.Rev. C95 (2017) 054611 [↗](#)

Neutrino versus antineutrino

- Martini, M. et al. Phys.Rev. C81 (2010) 045502 [↗](#); Nieves, J. et al. Phys.Lett. B721 (2013) 90-93 [↗](#); Ericson, M. et al. Phys.Rev. C91 (2015) 035501 [↗](#); Gallmeister, K. et al. Phys.Rev. C94 (2016) 035502 [↗](#); Megias, G.D. et al. Phys.Rev. D94 (2016), 093004 [↗](#)

Nu_mu versus nu_e

- Day, M. et al. Phys.Rev. D86 (2012) 053003 [↗](#); Akbar, F. et al. Int.J.Mod.Phys. E24 (2015) no.11, 1550079 [↗](#); Martini, M. et al. Phys.Rev. C94 (2016) 015501 [↗](#); Ankowski, A. Phys.Rev. C96 (2017), 035501 [↗](#)

A-dependence and Argon studies

- Martini, M. et al. Phys.Rev. C80 (2009) 065501 [↗](#); Meucci, A. et al. Phys.Rev. D88 (2013) 013006 [↗](#); Gallmeister, K. et al. Phys.Rev. C94 (2016) 035502 [↗](#); Mosel, U. et al. Phys. Rev. C94 (2016) 034610 [↗](#); Amaro, J.E. et al. Phys.Rev. C95 (2017) 065502 [↗](#); Van Dessel, N. arXiv:1704.07817 [↗](#); Akbar, F. arXiv:1708.00321 [↗](#); Megias, G.D. et al. arXiv:1711.00771 [↗](#)

[↗](#) Back to CENF-Near Detector Main Twiki Page

[↗](#) Back to CENF Twiki Page

This topic: CENF > NearDetectorWG2

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