

Neutrino group publications (January 2020 — December 2021)

- [1] S. Dolan, V. Q. Nguyen, A. Blanchet, S. Bolognesi, M. Buizza Avanzini, J. Chakrani, A. Ershova, C. Giganti, Y. Kudenko and M. Lamoureux, *et al.* “Sensitivity of the Upgraded T2K Near Detector to constrain neutrino and anti-neutrino interactions with no mesons in the final state by exploiting nucleon-lepton correlations,” [arXiv:2108.11779 [hep-ex]].
- [2] D. Attié, M. Batkiewicz-Kwasniak, P. Billoir, A. Blanchet, A. Blondel, S. Bolognesi, D. Calvet, M. G. Catanesi, M. Cicerchia and G. Cogo, *et al.* “Characterization of resistive Micromegas detectors for the upgrade of the T2K Near Detector Time Projection Chambers,” [arXiv:2106.12634 [physics.ins-det]].
- [3] A. Acharya *et al.* [NA61/SHINE Collaboration], “ K_S^0 meson production in inelastic $p+p$ interactions at 158 GeV/c beam momentum measured by NA61/SHINE at the CERN SPS,” [arXiv:2106.07535 [hep-ex]].
- [4] A. Acharya *et al.* [NA61/SHINE Collaboration], “Measurements of $\Xi(1530)^0$ and $\bar{\Xi}(1530)^0$ production in proton-proton interactions at $\sqrt{s_{NN}} = 17.3$ GeV in the NA61/SHINE experiment,” [arXiv:2105.09144 [nucl-ex]].
- [5] K. Abe *et al.* [T2K Collaboration], “First T2K measurement of transverse kinematic imbalance in the muon-neutrino charged-current single- π^+ production channel containing at least one proton,” Phys. Rev. D **103** (2021) no.11, 112009 doi:10.1103/PhysRevD.103.112009 [arXiv:2102.03346 [hep-ex]].
- [6] A. Acharya *et al.* [NA61/SHINE Collaboration], “Spectra and mean multiplicities of π^- in central $^{40}\text{Ar}+^{45}\text{Sc}$ collisions at 13A, 19A, 30A, 40A, 75A and 150A GeV/c beam momenta measured by the NA61/SHINE spectrometer at the CERN SPS,” Eur. Phys. J. C **81** (2021) no.5, 397 doi:10.1140/epjc/s10052-021-09135-3 [arXiv:2101.08494 [hep-ex]].
- [7] K. Abe *et al.* [Hyper-Kamiokande Collaboration], “Supernova Model Discrimination with Hyper-Kamiokande,” Astrophys. J. **916** (2021) no.1, 15 doi:10.3847/1538-4357/abf7c4 [arXiv:2101.05269 [astro-ph.IM]].
- [8] K. Abe *et al.* [T2K Collaboration], “Improved constraints on neutrino mixing from the T2K experiment with 3.13×10^{21} protons on target,” Phys. Rev. D **103** (2021) no.11, 112008 doi:10.1103/PhysRevD.103.112008 [arXiv:2101.03779 [hep-ex]].
- [9] A. Acharya *et al.* [NA61/SHINE Collaboration], “Measurement of the production cross section of 31 GeV/c protons on carbon via beam attenuation in a 90-cm-long target,” Phys. Rev. D **103** (2021) no.1, 012006 doi:10.1103/PhysRevD.103.012006 [arXiv:2010.11819 [hep-ex]].
- [10] A. Acharya *et al.* [NA61/SHINE Collaboration], “Measurements of π^\pm , K^\pm ,

- p and \bar{p} spectra in ${}^7\text{Be}+{}^9\text{Be}$ collisions at beam momenta from 19A to 150A GeV/c with the NA61/SHINE spectrometer at the CERN SPS,” Eur. Phys. J. C **81** (2021) no.1, 73 doi:10.1140/epjc/s10052-020-08733-x [arXiv:2010.01864 [hep-ex]].
- [11] A. Acharya *et al.* [NA61/SHINE Collaboration], “Measurements of multiplicity fluctuations of identified hadrons in inelastic proton–proton interactions at the CERN Super Proton Synchrotron,” Eur. Phys. J. C **81** (2021) no.5, 384 doi:10.1140/epjc/s10052-021-09107-7 [arXiv:2009.01943 [nucl-ex]].
- [12] K. Abe *et al.* [Hyper-Kamiokande Collaboration], “The Hyper-Kamiokande Experiment - Snowmass LOI,” [arXiv:2009.00794 [physics.ins-det]].
- [13] K. Abe *et al.* [T2K Collaboration], “T2K measurements of muon neutrino and antineutrino disappearance using 3.13×10^{21} protons on target,” Phys. Rev. D **103** (2021) no.1, L011101 doi:10.1103/PhysRevD.103.L011101 [arXiv:2008.07921 [hep-ex]].
- [14] A. Acharya *et al.* [NA61/SHINE Collaboration], “Measurements of π^- production in ${}^7\text{Be}+{}^9\text{Be}$ collisions at beam momenta from 19A to 150A GeV/c in the NA61/SHINE experiment at the CERN SPS,” Eur. Phys. J. C **80** (2020) no.10, 961 [erratum: Eur. Phys. J. C **81** (2021) no.2, 144] doi:10.1140/epjc/s10052-020-08514-6 [arXiv:2008.06277 [nucl-ex]].
- [15] A. Aduszkiewicz *et al.* [NA61/SHINE Collaboration], “Two-particle correlations in azimuthal angle and pseudorapidity in central ${}^7\text{Be}+{}^9\text{Be}$ collisions at the CERN Super Proton Synchrotron,” Eur. Phys. J. C **80** (2020) no.12, 1151 doi:10.1140/epjc/s10052-020-08675-4 [arXiv:2006.02153 [nucl-ex]].
- [16] A. Aduszkiewicz *et al.* [NA61/SHINE Collaboration], “Measurements of Ξ^- and Ξ^+ production in proton-proton interactions at $\sqrt{s_{NN}} = 17.3$ GeV in the NA61/SHINE experiment,” Eur. Phys. J. C **80** (2020) no.9, 833 doi:10.1140/epjc/s10052-020-8381-0 [arXiv:2006.02062 [nucl-ex]].
- [17] K. Abe *et al.* [T2K Collaboration], “Measurements of $\bar{\nu}_\mu$ and $\bar{\nu}_\mu + \nu_\mu$ charged-current cross-sections without detected pions or protons on water and hydrocarbon at a mean anti-neutrino energy of 0.86 GeV,” PTEP **2021** (2021) no.4, 043C01 doi:10.1093/ptep/ptab014 [arXiv:2004.13989 [hep-ex]].
- [18] K. Abe *et al.* [T2K Collaboration], “Simultaneous measurement of the muon neutrino charged-current cross section on oxygen and carbon without pions in the final state at T2K,” Phys. Rev. D **101** (2020) no.11, 112004 doi:10.1103/PhysRevD.101.112004 [arXiv:2004.05434 [hep-ex]].
- [19] K. Abe *et al.* [T2K Collaboration], “Measurement of the charged-current electron (anti-)neutrino inclusive cross-sections at the T2K off-axis near detector ND280,” JHEP **10** (2020), 114 doi:10.1007/JHEP10(2020)114 [arXiv:2002.11986 [hep-ex]].

- [20] K. Abe *et al.* [T2K Collaboration], “First combined measurement of the muon neutrino and antineutrino charged-current cross section without pions in the final state at T2K,” Phys. Rev. D **101** (2020) no.11, 112001 doi:10.1103/PhysRevD.101.112001 [arXiv:2002.09323 [hep-ex]].
- [21] A. Aduszkiewicz *et al.* [NA61/SHINE Collaboration], “ $K^*(892)^0$ meson production in inelastic p+p interactions at 158 GeV/c beam momentum measured by NA61/SHINE at the CERN SPS,” Eur. Phys. J. C **80** (2020) no.5, 460 doi:10.1140/epjc/s10052-020-7955-1 [arXiv:2001.05370 [nucl-ex]].
- [22] A. Aduszkiewicz *et al.* [NA61/SHINE Collaboration], “Search for an Exotic $S = -2, Q = -2$ baryon resonance in proton-proton interactions at $\sqrt{s_{NN}} = 17.3$ GeV,” Phys. Rev. D **101** (2020) no.5, 051101 doi:10.1103/PhysRevD.101.051101 [arXiv:1912.12198 [hep-ex]].
- [23] A. Aduszkiewicz *et al.* [NA61/SHINE Collaboration], “Proton-Proton Interactions and Onset of Deconfinement,” Phys. Rev. C **102** (2020) no.1, 011901 doi:10.1103/PhysRevC.102.011901 [arXiv:1912.10871 [hep-ex]].
- [24] K. Abe *et al.* [T2K Collaboration], “Search for Electron Antineutrino Appearance in a Long-baseline Muon Antineutrino Beam,” Phys. Rev. Lett. **124** (2020) no.16, 161802 doi:10.1103/PhysRevLett.124.161802 [arXiv:1911.07283 [hep-ex]].
- [25] K. Abe *et al.* [T2K Collaboration], “Constraint on the matter–antimatter symmetry-violating phase in neutrino oscillations,” Nature **580** (2020) no.7803, 339–344 [erratum: Nature **583** (2020) no.7814, E16] doi:10.1038/s41586-020-2177-0 [arXiv:1910.03887 [hep-ex]].
- [26] A. Esfahani *et al.*, “Bayesian analysis of a future β decay experiment’s sensitivity to neutrino mass scale and ordering,” Phys. Rev. C **103** (2021) 065501 doi:10.1103/PhysRevC.103.065501 [arXiv:2012.14341 [physics.data-an]].
- [27] S. Péru, S. Hilaire, S. Goriely and M. Martini, “Description of magnetic moments within the Gogny Hartree-Fock-Bogolyubov framework: Application to Hg isotopes,” Phys. Rev. C **104** (2021) no.2, 024328 doi:10.1103/PhysRevC.104.024328
- [28] A. Branca, G. Brunetti, A. Longhin, M. Martini, F. Pupilli and F. Terranova, “A New Generation of Neutrino Cross Section Experiments: Challenges and Opportunities,” Symmetry **13** (2021) no.9, 1625 doi:10.3390/sym13091625 [arXiv:2108.12212 [hep-ex]].
- [29] G. Chanfray, M. Ericson and M. Martini, “Multinucleon excitations in neutrino-nucleus scattering: connecting different microscopic models for the correlations,” Eur. Phys. J. Spec. Top. (2021). <https://doi.org/10.1140/epjs/s11734-021-00291-x> [arXiv:2109.13550 [nucl-th]].
- [30] D. Gorbunov, I. Krasnov and S. Suvorov, “Constraints on light scalars from PS191 results,” Phys. Lett. B **820** (2021), 136524 doi:10.1016/j.physletb.2021.136524

[arXiv:2105.11102 [hep-ph]].

- [31] D. Gorbunov, I. Krasnov, Y. Kudenko and S. Suvorov, “Double-hit signature of millicharged particles in 3D segmented neutrino detector,” *Phys. Lett. B* **822** (2021), 136641 doi:10.1016/j.physletb.2021.136641 [arXiv:2103.11814 [hep-ph]].