

The.

References

- [1] Ahmad, Q. R. and others. (SNO Collaboration) **Phys. Rev. Lett.** **87** (2001) 071301; "10.1103/PhysRevLett.87.071301" " Measurement of the rate of nue to ppe interactions produced by 8B solar neutrinos at the Sudbury Neutrino Observatory" nucl-ex/0106015: nucl-ex/0106015
- [2] Fukuda, Y. and others. (SuperKamiokande Collaboration) **Phys. Rev. Lett.** **81** (1998) 15621567; "10.1103/PhysRevLett.81.1562" " Evidence for oscillation of atmospheric neutrinos" hep-ex/9807003: hep-ex/9807003
- [3] Machado, Pedro AN and Palamara, Ornella and Schmitz, David W. **Ann. Rev. Nucl. Part. Sci.** **69** (2019) 363387; "10.1146/annurev-nucl-101917-020949" " The ShortBaseline Neutrino Program at Fermilab" 1903.04608:/ 1903.04608
- [4] Abi, B. and others. (DUNE Collaboration) **Eur. Phys. J. C.** **80** (2020) 978; "10.1140/epjc/s10052-020-08456-z" " Longbaseline neutrino oscillation physics potential of the DUNE experiment" 2006.16043:/ 2006.16043
- [5] .
- [6] Machado, Pedro AN and Palamara, Ornella and Schmitz, David W. **Ann. Rev. Nucl. Part. Sci.** **69** (2019) 363387; "10.1146/annurev-nucl-101917-020949" " The ShortBaseline Neutrino Program at Fermilab" 1903.04608:/ 1903.04608
- [7] Abud, A. Abed and others. (DUNE Collaboration) **JINST.** **17** (2022) P01005; "10.1088/1748-0221/17/01/P01005" " Design, construction and operation of the ProtoDUNE-SP Liquid Argon TPC" 2108.01902:/ 2108.01902
- [8] Acciarri, R. and others. (MicroBooNE Collaboration) **JINST.** **12** (2017) P02017; "10.1088/1748-0221/12/02/P02017" " Design and Construction of the MicroBooNE Detector" 1612.05824:/ 1612.05824
- [9] .
- [10] Rubbia, C.. (1977) " The Liquid Argon Time Projection Chamber A New Concept for Neutrino Detectors"
- [11] Chen, H. H. and Condon, P. E. and Barish, B. C. and Sciulli, F. J.. (1976) " A Neutrino detector sensitive to rare processes. I. A Study of neutrino electron reactions"
- [12] Willis, W. J. and Radeka, V.. **Nucl. Instrum. Meth.** **120** (1974) 221236; "10.1016/0029-554X(74)90039-1" " Liquid Argon Ionization Chambers as Total Absorption Detectors"

- [13] Nygren, D. R.. **eConf. C740805** (1974) 58; “ The Time Projection Chamber A New 4 pi Detector for Charged Particles”
- [14] Baller, B. and others. **JINST. 9** (2014) T05005; ”10.1088/1748-0221/9/05/T05005” “ Liquid Argon Time Projection Chamber Research and Development in the United States” 1307.8166:/ 1307.8166
- [15] Radeka, Veljko and others. **J. Phys. Conf. Ser.. 308** (2011) 012021; ”10.1088/1742-6596/308/1/012021” “ Cold electronics for Giant Liquid Argon Time Projection Chambers”
- [16] Acciarri, R. and others. (MicroBooNE Collaboration) **Eur. Phys. J. C. 78** (2018) 82; ”10.1140/epjc/s10052-017-5481-6” “ The Pandora multialgorithm approach to automated pattern recognition of cosmicray muon and neutrino events in the MicroBooNE detector” 1708.03135:/ 1708.03135
- [17] Adams, C. and others. (MicroBooNE Collaboration) **Phys. Rev. D. 99** (2019) 092001; ”10.1103/PhysRevD.99.092001” “ Deep neural network for pixellevel electromagnetic particle identification in the MicroBooNE liquid argon time projection chamber” 1808.07269:/ 1808.07269
- [18] Abratenko, P. and others. (MicroBooNE Collaboration) **Phys. Rev. D. 103** (2021) 092003; ”10.1103/PhysRevD.103.092003” “ Convolutional neural network for multiple particle identification in the MicroBooNE liquid argon time projection chamber” 2010.08653:/ 2010.08653
- [19] Abratenko, P. and others. (MicroBooNE Collaboration) **Phys. Rev. D. 103** (2021) 052012; ”10.1103/PhysRevD.103.052012” “ Semantic segmentation with a sparse convolutional neural network for event reconstruction in MicroBooNE” 2012.08513:/ 2012.08513
- [20] Acciarri, R. and others. (MicroBooNE Collaboration) **JINST. 12** (2017) P08003; ”10.1088/1748-0221/12/08/P08003” “ Noise Characterization and Filtering in the MicroBooNE Liquid Argon TPC” 1705.07341:/ 1705.07341
- [21] Adams, C. and others. (MicroBooNE Collaboration) **JINST. 13** (2018) P07006; ”10.1088/1748-0221/13/07/P07006” “ Ionization electron signal processing in single phase LArTPCs. Part I. Algorithm Description and quantitative evaluation with MicroBooNE simulation” 1802.08709:/ 1802.08709
- [22] Adams, C. and others. (MicroBooNE Collaboration) **JINST. 13** (2018) P07007; ”10.1088/1748-0221/13/07/P07007” “ Ionization electron signal processing in single phase LArTPCs. Part II. Datasimulation comparison and performance in MicroBooNE” 1804.02583:/ 1804.02583
- [23] Yu, Haiwang and others. **JINST. 16** (2021) P01036; ”10.1088/1748-0221/16/01/P01036” “ Augmented signal processing in Liquid Argon Time Projection Chambers with a deep neural network” 2007.12743:/ 2007.12743

- [24] Qian, Xin and Zhang, Chao and Viren, Brett and Diwan, Milind. **JINST.** **13** (2018) P05032; "10.1088/1748-0221/13/05/P05032" " Threedimensional Imaging for Large LArTPCs" 1803.04850:/ 1803.04850
- [25] Abratenko, P. and others. (MicroBooNE Collaboration) **JINST.** **16** (2021) P06043; "10.1088/1748-0221/16/06/P06043" " Neutrino event selection in the MicroBooNE liquid argon time projection chamber using WireCell 3D imaging, clustering, and charginess matching" 2011.01375:/ 2011.01375
- [26] Abratenko, P. and others. (MicroBooNE Collaboration) **JINST.** **17** (2022) P01037; "10.1088/1748-0221/17/01/P01037" " Wirecell 3D pattern recognition techniques for neutrino event reconstruction in large LArTPCs algorithm description and quantitative evaluation with MicroBooNE simulation" 2110.13961:/ 2110.13961
- [27] AguilarArevalo, A. A. and others. (MiniBooNE Collaboration) **Phys. Rev. Lett.** **110** (2013) 161801; "10.1103/PhysRevLett.110.161801" " Improved Search for bar numu rightarrow bar nue Oscillations in the Mini-BooNE Experiment" 1303.2588:/ 1303.2588
- [28] AguilarArevalo, A. A. and others. (MiniBooNE Collaboration) **Phys. Rev. D.** **103** (2021) 052002; "10.1103/PhysRevD.103.052002" " Updated MiniBooNE neutrino oscillation results with increased data and new background studies" 2006.16883:/ 2006.16883
- [29] Abratenko, P. and others. (MicroBooNE Collaboration) **Phys. Rev. Lett.** **128** (2022) 241801; "10.1103/PhysRevLett.128.241801" " Search for an Excess of Electron Neutrino Interactions in MicroBooNE Using Multiple FinalState Topologies" 2110.14054:/ 2110.14054
- [30] Abratenko, P. and others. (MicroBooNE Collaboration) **Phys. Rev. D.** **105** (2022) 112003; "10.1103/PhysRevD.105.112003" " Search for an anomalous excess of chargedcurrent quasielastic nue interactions with the MicroBooNE experiment using DeepLearningbased reconstruction" 2110.14080:/ 2110.14080
- [31] Abratenko, P. and others. (MicroBooNE Collaboration) **Phys. Rev. D.** **105** (2022) 112004; "10.1103/PhysRevD.105.112004" " Search for an anomalous excess of chargedcurrent nue interactions without pions in the final state with the MicroBooNE experiment" 2110.14065:/ 2110.14065
- [32] Abratenko, P. and others. (MicroBooNE Collaboration) **Phys. Rev. D.** **105** (2022) 112005; "10.1103/PhysRevD.105.112005" " Search for an anomalous excess of inclusive chargedcurrent nue interactions in the MicroBooNE experiment using WireCell reconstruction" 2110.13978:/ 2110.13978
- [33] Abratenko, P. and others. (MicroBooNE Collaboration) **Phys. Rev. Lett.** **128** (2022) 111801; "10.1103/PhysRevLett.128.111801" " Search

for NeutrinoInduced NeutralCurrent ensuremathDelta Radiative Decay in MicroBooNE and a First Test of the MiniBooNE Low Energy Excess under a SinglePhoton Hypothesis” 2110.00409:/ 2110.00409

- [34] de Gouvea, Andre and Peres, O. L. G. and Prakash, Suprabh and Stenico, G. V.. **J. High Energy Phys.** **07** (2020) 141; ”10.1007/JHEP07(2020)141” “ On The DecayingSterile Neutrino Solution to the Electron AntiNeutrino Appearance Anomalies” 1911.01447:/ 1911.01447
- [35] Vergani, Stefano and Kamp, Nicholas W. and Diaz, Alejandro and Arguelles, Carlos A. and Conrad, Janet M. and Shaevitz, Michael H. and Uchida, Melissa A.. **Phys. Rev. D.** **104** (2021) 095005; ”10.1103/PhysRevD.104.095005” “ Explaining the MiniBooNE excess through a mixed model of neutrino oscillation and decay” 2105.06470:/ 2105.06470
- [36] Asaadi, J. and Church, E. and Guenette, R. and Jones, B. J. P. and Szelc, A. M.. **Phys. Rev. D.** **97** (2018) 075021; ”10.1103/PhysRevD.97.075021” “ New light Higgs boson and shortbaseline neutrino anomalies” 1712.08019:/ 1712.08019
- [37] Alves, Daniele S. M. and Louis, William C. and deNiverville, Patrick G.. **J. High Energy Phys.** **08** (2022) 034; ”10.1007/JHEP08(2022)034” “ Quasisterile neutrinos from dark sectors. Part I. BSM matter effects in neutrino oscillations and the shortbaseline anomalies.” 2201.00876:/ 2201.00876
- [38] Bertuzzo, Enrico and Jana, Sudip and Machado, Pedro A. N. and Zukanovich Funchal, Renata. **Phys. Rev. Lett.** **121** (2018) 241801; ”10.1103/PhysRevLett.121.241801” “ Dark Neutrino Portal to Explain MiniBooNE excess” 1807.09877:/ 1807.09877
- [39] Ballett, Peter and Pascoli, Silvia and RossLonerger, Mark. **Phys. Rev. D.** **99** (2019) 071701; ”10.1103/PhysRevD.99.071701” “ U1 mediated decays of heavy sterile neutrinos in MiniBooNE” 1808.02915:/ 1808.02915
- [40] Abdallah, Waleed and Gandhi, Raj and Roy, Samiran. **Phys. Rev. D.** **104** (2021) 055028; ”10.1103/PhysRevD.104.055028” “ TwoHiggs doublet solution to the LSND, MiniBooNE and muon g2 anomalies” 2010.06159:/ 2010.06159
- [41] Abdallah, Waleed and Gandhi, Raj and Roy, Samiran. **J. High Energy Phys.** **12** (2020) 188; ”10.1007/JHEP12(2020)188” “ Understanding the MiniBooNE and the muon and electron g2 anomalies with a light Z and a second Higgs doublet” 2006.01948:/ 2006.01948
- [42] Aharmim, B. and others. (SNO Collaboration) **Phys. Rev. C.** **88** (2013) 025501; ”10.1103/PhysRevC.88.025501” “ Combined Analysis of all Three Phases of Solar Neutrino Data from the Sudbury Neutrino Observatory” 1109.0763:/ 1109.0763

- [43] Abe, K. and others. (SuperKamiokande Collaboration) **Phys. Rev. D.** **97** (2018) 072001; "10.1103/PhysRevD.97.072001" " Atmospheric neutrino oscillation analysis with external constraints in SuperKamiokande IIV" 1710.09126:/ 1710.09126
- [44] Aartsen, M. G. and others. (IceCube Collaboration) **Phys. Rev. Lett..** **120** (2018) 071801; "10.1103/PhysRevLett.120.071801" " Measurement of Atmospheric Neutrino Oscillations at 6textendash56 GeV with IceCube DeepCore" 1707.07081:/ 1707.07081
- [45] Gando, A. and others. (KamLAND Collaboration) **Phys. Rev. D.** **88** (2013) 033001; "10.1103/PhysRevD.88.033001" " Reactor OnOff Antineutrino Measurement with KamLAND" 1303.4667:/ 1303.4667
- [46] Adey, D. and others. (Daya Bay Collaboration) **Phys. Rev. Lett..** **121** (2018) 241805; "10.1103/PhysRevLett.121.241805" " Measurement of the Electron Antineutrino Oscillation with 1958 Days of Operation at Daya Bay" 1809.02261:/ 1809.02261
- [47] Bak, G. and others. (RENO Collaboration) **Phys. Rev. Lett..** **121** (2018) 201801; "10.1103/PhysRevLett.121.201801" " Measurement of Reactor Antineutrino Oscillation Amplitude and Frequency at RENO" 1806.00248:/ 1806.00248
- [48] Abe, Y. and others. (Double Chooz Collaboration) **J. High Energy Phys..** **01** (2016) 163; "10.1007/JHEP01(2016)163" " Measurement of ensuremaththeta13 in Double Chooz using neutron captures on hydrogen with novel background rejection techniques" 1510.08937:/ 1510.08937
- [49] Abe, K. and others. (T2K Collaboration) **Phys. Rev. D.** **103** (2021) 112008; "10.1103/PhysRevD.103.112008" " Improved constraints on neutrino mixing from the T2K experiment with 3.13times1021 protons on target" 2101.03779:/ 2101.03779
- [50] Acero, M. A. and others. (NOvA Collaboration) **Phys. Rev. D.** **106** (2022) 032004; "10.1103/PhysRevD.106.032004" " Improved measurement of neutrino oscillation parameters by the NOvA experiment" 2108.08219:/ 2108.08219
- [51] Adamson, P. and others. (MINOS Collaboration) **Phys. Rev. Lett..** **125** (2020) 131802; "10.1103/PhysRevLett.125.131802" " Precision Constraints for ThreeFlavor Neutrino Oscillations from the Full MINOS and MINOS Dataset" 2006.15208:/ 2006.15208
- [52] Agafonova, N. and others. (OPERA Collaboration) **Phys. Rev. Lett..** **120** (2018) 211801; "10.1103/PhysRevLett.120.211801" " Final Results of the OPERA Experiment on nutau Appearance in the CNGS Neutrino Beam" 1804.04912:/ 1804.04912

- [53] Pontecorvo, B.. **Sov. Phys. JETP.** **6** (1957) 429; “ Mesonium and antimesonium”
- [54] Pontecorvo, B.. **Sov. Phys. JETP.** **26** (1968) 984988; “ Neutrino Experiments and the Problem of Conservation of Leptonic Charge”
- [55] Maki, Ziro and Nakagawa, Masami and Sakata, Shoichi. **Prog. Theor. Phys.** **28** (1962) 870880; ”10.1143/PTP.28.870” “ Remarks on the unified model of elementary particles”
- [56] Abdurashitov, J. N. and others. (SAGE Collaboration) **Phys. Rev. C.** **80** (2009) 015807; ”10.1103/PhysRevC.80.015807” “ Measurement of the solar neutrino capture rate with gallium metal. III Results for the 20022007 data taking period” 0901.2200:/ 0901.2200
- [57] Kaether, F. and Hampel, W. and Heusser, G. and Kiko, J. and Kirsten, T.. **Phys. Lett. B.** **685** (2010) 4754; ”10.1016/j.physletb.2010.01.030” “ Reanalysis of the GALLEX solar neutrino flux and source experiments” 1001.2731:/ 1001.2731
- [58] Barinov, V. V. and others. **Phys. Rev. C.** **105** (2022) 065502; ”10.1103/PhysRevC.105.065502” “ A Search for Electron Neutrino Transitions to Sterile States in the BEST Experiment” 2201.07364:/ 2201.07364
- [59] Barinov, V. V. and others. **Phys. Rev. Lett.** **128** (2022) 232501; ”10.1103/PhysRevLett.128.232501” “ Results from the Baksan Experiment on Sterile Transitions BEST” 2109.11482:/ 2109.11482
- [60] Mention, G. and Fechner, M. and Lasserre, Th. and Mueller, Th. A. and Lhuillier, D. and Cribier, M. and Letourneau, A.. **Phys. Rev. D.** **83** (2011) 073006; ”10.1103/PhysRevD.83.073006” “ The Reactor Antineutrino Anomaly” 1101.2755:/ 1101.2755
- [61] Mueller, Th. A. and others. **Phys. Rev. C.** **83** (2011) 054615; ”10.1103/PhysRevC.83.054615” “ Improved Predictions of Reactor Antineutrino Spectra” 1101.2663:/ 1101.2663
- [62] Huber, Patrick. **Phys. Rev. C.** **84** (2011) 024617; ”10.1103/PhysRevC.85.029901” “ On the determination of antineutrino spectra from nuclear reactors” 1106.0687:/ 1106.0687
- [63] Serebrov, A. P. and others. **Phys. Rev. D.** **104** (2021) 032003; ”10.1103/PhysRevD.104.032003” “ Search for sterile neutrinos with the Neutrino4 experiment and measurement results” 2005.05301:/ 2005.05301
- [64] AguilarArevalo, A. and others. (LSND Collaboration) **Phys. Rev. D.** **64** (2001) 112007; ”10.1103/PhysRevD.64.112007” “ Evidence for neutrino oscillations from the observation of barnue appearance in a barnumu” hepex0104049: hepex0104049

- [65] AguilarArevalo, A. A. and others. (MiniBooNE Collaboration) **Phys. Rev. Lett.** **110** (2013) 161801; "10.1103/PhysRevLett.110.161801" " Improved Search for $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$ Oscillations in the Mini-BooNE Experiment" 1303.2588:/ 1303.2588
- [66] AguilarArevalo, A. A. and others. (MiniBooNE Collaboration) **Phys. Rev. D.** **103** (2021) 052002; "10.1103/PhysRevD.103.052002" " Updated MiniBooNE neutrino oscillation results with increased data and new background studies" 2006.16883:/ 2006.16883
- [67] Abazajian, K. N. and others. (2012) " Light Sterile Neutrinos A White Paper" 1204.5379:/ 1204.5379
- [68] Giunti, Carlo and Lasserre, T.. **Ann. Rev. Nucl. Part. Sci.** **69** (2019) 163190; "10.1146/annurev-nucl-101918-023755" " eVscale Sterile Neutrinos" 1901.08330:/ 1901.08330
- [69] Amerio, S. and others. (ICARUS Collaboration) **Nucl. Instrum. Meth. A.** **527** (2004) 329410; "10.1016/j.nima.2004.02.044" " Design, construction and tests of the ICARUS T600 detector"
- [70] Varanini, F.. (ICARUS Collaboration) **EPJ Web Conf.** **164** (2017) 07017; "10.1051/epjconf/201716407017" " ICARUS detector present and future"
- [71] Acciarri, R. and others. (SBND Collaboration) **JINST.** **15** (2020) P06033; "10.1088/1748-0221/15/06/P06033" " Construction of precision wire read-out planes for the ShortBaseline Near Detector SBND" 2002.08424:/ 2002.08424
- [72] Valdivieso, Gustavo. (SBND Collaboration) **PoS. NuFact2021** (2022) 184; "10.22323/1.402.0184" " Status of the ShortBaseline Near Detector at Fermilab"
- [73] .
- [74] Kopeikin, V. and Skorokhvatov, M. and Titov, O.. **Phys. Rev. D.** **104** (2021) L071301; "10.1103/PhysRevD.104.L071301" " Reevaluating reactor antineutrino spectra with new measurements of the ratio between ^{235}U and ^{239}Pu β spectra" 2103.01684:/ 2103.01684
- [75] Giunti, C. and Li, Y. F. and Ternes, C. A. and Xin, Z.. **Phys. Lett. B.** **829** (2022) 137054; "10.1016/j.physletb.2022.137054" " Reactor antineutrino anomaly in light of recent flux model refinements" 2110.06820:/ 2110.06820
- [76] .
- [77] .

- [78] Valencia, E. and others. (MINERvA Collaboration) **Phys. Rev. D.** **100** (2019) 092001; "10.1103/PhysRevD.100.092001" " Constraint of the MINERnuA medium energy neutrino flux using neutrinoelectron elastic scattering" 1906.00111:/ 1906.00111
- [79] Zazueta, L. and others. (MINERvA Collaboration) (2022) " Improved constraint on the MINERvA medium energy neutrino flux using barnue rightrightarrow barnue data" 2209.05540:/ 2209.05540
- [80] Abratenko, P. and others. (MicroBooNE Collaboration) **Phys. Rev. Applied.** **15** (2021) 064071; "10.1103/PhysRevApplied.15.064071" " Cosmic Ray Background Rejection with WireCell LArTPC Event Reconstruction in the MicroBooNE Detector" 2101.05076:/ 2101.05076
- [81] Benjamin Graham and. **CoRR.** **abs1711.10275** (2017) " 3D Semantic Segmentation with Submanifold Sparse Convolutional Networks" 1711.10275: 1711.10275
- [82] Chen, Tianqi and Guestrin, Carlos. **Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining.** (2016) 785794; "10.1145/2939672.2939785" " XGBoost A Scalable Tree Boosting System" 1603.02754:/ 1603.02754
- [83] Shlomi, Jonathan and Battaglia, Peter and Vlimant, JeanRoch. **Machine Learning Science and Technology.** **2** (2020) 021001; "10.1088/2632-2153/abfb9a" " Graph Neural Networks in Particle Physics" 2007.13681:/ 2007.13681
- [84] Drielsma, Francois and Lin, Qing and de Soux, Pierre Cote and Domine, Laura and Itay, Ran and Koh, Dae Heun and Nelson, Bradley J. and Terao, Kazuhiro and Tsang, Ka Vang and Usher, Tracy L.. (DeepLearnPhysics Collaboration) **Phys. Rev. D.** **104** (2021) 072004; "10.1103/PhysRevD.104.072004" " Clustering of electromagnetic showers and particle interactions with graph neural networks in liquid argon time projection chambers" 2007.01335:/ 2007.01335
- [85] DUNE Computing. (2017) " Policies on the Retention, Archiving and Dissemination of Data for the DUNE Experiment"
- [86] MicroBooNE Computing. (2016) " MicroBooNE Digital Data Management Plan"
- [87] SBN Computing. (2016) " Digital Data Management Plan of the Fermilab ShortBaseline Neutrino SBN Program"
- [88] Fermilab Scientific Computing. (2017) " FNAL Scientific Data Management Service Documents"
- [89] Fermilab Scientific Computing. (2017) " FNAL Database Hosting Service Documents"

- [90] Fermilab Scientific Computing. (2017) “ FNAL Scientific Database Applications Service Documents”
- [91] Fermilab Scientific Computing. (2017) “ FNAL Foundation Service Level Agreements”
- [92] Fermilab Scientific Computing. (2017) “ Scientific Data Storage and Access ITIL Documentation”
- [93] Fermilab Scientific Computing. (2017) “ FNAL Central Web Hosting Service Documentation”
- [94] Abratenko, P. and others. (MicroBooNE) **Phys. Rev. Lett.. 130** (2023) 011801; ”10.1103/PhysRevLett.130.011801” “ First Constraints on Light Sterile Neutrino Oscillations from Combined Appearance and Disappearance Searches with the MicroBooNE Detector” 2210.10216:/ 2210.10216
- [95] .
- [96] .
- [97] . (ATLAS Collaboration) (2020) “ Fast simulation of the ATLAS calorimeter system with”
- [98] Tripathy, Alok and Yelick, Katherine and Bulucc, Aydin. (2020) “ International Conference for High Performance Computing, Networking, Storage and Analysis”
- [99] Raissi, Maziar and Perdikaris, Paris and Karniadakis, George E. **Journal of Computational physics. 378** (2019) 686707; “ neural networks A deep learning framework for solving forward and inverse problems involving nonlinear partial differential equations”
- [100] Stanley, Kenneth O and D’Ambrosio, David B and Gauci, Jason. **Artificial life. 15** (2009) 185212; “ hypercubebased encoding for evolving largescale neural networks”
- [101] Ha, David and Dai, Andrew and Le, Quoc V. **arXiv preprint arXiv:1609.09106**. (2016)
- [102] Yang, Brandon and Bender, Gabriel and Le, Quoc V and Ngiam, Jiquan. **Advances in Neural Information Processing Systems. 32** (2019) “ Conditionally parameterized convolutions for efficient inference”
- [103] Liu, Siwu and Park, Ji Hwan and Yoo, Shinjae. (2020) 388396; “ of the 2020 SIAM International Conference on Data Mining”
- [104] Zheng, Da and Ma, Chao and Wang, Minjie and Zhou, Jinjing and Su, Qidong and Song, Xiang and Gan, Quan and Zhang, Zheng and Karypis, George. (2020) 3644; “ IEEEACM 10th Workshop on Irregular Applications Architectures and Algorithms IA3”

- [105] Shlomi, Jonathan and Battaglia, Peter and Vlimant, JeanRoch. **Machine Learning Science and Technology**. **2** (2020) 021001; “neural networks in particle physics”
- [106] Shridhar, Kumar and Laumann, Felix and Liwicki, Marcus. **arXiv preprint arXiv1806.05978**. (2018) “estimations by softplus normalization in bayesian convolutional neural networks with variational inference”
- [107] Luo, Xihai and Kareem, Ahsan. **Structural Safety**. **84** (2020) 101918; “deep learning with hierarchical prior Predictions from limited and noisy data”
- [108] Luo, Xihai and Kareem, Ahsan. **ComputerAided Civil and Infrastructure Engineering**. **34** (2019) 10431054; “convolutional neural networks for uncertainty propagation in random fields”
- [109] Dmitrii Torbunov. (2021) “Improving Energy Estimation at NOvA with Recurrent Neural Networks”
- [110] Jakub Lacki and. **CoRR**. **abs1807.10727** (2018) “Connected Components at Scale via Local Contractions” 1807.10727: 1807.10727
- [111] .
- [112] Acciarri, R. and others. (DUNE Collaboration) (2016) “LongBaseline Neutrino Facility LBNF and Deep Underground Neutrino Experiment DUNE Conceptual Design Report, Volume 1 The LBNF and DUNE Projects” 1601.05471:/ 1601.05471
- [113] Fukuda, Y. and others. (SuperKamiokande Collaboration) **Phys. Rev. Lett.**. **81** (1998) 15621567; ”10.1103/PhysRevLett.81.1562” “Evidence for oscillation of atmospheric neutrinos” hepex9807003: hepex9807003
- [114] Machado, Pedro AN and Palamara, Ornella and Schmitz, David W. **Ann. Rev. Nucl. Part. Sci.**. **69** (2019) 363387; ”10.1146/annurev-nucl-101917-020949” “The ShortBaseline Neutrino Program at Fermilab” 1903.04608:/ 1903.04608
- [115] Abud, A. Abed and others. (DUNE Collaboration) **JINST**. **17** (2022) P01005; ”10.1088/1748-0221/17/01/P01005” “Design, construction and operation of the ProtoDUNESP Liquid Argon TPC” 2108.01902:/ 2108.01902
- [116] Abratenko, P. and others. (MicroBooNE Collaboration) (2021) “Search for an Excess of Electron Neutrino Interactions in MicroBooNE Using Multiple Final State Topologies” 2110.14054:/ 2110.14054
- [117] Abratenko, P. and others. (MicroBooNE Collaboration) (2021) “Search for an anomalous excess of inclusive chargedcurrent nue interactions in the MicroBooNE experiment using WireCell reconstruction” 2110.13978:/ 2110.13978

- [118] Abratenko, P. and others. (MicroBooNE Collaboration) **Phys. Rev. Lett.** **128** (2022) 151801; "10.1103/PhysRevLett.128.151801" " First Measurement of EnergyDependent Inclusive Muon Neutrino ChargedCurrent Cross Sections on Argon with the MicroBooNE Detector" 2110.14023:/ 2110.14023
- [119] Abratenko, P. and others. (MicroBooNE Collaboration) (2021) " Novel Approach for Evaluating DetectorRelated Uncertainties in a LArTPC Using MicroBooNE Data" 2111.03556:/ 2111.03556
- [120] Abratenko, P. and others. (MicroBooNE Collaboration) (2020) " High-performance Generic Neutrino Detection in a LArTPC near the Earths Surface with the MicroBooNE Detector" 2012.07928:/ 2012.07928
- [121] .
- [122] Al Kharusi, S. and others. (Snews 2.0) (2020) " SNEWS 2.0 A NextGeneration SuperNova Early Warning System for Multimessenger Astronomy" 2011.00035v3:/ 2011.00035v3
- [123] Acciarri, R. and others. (MicroBooNE Collaboration) **JINST.** **12** (2017) P02017; "10.1088/1748-0221/12/02/P02017" " Design and Construction of the MicroBooNE Detector" 1612.05824:/ 1612.05824
- [124] .
- [125] .
- [126] .
- [127] .
- [128] .
- [129] .
- [130] .
- [131] Green, C. and Kowalkowski, J. and Paterno, M. and Fischler, M. and Garren, L. and Lu, Q.. **J. Phys. Conf. Ser.** **396** (2012) 022020; "10.1088/1742-6596/396/2/022020" " The Art Framework"
- [132] Carter Edwards, H. and Trott, Christian R. and Sunderland, Daniel. **74** (2014) 10.1016/j.jpdc.2014.07.003 " Kokkos Enabling manycore performance portability through polymorphic memory access patterns"
- [133] .
- [134] .
- [135] .

- [136] .
- [137] Yu, Haiwang and Dong, Zhihua and Knoepfel, Kyle and Lin, Meifeng and Viren, Brett and Yu, Kwangmin. **EPJ Web of Conferences**. **251** (2021) 03032; “ of Portable Acceleration Solutions for LArTPC Simulation Using WireCell Toolkit”
- [138] .
- [139] AguilarArevalo, A. and others. (LSND Collaboration) **Phys. Rev. D**. **64** (2001) 112007; ”10.1103/PhysRevD.64.112007” “ Evidence for neutrino oscillations from the observation of barnue appearance in a barnumu” hepex0104049: hepex0104049
- [140] AguilarArevalo, A. A. and others. (MiniBooNE Collaboration) **Phys. Rev. Lett.** **110** (2013) 161801; ”10.1103/PhysRevLett.110.161801” “ Improved Search for bar numu rightarrow bar nue Oscillations in the Mini-BooNE Experiment” 1303.2588:/ 1303.2588
- [141] Abazajian, K. N. and others. (2012) “ Light Sterile Neutrinos A White Paper” 1204.5379:/ 1204.5379
- [142] Bai, Yang and Lu, Ran and Lu, Sida and Salvado, Jordi and Stefanek, Ben A.. **Phys. Rev. D**. **93** (2016) 073004; ”10.1103/PhysRevD.93.073004” “ Three Twin Neutrinos Evidence from LSND and MiniBooNE” 1512.05357:/ 1512.05357
- [143] Brace, Alexander and Lee, Hyungro and Ma, Heng and Trifan, Anda and Turilli, Matteo and Yakushin, Igor and Munson, Todd and Foster, Ian and Jha, Shantenu and Ramanathan, Arvind. **arXiv preprint arXiv:2104.04797**. (2021) “ 100X faster simulations of complex biological phenomena by coupling ML to HPC ensembles”
- [144] Ainsworth, Mark and Tugluk, Ozan and Whitney, Ben and Klasky, Scott. **SIAM Journal on Scientific Computing**. **41** (2019) A1278A1303; “ techniques for compression and reduction of scientific dataThe multivariate case”
- [145] Godoy, William F and Podhorszki, Norbert and Wang, Ruonan and Atkins, Chuck and Eisenhauer, Greg and Gu, Junmin and Davis, Philip and Choi, Jong and Germaschewski, Kai and Huck, Kevin and others. **SoftwareX**. **12** (2020) 100561; “ 2 The Adaptable Input Output System. A framework for highperformance data management”
- [146] Dominski, Julien and Cheng, J and Merlo, G and Carey, V and Hager, R and Ricketson, L and Choi, J and Ethier, S and Germaschewski, K and Ku, S and others. **Physics of Plasmas**. **28** (2021) 022301; “ coupling of gyrokinetic simulations, a generalized scheme based on firstprinciples”

- [147] Merlo, Gabriele and Janhunen, S and Jenko, F and Bhattacharjee, A and Chang, CS and Cheng, J and Davis, P and Dominski, J and Germaschewski, K and Hager, R and others. **Physics of Plasmas**. **28** (2021) 012303; “coupled GENEXGC microturbulence simulations”
- [148] Cheng, Junyi and Dominski, Julien and Chen, Yang and Chen, Hao-tian and Merlo, Gabriele and Ku, SeungHoe and Hager, Robert and Chang, ChoongSeock and Suchyta, Eric and D’Azevedo, Eduardo and others. **Physics of Plasmas**. **27** (2020) 122510; “coreedge coupling of the particlein-cell gyrokinetic codes GEM and XGC”
- [149] Poeschel, Franz and Godoy, William F and Podhorszki, Norbert and Klasky, Scott and Eisenhauer, Greg and Davis, Philip E and Wan, Lipeng and Gainaru, Ana and Gu, Junmin and Koller, Fabian and others. **arXiv preprint arXiv2107.06108**. (2021) “from filebased HPC workflows to streaming data pipelines with openPMD and ADIOS2”
- [150] Wan, Lipeng and Huebl, Axel and Gu, Junmin and Poeschel, Franz and Gainaru, Ana and Wang, Ruonan and Chen, Jieyang and Liang, Xin and Ganyushin, Dmitry and Munson, Todd and others. **IEEE Transactions on Parallel and Distributed Systems**. **33** (2021) 878890; “IO Performance for Exascale Applications through Online Data Layout Reorganization”
- [151] Wang, Dali and Luo, X and Yuan, Fengming and Podhorszki, Norbert. **Journal of Computer and Communications**. **5** (2017) “data analysis framework for earth system simulation within an insitu infrastructure”
- [152] Di, Sheng and Cappello, Franck. (2016) 730739; “ieee international parallel and distributed processing symposium ipdps”
- [153] Diffenderfer, James and Fox, Alyson L and Hittinger, Jeffrey A and Sanders, Geoffrey and Lindstrom, Peter G. **SIAM Journal on Scientific Computing**. **41** (2019) A1867A1898; “analysis of zfp compression for floatingpoint data”
- [154] Wan, Lipeng and Mehta, Kshitij V and Klasky, Scott A and Wolf, Matthew D and Wang, H Y and Wang, W H and Li, J C and Lin, Zhihong. (2019) “management challenges of exascale scientific simulations A case study with the Gyrokinetic Toroidal Code and ADIOS”
- [155] Rafael Ferreira da Silva and Henri Casanova and Kyle Chard and Dan Laney and Dong Ahn and Shantenu Jha and Carole Goble and Lavanya Ramakrishnan and Luc Peterson and Bjoern Enders and Douglas Thain and Ilkay Altintas and Yadu Babuji and Rosa M. Badia and Vivien Bonazzi and Taina Coleman and Michael Crusoe and Ewa Deelman and Frank Di Natale and Paolo Di Tommaso and Thomas Fahringer and Rosa Filgueira and Grigori Fursin and Alex Ganose and Bjorn Gruning and Daniel S. Katz and Olga Kuchar and Ana Kupresanin and Bertram Ludascher and Ketan

- Maheshwari and Marta Mattoso and Kshitij Mehta and Todd Munson and Jonathan Ozik and Tom Peterka and Loic Pottier and Tim Randles and Stian SoilandReyes and Benjamin Tovar and Matteo Turilli and Thomas Uram and Karan Vahi and Michael Wilde and Matthew Wolf and Justin Wozniak. **Comp. Phys. Comm.** **271** (2021) 108171; "10.5281/zenodo.4606958" "community summit Bringing the scientific workflows community together"
- [156] Ewa Deelman and Tom Peterka and Ilkay Altintas and Christopher D Carothers and Kerstin Kleese van Dam and Kenneth Moreland and Manish Parashar and Lavanya Ramakrishnan and Michela Taufer and Jeffrey Vetter. **The International Journal of High Performance Computing Applications**. **32** (2018) 159175; "future of scientific workflows" :
- [157] Rafael Ferreira da Silva and et al. (2022) "Towards an Infrastructure for Enabling Systematic Development and Research of Scientific Workflow Management Systems"
- [158] Apache. (2022) "workflow systems"
- [159] Mehta, Kshitij and Allen, Bryce and Wolf, Matthew and Logan, Jeremy and Suchyta, Eric and Choi, Jong and Takahashi, Keichi and Yakushin, Igor and Munson, Todd and Foster, Ian and Klasky, Scott. (2019) 1120; 10.1109/WORKS49585.2019.00007 "Codesign Framework for Online Data Analysis and Reduction"
- [160] Ju, Xiangyang and Murnane, Daniel and Calafiura, Paolo and Choma, Nicholas and Conlon, Sean and Farrell, Steven and Xu, Yaoyuan and Spiropulu, Maria and Vlimant, JeanRoch and Aurisano, Adam and others. **The European Physical Journal C**. **81** (2021) 114; "of a geometric deep learning pipeline for HLLHC particle tracking"
- [161] Evan Berkowitz. (2017) "Bundle Supercomputing Tasks, "1702.06122:/1702.06122
- [162] Berkowitz, Evan. (2018) 432439; "Performance Computing"
- [163] Dong H. Ahn and Ned Bass and Albert Chu and Jim Garlick and Mark Grondona and Stephen Herbein and Helgi I. Ingólfsson and Joseph Koning and Tapasya Patki and Thomas R.W. Scogland and Becky Springmeyer and Michela Taufer. **Future Generation Computer Systems**. **110** (2020) 202213; <https://doi.org/10.1016/j.future.2020.04.006> "Flux Overcoming scheduling challenges for exascale workflows"
- [164] Wozniak, Justin M. and Armstrong, Timothy G. and Wilde, Michael and Katz, Daniel S. and Lusk, Ewing and Foster, Ian T.. (2013) 95102; 10.1109/CCGrid.2013.99 "LargeScale Application Composition via DistributedMemory Dataflow Processing"

- [165] Vergani, Stefano and Kamp, Nicholas W. and Diaz, Alejandro and Argüelles, Carlos A. and Conrad, Janet M. and Shaevitz, Michael H. and Uchida, Melissa A.. **Phys. Rev. D.** **104** (2021) 095005; "10.1103/PhysRevD.104.095005" " Explaining the MiniBooNE excess through a mixed model of neutrino oscillation and decay" 2105.06470:/ 2105.06470
- [166] Gninenko, S. N.. **Phys. Rev. D.** **85** (2012) 055027; "10.1103/PhysRevD.85.055027" " Stringent limits on the π^0 to γX , X to $e\bar{e}$ decay from neutrino experiments and constraints on new light gauge bosons" 1112.5438:/ 1112.5438
- [167] Fischer, Oliver and HernandezCabezudo, Alvaro and Schwetz, Thomas. **Phys. Rev. D.** **101** (2020) 15; 10.1103/PhysRevD.101.075045 " Explaining the MiniBooNE excess by a decaying sterile neutrino with mass in the 250 MeV range"
- [168] Magill, Gabriel and Plestid, Ryan and Pospelov, Maxim and Tsai, YuDai. **Phys. Rev. D.** **98** (2018) 25; 10.1103/PhysRevD.98.115015 " Dipole portal to heavy neutral leptons"
- [169] Bertuzzo, Enrico and Jana, Sudip and Machado, Pedro A. N. and Zukanovich Funchal, Renata. **Phys. Rev. Lett.** **121** (2018) 5; 10.1103/PhysRevLett.121.241801 " Dark Neutrino Portal to Explain MiniBooNE Excess"
- [170] Dutta, Bhaskar and Ghosh, Sumit and Li, Tianjun. **Phys. Rev. D.** **102** (2020) 17; 10.1103/PhysRevD.102.055017 " Explaining gensuremath2ensuremathmu,e, the KOTO anomaly, and the MiniBooNE excess in an extended Higgs model with sterile neutrinos"
- [171] Abdallah, Waleed and Gandhi, Raj and Roy, Samiran. **Phys. Rev. D.** **104** (2021) 13; 10.1103/PhysRevD.104.055028 " TwoHiggs doublet solution to the LSND, MiniBooNE and muon gensuremath2 anomalies"
- [172] Chang, ChiaHung Vincent and Chen, ChuanRen and Ho, ShuYu and Tseng, ShihYen. **Phys. Rev. D.** **104** (2021) 12; 10.1103/PhysRevD.104.015030 " Explaining the MiniBooNE anomalous excess via a leptophilic ALPsterile neutrino coupling"
- [173] Brdar, Vedran and Fischer, Oliver and Smirnov, Alexei Yu.. **Phys. Rev. D.** **103** (2021) 30; 10.1103/PhysRevD.103.075008 " Modelindependent bounds on the nonoscillatory explanations of the MiniBooNE excess"
- [174] Suchyta, Eric and Klasky, Scott and Podhorszki, Norbert and Wolf, Matthew and Adesoji, Abolaji and Chang, CS and Choi, Jong and Davis, Philip E and Dominski, Julien and Ethier, Stephane and others. **The International Journal of High Performance Computing Applications.** **36** (2022) 106128; " Exascale Framework for High Fidelity coupled Simulations EFFIS Enabling whole device modeling in fusion science"

- [175] Merzky, Andre and Santcroos, Mark and Turilli, Matteo and Jha, Shantenu. **CoRR**, **abs1512.08194**. (2015) “ Scalable execution of heterogeneous and dynamic workloads on supercomputers”
- [176] Rocklin, Matthew. **130** (2015) 136; “ of the 14th python in science conference”
- [177] Feldman, Gary J. and Cousins, Robert D.. **Phys. Rev. D.** **57** (1998) 38733889; ”10.1103/PhysRevD.57.3873” “ A Unified approach to the classical statistical analysis of small signals” physics9711021: physics9711021
- [178] Li, Lingge and Nayak, Nitish and Bian, Jianming and Baldi, Pierre. **Phys. Rev. D.** **101** (2020) 012001; ”10.1103/PhysRevD.101.012001” “ Efficient neutrino oscillation parameter inference using Gaussian processes” 1811.07050:/ 1811.07050
- [179] Olaf Ronneberger and. **CoRR**. **abs1505.04597** (2015) “ UNet Convolutional Networks for Biomedical Image Segmentation” 1505.04597: 1505.04597
- [180] He, Kaiming and Zhang, Xiangyu and Ren, Shaoqing and Sun, Jian. (2016) 770778; 10.1109/CVPR.2016.90 “ Residual Learning for Image Recognition, ”
- [181] Abbasi, R. and others. (IceCube Collaboration, IceCube) **Phys. Rev. Lett.** **129** (2022) 151801; ”10.1103/PhysRevLett.129.151801” “ Search for Unstable Sterile Neutrinos with the IceCube Neutrino Observatory” 2204.00612:/ 2204.00612
- [182] Berns, Lukas. (2023) “ An importance sampling method for Feldman-Cousins confidence intervals” 2303.11290:/ 2303.11290
- [183] Abratenko, P. and others. (ICARUS) **Eur. Phys. J. C.** **83** (2023) 467; ”10.1140/epjc/s10052-023-11610-y” “ ICARUS at the Fermilab ShortBaseline Neutrino program initial operation” 2301.08634:/ 2301.08634