Rapport d'activité LPNHE 2024–2025
Liste de publications du groupe XENON

1. E. Aprile, J. Aalbers, K. Abe et al. « WIMP Dark Matter Search Using a 3.1 Tonne-Year Exposure of the XENONnT Experiment ». Phys. Rev. Lett. 135.22, 221003 (nov. 2025), p. 221003. DOI : 10.1103/msw4-t342. arXiv : 2502.18005 [hep-ex]
2. E. Aprile, J. Aalbers, K. Abe et al. « Radon Removal in XENONnT down to the Solar Neutrino Level ». *Physical Review X* 15.3, 031079 (juill. 2025), p. 031079. DOI : 10.1103/zc1w-88p6. arXiv : 2502.04209 [physics.ins-det]
3. E. Aprile, J. Aalbers, K. Abe et al. « The neutron veto of the XENONnT experiment : results with demineralized water ». *European Physical Journal C* 85.6, 695 (juin 2025), p. 695. DOI : 10.1140/epjc/s10052-025-14105-0. arXiv : 2412.05264 [physics.ins-det]
4. E. Aprile, J. Aalbers, K. Abe et al. « Search for Light Dark Matter in Low-Energy Ionization Signals from XENONnT ». Phys. Rev. Lett. 134.16, 161004 (avr. 2025), p. 161004. DOI : 10.1103/PhysRevLett.134.161004. arXiv : 2411.15289 [hep-ex]
5. P. Agnes, Q. Berger, M. Bomben et al. « Impact of extreme ultraviolet radiation on the scintillation of pure and xenon-doped liquid argon ». Phys. Rev. D 111.10, 102001 (mai 2025), p. 102001. DOI : 10.1103/PhysRevD.111.102001. arXiv : 2410.22863 [hep-ex]
6. J. Aalbers, K. Abe, M. Adrover et al. « Neutrinoless double beta decay sensitivity of the XLZD rare event observatory ». *Journal of Physics G Nuclear Physics* 52.4, 045102 (avr. 2025), p. 045102. DOI : 10.1088/1361-6471/adb900. arXiv : 2410.19016 [physics.ins-det]
7. XLZD Collaboration, J. Aalbers, K. Abe et al. « The XLZD Design Book : towards the next-generation liquid xenon observatory for dark matter and neutrino physics ». *European Physical Journal C* 85.10, 1192 (oct. 2025), p. 1192. DOI : 10.1140/epjc/s10052-025-14810-w. arXiv : 2410.17137 [hep-ex]
8. E. Aprile, J. Aalbers, K. Abe et al. « First Search for Light Dark Matter in the Neutrino Fog with XENONnT ». Phys. Rev. Lett. 134.11, 111802 (mars 2025), p. 111802. DOI : 10.1103/PhysRevLett.134.111802. arXiv : 2409.17868 [hep-ex]
9. E. Aprile, J. Aalbers, K. Abe et al. « XENONnT analysis : Signal reconstruction, calibration, and event selection ». Phys. Rev. D 111.6, 062006 (mars 2025), p. 062006. DOI : 10.1103/PhysRevD.111.062006. arXiv : 2409.08778 [hep-ex]
10. E. Aprile, J. Aalbers, K. Abe et al. « First Indication of Solar B8 Neutrinos via Coherent Elastic Neutrino-Nucleus Scattering with XENONnT ». Phys. Rev. Lett. 133.19, 191002 (nov. 2024), p. 191002. DOI : 10.1103/PhysRevLett.133.191002. arXiv : 2408.02877 [nucl-ex]

11. E. Aprile, J. Aalbers, K. Abe et al. « XENONnT WIMP search : Signal and background modeling and statistical inference ». Phys. Rev. D 111.10, 103040 (mai 2025), p. 103040. DOI : 10.1103/PhysRevD.111.103040. arXiv : 2406.13638 [physics.data-an]

12. E. Aprile, J. Aalbers, K. Abe et al. « Offline tagging of radon-induced backgrounds in XENON1T and applicability to other liquid xenon time projection chambers ». Phys. Rev. D 110.1, 012011 (juill. 2024), p. 012011. DOI : 10.1103/PhysRevD.110.012011. arXiv : 2403.14878 [hep-ex]

13. Xenon Collaboration, E. Aprile, J. Aalbers et al. « The XENONnT dark matter experiment ». *European Physical Journal C* 84.8, 784 (août 2024), p. 784. DOI : 10.1140/epjc/s10052-024-12982-5. arXiv : 2402.10446 [physics.ins-det]

14. Xenon Collaboration, E. Aprile, K. Abe et al. « Design and performance of the field cage for the XENONnT experiment ». *European Physical Journal C* 84.2, 138 (fév. 2024), p. 138. DOI : 10.1140/epjc/s10052-023-12296-y. arXiv : 2309.11996 [hep-ex]

15. DARWIN Collaboration, M. Adrover, L. Althueser et al. « Cosmogenic background simulations for neutrinoless double beta decay with the DARWIN observatory at various underground sites ». *European Physical Journal C* 84.1, 88 (jan. 2024), p. 88. DOI : 10.1140/epjc/s10052-023-12298-w. arXiv : 2306.16340 [physics.ins-det]

16. E. Aprile, K. Abe, F. Agostini et al. « Effective field theory and inelastic dark matter results from XENON1T ». Phys. Rev. D 109.11, 112017 (juin 2024), p. 112017. DOI : 10.1103/PhysRevD.109.112017. arXiv : 2210.07591 [hep-ex]

17. E. Aprile, K. Abe, F. Agostini et al. « Emission of single and few electrons in XENON1T and limits on light dark matter ». Phys. Rev. D 106.2, 022001 (juill. 2022), p. 022001. DOI : 10.1103/PhysRevD.106.022001. arXiv : 2112.12116 [hep-ex]

18. E. Aprile, J. Aalbers, F. Agostini et al. « XENON1T dark matter data analysis : Signal and background models and statistical inference ». Phys. Rev. D 99.11, 112009 (juin 2019), p. 112009. DOI : 10.1103/PhysRevD.99.112009. arXiv : 1902.11297 [physics.ins-det]