

Rapport d'activité LPNHE 2024–2025

Liste de publications du groupe CTAO

1 Articles référés

1. K. Abe, S. Abe, J. Abhir et al. « Prospects for dark matter observations in dwarf spheroidal galaxies with the Cherenkov Telescope Array Observatory ». *MNRAS* 544.3 (déc. 2025), p. 2946-2986. DOI : [10.1093/mnras/staf1798](https://doi.org/10.1093/mnras/staf1798). arXiv : [2508.19120](https://arxiv.org/abs/2508.19120) [[astro-ph.HE](#)]
2. K. Abe, S. Abe, A. Abhishek et al. « VHE γ -ray observations of bright BL Lacs with the Large-Sized Telescope prototype (LST-1) of the CTAO ». *MNRAS* 544.1 (nov. 2025), p. 669-686. DOI : [10.1093/mnras/staf1728](https://doi.org/10.1093/mnras/staf1728). arXiv : [2510.03702](https://arxiv.org/abs/2510.03702) [[astro-ph.HE](#)]
3. K. Abe, S. Abe, J. Abhir et al. « Galactic transient sources with the Cherenkov Telescope Array Observatory ». *MNRAS* 540.1 (juin 2025), p. 205-238. DOI : [10.1093/mnras/staf655](https://doi.org/10.1093/mnras/staf655). arXiv : [2405.04469](https://arxiv.org/abs/2405.04469) [[astro-ph.HE](#)]
4. S. Caroff, C. Pfeifer, J. Bolmont et al. « Discriminating between different modified dispersion relations from gamma-ray observations ». *Phys. Rev. D* 111.8, 083021 (avr. 2025), p. 083021. DOI : [10.1103/PhysRevD.111.083021](https://doi.org/10.1103/PhysRevD.111.083021). arXiv : [2412.16048](https://arxiv.org/abs/2412.16048) [[astro-ph.HE](#)]
5. R. Alves Batista, G. Amelino-Camelia, D. Boncioli et al. « White paper and roadmap for quantum gravity phenomenology in the multi-messenger era ». *Classical and Quantum Gravity* 42.3, 032001 (fév. 2025), p. 032001. DOI : [10.1088/1361-6382/ad605a](https://doi.org/10.1088/1361-6382/ad605a)
6. K. Abe, S. Abe, A. Abhishek et al. « Constraining the TeV gamma-ray emission of SN 2024bch, a possible type II_n-L from a red supergiant progenitor : Multiwavelength observations and analysis of the progenitor ». *A&A* 702, A125 (oct. 2025), A125. DOI : [10.1051/0004-6361/202554721](https://doi.org/10.1051/0004-6361/202554721). arXiv : [2508.20048](https://arxiv.org/abs/2508.20048) [[astro-ph.HE](#)]
7. K. Abe, S. Abe, A. Abhishek et al. « GRB 221009A : Observations with LST-1 of CTAO and Implications for Structured Jets in Long Gamma-Ray Bursts ». *ApJ* 988.2, L42 (août 2025), p. L42. DOI : [10.3847/2041-8213/ade4cf](https://doi.org/10.3847/2041-8213/ade4cf). arXiv : [2507.03077](https://arxiv.org/abs/2507.03077) [[astro-ph.HE](#)]
8. K. Abe, S. Abe, A. Abhishek et al. « Detection of the Geminga pulsar at energies down to 20 GeV with the LST-1 of CTAO ». *A&A* 698, A283 (juin 2025), A283. DOI : [10.1051/0004-6361/202554350](https://doi.org/10.1051/0004-6361/202554350). arXiv : [2505.21632](https://arxiv.org/abs/2505.21632) [[astro-ph.HE](#)]
9. K. Abe, S. Abe, J. Abhir et al. « Very high-energy gamma-ray detection and long-term multiwavelength view of the flaring blazar B2 1811+31 ». *A&A* 697, A172 (mai 2025), A172. DOI : [10.1051/0004-6361/202452942](https://doi.org/10.1051/0004-6361/202452942). arXiv : [2503.19054](https://arxiv.org/abs/2503.19054) [[astro-ph.HE](#)]

10. T. Saito, M. Takahashi, Y. Inome et al. « Development and quality control of PMT modules for the large-sized telescopes of the Cherenkov Telescope Array Observatory ». *Nuclear Instruments and Methods in Physics Research A* 1073, 170229 (avr. 2025), p. 170229. DOI : [10.1016/j.nima.2025.170229](https://doi.org/10.1016/j.nima.2025.170229). arXiv : [2502.02045](https://arxiv.org/abs/2502.02045) [astro-ph.IM]
11. S. Abe, J. Abhir, A. Abhishek et al. « Combined search in dwarf spheroidal galaxies for branon dark matter annihilation signatures with the MAGIC telescopes ». *J. Cosmology Astropart. Phys.* 2025.3, 020 (mars 2025), p. 020. DOI : [10.1088/1475-7516/2025/03/020](https://doi.org/10.1088/1475-7516/2025/03/020)
12. MAGIC Collaboration, K. Abe, S. Abe et al. « Insights from the first flaring activity of a high synchrotron peaked blazar with X-ray polarization and VHE gamma rays ». *A&A* 695, A217 (mars 2025), A217. DOI : [10.1051/0004-6361/202452785](https://doi.org/10.1051/0004-6361/202452785). arXiv : [2410.23140](https://arxiv.org/abs/2410.23140) [astro-ph.HE]
13. K. Abe, S. Abe, A. Abhishek et al. « Detection of RS Oph with LST-1 and modelling of its HE/VHE gamma-ray emission ». *A&A* 695, A152 (mars 2025), A152. DOI : [10.1051/0004-6361/202452447](https://doi.org/10.1051/0004-6361/202452447). arXiv : [2503.13283](https://arxiv.org/abs/2503.13283) [astro-ph.HE]
14. MAGIC Collaboration, S. Abe, J. Abhir et al. « Time-dependent modelling of short-term variability in the TeV-blazar VER J0521+211 during the major flare in 2020 ». *A&A* 694, A308 (fév. 2025), A308. DOI : [10.1051/0004-6361/202451378](https://doi.org/10.1051/0004-6361/202451378). arXiv : [2412.15836](https://arxiv.org/abs/2412.15836) [astro-ph.HE]
15. K. Abe, S. Abe, J. Abhir et al. « Characterization of Markarian 421 during its most violent year : Multiwavelength variability and correlations ». *A&A* 694, A195 (fév. 2025), A195. DOI : [10.1051/0004-6361/202451624](https://doi.org/10.1051/0004-6361/202451624). arXiv : [2501.03831](https://arxiv.org/abs/2501.03831) [astro-ph.HE]
16. S. Abe, J. Abhir, A. Abhishek et al. « Cosmic-ray acceleration and escape from supernova remnant W44 as probed by Fermi-LAT and MAGIC ». *A&A* 693, A255 (jan. 2025), A255. DOI : [10.1051/0004-6361/202449748](https://doi.org/10.1051/0004-6361/202449748). arXiv : [2501.03889](https://arxiv.org/abs/2501.03889) [astro-ph.HE]
17. Mathis Caprais, Oriane Shviro, Ugo Pensac et al. « Application of the heat equation to the study of underground temperature ». *American Journal of Physics* 92.9 (sept. 2024), p. 663-669. DOI : [10.1119/5.0196139](https://doi.org/10.1119/5.0196139). arXiv : [2405.15284](https://arxiv.org/abs/2405.15284) [physics.geo-ph]
18. S. Abe, J. Abhir, A. Abhishek et al. « Prospects for a survey of the galactic plane with the Cherenkov Telescope Array ». *J. Cosmology Astropart. Phys.* 2024.10, 081 (oct. 2024), p. 081. DOI : [10.1088/1475-7516/2024/10/081](https://doi.org/10.1088/1475-7516/2024/10/081). arXiv : [2310.02828](https://arxiv.org/abs/2310.02828) [astro-ph.HE]
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20. C. Levy, H. Sol et J. Bolmont. « Separating source-intrinsic and Lorentz invariance violation induced delays in the very high-energy emission of blazar flares ». *A&A* 689, A136 (sept. 2024), A136. DOI : [10.1051/0004-6361/202450140](https://doi.org/10.1051/0004-6361/202450140). arXiv : [2406.01182](https://arxiv.org/abs/2406.01182) [astro-ph.HE]
21. S. Abe, J. Abhir, A. Abhishek et al. « Constraints on VHE gamma-ray emission of flat spectrum radio quasars with the MAGIC telescopes ». *MNRAS* 535.2 (déc. 2024), p. 1484-1506. DOI : [10.1093/mnras/stae2313](https://doi.org/10.1093/mnras/stae2313). arXiv : [2403.13713](https://arxiv.org/abs/2403.13713) [astro-ph.HE]

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24. K. Abe, S. Abe, A. Abhishek et al. « A detailed study of the very high-energy Crab pulsar emission with the LST-1 ». *A&A* 690, A167 (oct. 2024), A167. DOI : [10.1051/0004-6361/202450059](https://doi.org/10.1051/0004-6361/202450059). arXiv : [2407.02343](https://arxiv.org/abs/2407.02343) [astro-ph.HE]
25. MAGIC Collaboration, H. Abe, S. Abe et al. « Correction to : The variability patterns of the TeV blazar PG 1553 + 113 from a decade of MAGIC and multiband observations ». *MNRAS* 532.3 (août 2024), p. 3134-3134. DOI : [10.1093/mnras/stae1563](https://doi.org/10.1093/mnras/stae1563)
26. H. Abe, S. Abe, V. A. Acciari et al. « Correction to : Gamma-ray observations of MAXI J1820+070 during the 2018 outburst ». *MNRAS* 532.2 (août 2024), p. 1901-1901. DOI : [10.1093/mnras/stae1630](https://doi.org/10.1093/mnras/stae1630)
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29. F. Bradascio, F. Brun, F. Cangemi et al. « Characterization and performance of an upgraded front-end-board for NectarCAM ». *Nuclear Instruments and Methods in Physics Research A* 1063, 169318 (juin 2024), p. 169318. DOI : [10.1016/j.nima.2024.169318](https://doi.org/10.1016/j.nima.2024.169318). arXiv : [2311.11631](https://arxiv.org/abs/2311.11631) [astro-ph.IM]
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32. S. Abe, J. Abhir, V. A. Acciari et al. « Performance and first measurements of the MAGIC stellar intensity interferometer ». *MNRAS* 529.4 (avr. 2024), p. 4387-4404. DOI : [10.1093/mnras/stae697](https://doi.org/10.1093/mnras/stae697). arXiv : [2402.04755](https://arxiv.org/abs/2402.04755) [astro-ph.IM]
33. MAGIC Collaboration, H. Abe, S. Abe et al. « The variability patterns of the TeV blazar PG 1553 + 113 from a decade of MAGIC and multiband observations ». *MNRAS* 529.4 (avr. 2024), p. 3894-3911. DOI : [10.1093/mnras/stae649](https://doi.org/10.1093/mnras/stae649). arXiv : [2403.02159](https://arxiv.org/abs/2403.02159) [astro-ph.HE]
34. S. Abe, J. Abhir, V. A. Acciari et al. « First characterization of the emission behavior of Mrk 421 from radio to very high-energy gamma rays with simultaneous X-ray polarization measurements ». *A&A* 684, A127 (avr. 2024), A127. DOI : [10.1051/0004-6361/202347988](https://doi.org/10.1051/0004-6361/202347988). arXiv : [2312.10732](https://arxiv.org/abs/2312.10732) [astro-ph.HE]

35. MAGIC Collaboration, H. Abe, S. Abe et al. « Multi-year characterisation of the broad-band emission from the intermittent extreme BL Lac 1ES 2344+514 ». *A&A* 682, A114 (fév. 2024), A114. DOI : [10.1051/0004-6361/202347845](https://doi.org/10.1051/0004-6361/202347845). arXiv : [2310.03922](https://arxiv.org/abs/2310.03922) [astro-ph.HE]
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2 Comptes rendus de conférences

1. Anastasiia Mikhno, Federica Bradascio, Jonathan Biteau et al. « Design and characterization of the Flat-Field Calibration of the NectarCAM Camera ». *arXiv e-prints* (sept. 2025). arXiv : [2509.15108](https://arxiv.org/abs/2509.15108) [astro-ph.IM]
2. A. Campoy-Ordaz, U. Pensec, C. Plard et al. « Search for Lorentz Invariance Violation with time-lag on gamma-ray Cherenkov Telescope data : From the data to the time lag constraints ». *Quantum gravity phenomenology in the multi-messenger approach*. Jan. 2025, 9, p. 9
3. J. Bolmont, A. Campoy-Ordaz et J. Strišković. « Gamma-ray data collection, calibration and analysis for Lorentz invariance violation studies ». *Quantum gravity phenomenology in the multi-messenger approach*. Jan. 2025, 3, p. 3
4. Kazuma Ishio, Yating Chai, Salvatore Mangano et al. « The Cosmic-Ray Electron Spectrum Measured with the MAGIC Telescopes ». *Proceedings of the XLI Polish Astronomical Society Meeting*. T. 13. Déc. 2024, p. 128-131
5. T. Miener, D. Nieto, V. Gammaldi et al. « Combined search in dwarf spheroidal galaxies for branon dark matter annihilation signatures with the MAGIC Telescopes ». *7th Heidelberg International Symposium on High-Energy Gamma-Ray Astronomy*. Déc. 2024, p. 196. DOI : [10.48550/arXiv.2408.08009](https://doi.org/10.48550/arXiv.2408.08009). arXiv : [2408.08009](https://arxiv.org/abs/2408.08009) [astro-ph.HE]
6. H. Abe, K. Abe, S. Abe et al. « Observation of the galactic PeVatron candidate LHAASO J2108+5157 with the Large-Sized Telescope for the Cherenkov Telescope Array ». *7th Heidelberg International Symposium on High-Energy Gamma-Ray Astronomy*. Déc. 2024, p. 129
7. F. Cangemi, T. Hovatta, E. Lindfors et al. « Probe AGNs variability with the Cherenkov Telescope Array ». *7th Heidelberg International Symposium on High-Energy Gamma-Ray Astronomy*. Déc. 2024, p. 93. DOI : [10.48550/arXiv.2304.14208](https://doi.org/10.48550/arXiv.2304.14208). arXiv : [2304.14208](https://arxiv.org/abs/2304.14208) [astro-ph.HE]
8. The CTA-LST Project, H. Abe, K. Abe et al. « RS Ophiuchi nova outburst detection by the LST-1 ». *7th Heidelberg International Symposium on High-Energy Gamma-Ray Astronomy*. Déc. 2024, p. 55
9. L. Heckmann, J. van Scherpenberg, The MAGIC Collaboration et al. « A survey to evaluate diversity, equity and inclusion in large collaborations ». *38th International Cosmic Ray Conference*. Sept. 2024, 1610, p. 1610. DOI : [10.22323/1.444.1610](https://doi.org/10.22323/1.444.1610)
10. J. G. Green, A. Carosi, L. Nava et al. « Chasing Gravitational Waves with the Cherenkov Telescope Array ». *38th International Cosmic Ray Conference*. Sept. 2024, 1534, p. 1534. DOI : [10.22323/1.444.1534](https://doi.org/10.22323/1.444.1534). arXiv : [2310.07413](https://arxiv.org/abs/2310.07413) [astro-ph.HE]

11. A. M. Brown, D. Fiorillo, A. R. de León et al. « Sensitivity of the Cherenkov Telescope Array to the gamma-ray emission from neutrino sources detected by IceCube ». *38th International Cosmic Ray Conference*. Sept. 2024, 1531, p. 1531. DOI : [10.22323/1.444.1531](https://doi.org/10.22323/1.444.1531)
12. The MAGIC Collaboration, H. Abe, S. Abe et al. « Leptonic and lepto-hadronic time-dependent spectral modeling of VER J0521+211 during the large outburst of February-March 2020. » *38th International Cosmic Ray Conference*. Sept. 2024, 1492, p. 1492. DOI : [10.22323/1.444.1492](https://doi.org/10.22323/1.444.1492)
13. F. G. Saturni, The CTA-LST Project, K. Abe et al. « Improvement of the follow-up observations of IceCube neutrinos by CTA LST ». *38th International Cosmic Ray Conference*. Sept. 2024, 1474, p. 1474. DOI : [10.22323/1.444.1474](https://doi.org/10.22323/1.444.1474)
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19. The MAGIC Collaboration, H. Abe, S. Abe et al. « The broadband 3-year monitoring of the blazar 1ES1959+650 : a SED analysis of the low state ». *38th International Cosmic Ray Conference*. Sept. 2024, 929, p. 929. DOI : [10.22323/1.444.0929](https://doi.org/10.22323/1.444.0929)
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21. The MAGIC Collaboration, H. Abe, S. Abe et al. « Long term study of the blazar S5 0716+714 : investigating a turbulent jet at all wavelengths ». *38th International Cosmic Ray Conference*. Sept. 2024, 900, p. 900. DOI : [10.22323/1.444.0900](https://doi.org/10.22323/1.444.0900)
22. M. C. Strzys, CTA Consortium, K. Abe et al. « Pybkgmodel - a background modelling toolbox for the CTA ». *38th International Cosmic Ray Conference*. Sept. 2024, 894, p. 894. DOI : [10.22323/1.444.0894](https://doi.org/10.22323/1.444.0894)
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25. G. Grolleron, J. B. Gonzalez, J. Biteau et al. « Variability studies of active galactic nuclei from the long-term monitoring program with the Cherenkov Telescope Array ». *38th International Cosmic Ray Conference*. Sept. 2024, 856, p. 856. DOI : [10.22323/1.444.0856](https://doi.org/10.22323/1.444.0856)
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27. M. Cerruti, J. Finke, G. Grolleron et al. « Bright blazar flares with CTA ». *38th International Cosmic Ray Conference*. Sept. 2024, 850, p. 850. DOI : [10.22323/1.444.0850](https://doi.org/10.22323/1.444.0850). arXiv : [2309.09615](https://arxiv.org/abs/2309.09615) [astro-ph.HE]
28. The MAGIC Collaboration, H. Abe, S. Abe et al. « Defining the data legacy of the MAGIC telescopes : adopting a standardised data format and open-source analysis tools ». *38th International Cosmic Ray Conference*. Sept. 2024, 827, p. 827. DOI : [10.22323/1.444.0827](https://doi.org/10.22323/1.444.0827)
29. D. A. Prokhorov, S. H. Lee, S. Nagataki et al. « Potential of the Cherenkov Telescope Array for studying the young nearby supernova remnants ». *38th International Cosmic Ray Conference*. Sept. 2024, 824, p. 824. DOI : [10.22323/1.444.0824](https://doi.org/10.22323/1.444.0824)
30. The MAGIC Collaboration, H. Abe, S. Abe et al. « Multiwavelength study of GRB 201216C using the sub-TeV emission detected by MAGIC ». *38th International Cosmic Ray Conference*. Sept. 2024, 791, p. 791. DOI : [10.22323/1.444.0791](https://doi.org/10.22323/1.444.0791)
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