

Rapport d'activité LPNHE 2022–2023

Liste de publications du groupe LHCb

- [1] R. Aaij, A. S. W. Abdelmotteeb, C. Abellan Beteta et al. « A study of C P violation in the decays $B^\pm \rightarrow [K^+ K^- \pi^+ \pi^-]_D h^\pm$ ($h = K, \pi$) and $B^\pm \rightarrow [\pi^+ \pi^- \pi^+ \pi^-]_D h^\pm$ ». *European Physical Journal C* 83.6, 547 (juin 2023), p. 547. DOI : [10.1140/epjc/s10052-023-11560-5](https://doi.org/10.1140/epjc/s10052-023-11560-5). arXiv : [2301.10328 \[hep-ex\]](https://arxiv.org/abs/2301.10328).
- [2] R. Aaij, A. S. W. Abdelmotteeb, C. Abellan Beteta et al. « Amplitude analysis of $B^0 \rightarrow \bar{D}^0 D_s^+ \pi^-$ and $B^+ \rightarrow D^- D_s^+ \pi^+$ decays ». *Phys. Rev. D* 108.1, 012017 (juill. 2023), p. 012017. DOI : [10.1103/PhysRevD.108.012017](https://doi.org/10.1103/PhysRevD.108.012017). arXiv : [2212.02717 \[hep-ex\]](https://arxiv.org/abs/2212.02717).
- [3] R. Aaij, A. S. W. Abdelmotteeb, C. Abellan Beteta et al. « Amplitude analysis of the $\Lambda_c^+ \rightarrow p K^- \pi^+$ decay and Λ_c^+ baryon polarization measurement in semileptonic beauty hadron decays ». *Phys. Rev. D* 108.1, 012023 (juill. 2023), p. 012023. DOI : [10.1103/PhysRevD.108.012023](https://doi.org/10.1103/PhysRevD.108.012023). arXiv : [2208.03262 \[hep-ex\]](https://arxiv.org/abs/2208.03262).
- [4] R. Aaij, A. S. W. Abdelmotteeb, C. Abellan Beteta et al. « Charmonium production in pNe collisions at $\sqrt{s_{NN}}=68.5$ GeV ». *European Physical Journal C* 83.7, 625 (juill. 2023), p. 625. DOI : [10.1140/epjc/s10052-023-11608-6](https://doi.org/10.1140/epjc/s10052-023-11608-6). arXiv : [2211.11645 \[hep-ex\]](https://arxiv.org/abs/2211.11645).
- [5] R. Aaij, A. S. W. Abdelmotteeb, C. Abellan Beteta et al. « Direct C P violation in charmless three-body decays of B^\pm mesons ». *Phys. Rev. D* 108.1, 012008 (juill. 2023), p. 012008. DOI : [10.1103/PhysRevD.108.012008](https://doi.org/10.1103/PhysRevD.108.012008). arXiv : [2206.07622 \[hep-ex\]](https://arxiv.org/abs/2206.07622).
- [6] R. Aaij, A. S. W. Abdelmotteeb, C. Abellan Beteta et al. « Evidence of a $J/\psi K_S^0$ Structure in $B^0 \rightarrow J/\psi \phi K_S^0$ Decays ». *Phys. Rev. Lett.* 131.13, 131901 (sept. 2023), p. 131901. DOI : [10.1103/PhysRevLett.131.131901](https://doi.org/10.1103/PhysRevLett.131.131901). arXiv : [2301.04899 \[hep-ex\]](https://arxiv.org/abs/2301.04899).
- [7] R. Aaij, A. S. W. Abdelmotteeb, C. Abellan Beteta et al. « First Observation of a Doubly Charged Tetraquark and Its Neutral Partner ». *Phys. Rev. Lett.* 131.4, 041902 (juill. 2023), p. 041902. DOI : [10.1103/PhysRevLett.131.041902](https://doi.org/10.1103/PhysRevLett.131.041902). arXiv : [2212.02716 \[hep-ex\]](https://arxiv.org/abs/2212.02716).
- [8] R. Aaij, A. S. W. Abdelmotteeb, C. Abellan Beteta et al. « First observation of the $B^+ \rightarrow D_s^+ D_s^- K^+$ decay ». *Phys. Rev. D* 108.3, 034012 (août 2023), p. 034012. DOI : [10.1103/PhysRevD.108.034012](https://doi.org/10.1103/PhysRevD.108.034012). arXiv : [2211.05034 \[hep-ex\]](https://arxiv.org/abs/2211.05034).
- [9] R. Aaij, A. S. W. Abdelmotteeb, C. Abellan Beteta et al. « Measurement of lepton universality parameters in $B^+ \rightarrow K^+ \ell^+ \ell^-$ and $B^0 \rightarrow K^{*0} \ell^+ \ell^-$ decays ». *Phys. Rev. D* 108.3, 032002 (août 2023), p. 032002. DOI : [10.1103/PhysRevD.108.032002](https://doi.org/10.1103/PhysRevD.108.032002). arXiv : [2212.09153 \[hep-ex\]](https://arxiv.org/abs/2212.09153).

- [10] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Measurement of the $\Lambda_b^0 \rightarrow \Lambda (1520) \mu^+ \mu^-$ Differential Branching Fraction ». Phys. Rev. Lett. 131.15, 151801 (oct. 2023), p. 151801. DOI : [10.1103/PhysRevLett.131.151801](https://doi.org/10.1103/PhysRevLett.131.151801). arXiv : [2302.08262 \[hep-ex\]](https://arxiv.org/abs/2302.08262).
- [11] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Measurement of the Branching Fractions $\mathcal{B}(B^0 \rightarrow p\bar{p}p\bar{p})$ and $\mathcal{B}(B_s^0 \rightarrow p\bar{p}p\bar{p})$ ». Phys. Rev. Lett. 131.9, 091901 (sept. 2023), p. 091901. DOI : [10.1103/PhysRevLett.131.091901](https://doi.org/10.1103/PhysRevLett.131.091901).
- [12] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Measurement of the Prompt D^0 Nuclear Modification Factor in p -Pb Collisions at $\sqrt{s_{NN}}=8.16$ TeV ». Phys. Rev. Lett. 131.10, 102301 (sept. 2023), p. 102301. DOI : [10.1103/PhysRevLett.131.102301](https://doi.org/10.1103/PhysRevLett.131.102301). arXiv : [2205.03936 \[nucl-ex\]](https://arxiv.org/abs/2205.03936).
- [13] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Measurement of the Time-Integrated CP Asymmetry in $D^0 \rightarrow K^- K^+$ Decays ». Phys. Rev. Lett. 131.9, 091802 (sept. 2023), p. 091802. DOI : [10.1103/PhysRevLett.131.091802](https://doi.org/10.1103/PhysRevLett.131.091802). arXiv : [2209.03179 \[hep-ex\]](https://arxiv.org/abs/2209.03179).
- [14] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Model-independent measurement of charm mixing parameters in $\bar{B} \rightarrow D^0 (\rightarrow K_S^0 \pi^+ \pi^-) \mu^- \bar{\nu}_\mu X$ decays ». Phys. Rev. D 108.5, 052005 (sept. 2023), p. 052005. DOI : [10.1103/PhysRevD.108.052005](https://doi.org/10.1103/PhysRevD.108.052005). arXiv : [2208.06512 \[hep-ex\]](https://arxiv.org/abs/2208.06512).
- [15] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Nuclear Modification Factor of Neutral Pions in the Forward and Backward Regions in p -Pb Collisions ». Phys. Rev. Lett. 131.4, 042302 (juill. 2023), p. 042302. DOI : [10.1103/PhysRevLett.131.042302](https://doi.org/10.1103/PhysRevLett.131.042302). arXiv : [2204.10608 \[nucl-ex\]](https://arxiv.org/abs/2204.10608).
- [16] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Observation and branching fraction measurement of the decay $\Xi_b^- \rightarrow \Lambda_b^0 \pi^-$ ». Phys. Rev. D 108.7, 072002 (oct. 2023), p. 072002. DOI : [10.1103/PhysRevD.108.072002](https://doi.org/10.1103/PhysRevD.108.072002). arXiv : [2307.09427 \[hep-ex\]](https://arxiv.org/abs/2307.09427).
- [17] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Observation of a $J/\psi \Lambda$ Resonance Consistent with a Strange Pentaquark Candidate in $B^- \rightarrow J/\psi \Lambda \bar{p}$ Decays ». Phys. Rev. Lett. 131.3, 031901 (juill. 2023), p. 031901. DOI : [10.1103/PhysRevLett.131.031901](https://doi.org/10.1103/PhysRevLett.131.031901). arXiv : [2210.10346 \[hep-ex\]](https://arxiv.org/abs/2210.10346).
- [18] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Observation of a Resonant Structure near the $D_s^+ D_s^-$ Threshold in the $B^+ \rightarrow D_s^+ D_s^- K^+$ Decay ». Phys. Rev. Lett. 131.7, 071901 (août 2023), p. 071901. DOI : [10.1103/PhysRevLett.131.071901](https://doi.org/10.1103/PhysRevLett.131.071901). arXiv : [2210.15153 \[hep-ex\]](https://arxiv.org/abs/2210.15153).
- [19] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Observation of New Ω_c^0 States Decaying to the $\Xi_c^+ K^-$ Final State ». Phys. Rev. Lett. 131.13, 131902 (sept. 2023), p. 131902. DOI : [10.1103/PhysRevLett.131.131902](https://doi.org/10.1103/PhysRevLett.131.131902). arXiv : [2302.04733 \[hep-ex\]](https://arxiv.org/abs/2302.04733).
- [20] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Observation of New Baryons in the $\Xi_b^- \pi^+ \pi^-$ and $\Xi_b^0 \pi^+ \pi^-$ Systems ». Phys. Rev. Lett. 131.17, 171901 (oct. 2023), p. 171901. DOI : [10.1103/PhysRevLett.131.171901](https://doi.org/10.1103/PhysRevLett.131.171901). arXiv : [2307.13399 \[hep-ex\]](https://arxiv.org/abs/2307.13399).

- [21] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Observation of sizeable ω contribution to $\chi_{c1}(3872) \rightarrow \pi^+ \pi^- J/\psi$ decays ». Phys. Rev. D 108.1, L011103 (juill. 2023), p. L011103. DOI : [10.1103/PhysRevD.108.L011103](https://doi.org/10.1103/PhysRevD.108.L011103). arXiv : [2204.12597 \[hep-ex\]](https://arxiv.org/abs/2204.12597).
- [22] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Open charm production and asymmetry in pNe collisions at $\sqrt{s_{NN}}=68.5$ GeV ». European Physical Journal C 83.6, 541 (juin 2023), p. 541. DOI : [10.1140/epjc/s10052-023-11641-5](https://doi.org/10.1140/epjc/s10052-023-11641-5). arXiv : [2211.11633 \[hep-ex\]](https://arxiv.org/abs/2211.11633).
- [23] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Precision Measurement of CP Violation in the Penguin-Mediated Decay $B_s^0 \rightarrow \phi \phi$ ». Phys. Rev. Lett. 131.17, 171802 (oct. 2023), p. 171802. DOI : [10.1103/PhysRevLett.131.171802](https://doi.org/10.1103/PhysRevLett.131.171802). arXiv : [2304.06198 \[hep-ex\]](https://arxiv.org/abs/2304.06198).
- [24] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Search for CP violation using \hat{T} -odd correlations in $B^0 \rightarrow p\bar{p}K^+\pi^-$ decays ». Phys. Rev. D 108.3, 032007 (août 2023), p. 032007. DOI : [10.1103/PhysRevD.108.032007](https://doi.org/10.1103/PhysRevD.108.032007). arXiv : [2205.08973 \[hep-ex\]](https://arxiv.org/abs/2205.08973).
- [25] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Search for direct CP violation in charged charmless $B \rightarrow P V$ decays ». Phys. Rev. D 108.1, 012013 (juill. 2023), p. 012013. DOI : [10.1103/PhysRevD.108.012013](https://doi.org/10.1103/PhysRevD.108.012013). arXiv : [2206.02038 \[hep-ex\]](https://arxiv.org/abs/2206.02038).
- [26] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Search for $K_{S(L)}^0 \rightarrow \mu^+\mu^-\mu^+\mu^-$ decays at LHCb ». Phys. Rev. D 108.3, L031102 (août 2023), p. L031102. DOI : [10.1103/PhysRevD.108.L031102](https://doi.org/10.1103/PhysRevD.108.L031102).
- [27] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Search for Rare Decays of D^0 Mesons into Two Muons ». Phys. Rev. Lett. 131.4, 041804 (juill. 2023), p. 041804. DOI : [10.1103/PhysRevLett.131.041804](https://doi.org/10.1103/PhysRevLett.131.041804). arXiv : [2212.11203 \[hep-ex\]](https://arxiv.org/abs/2212.11203).
- [28] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Search for the baryon- and lepton-number violating decays $B^0 \rightarrow p \mu^-$ and $B_s^0 \rightarrow p \mu^-$ ». Phys. Rev. D 108.1, 012021 (juill. 2023), p. 012021. DOI : [10.1103/PhysRevD.108.012021](https://doi.org/10.1103/PhysRevD.108.012021). arXiv : [2210.10412 \[hep-ex\]](https://arxiv.org/abs/2210.10412).
- [29] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Search for the rare hadronic decay $B_s^0 \rightarrow p\bar{p}$ ». Phys. Rev. D 108.1, 012007 (juill. 2023), p. 012007. DOI : [10.1103/PhysRevD.108.012007](https://doi.org/10.1103/PhysRevD.108.012007). arXiv : [2206.06673 \[hep-ex\]](https://arxiv.org/abs/2206.06673).
- [30] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Study of charmonium decays to $K_S^0 K \pi$ in the $B \rightarrow (K_S^0 K \pi) K$ channels ». Phys. Rev. D 108.3, 032010 (août 2023), p. 032010. DOI : [10.1103/PhysRevD.108.032010](https://doi.org/10.1103/PhysRevD.108.032010). arXiv : [2304.14891 \[hep-ex\]](https://arxiv.org/abs/2304.14891).
- [31] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Test of lepton flavor universality using $B^0 \rightarrow D^{*-} \tau^+ \nu_\tau$ decays with hadronic τ channels ». Phys. Rev. D 108.1, 012018 (juill. 2023), p. 012018. DOI : [10.1103/PhysRevD.108.012018](https://doi.org/10.1103/PhysRevD.108.012018). arXiv : [2305.01463 \[hep-ex\]](https://arxiv.org/abs/2305.01463).
- [32] R. Aaij, A. S. W. Abdelmotteleb, C. Abellan Beteta et al. « Test of Lepton Universality in $b \rightarrow s \ell^+ \ell^-$ Decays ». Phys. Rev. Lett. 131.5, 051803 (août 2023), p. 051803. DOI : [10.1103/PhysRevLett.131.051803](https://doi.org/10.1103/PhysRevLett.131.051803). arXiv : [2212.09152 \[hep-ex\]](https://arxiv.org/abs/2212.09152).

- [33] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Angular Analysis of $D^0 \rightarrow \pi^+ \pi^- \mu^+ \mu^-$ and $D^0 \rightarrow K^+ K^- \mu^+ \mu^-$ Decays and Search for C P Violation ». Phys. Rev. Lett. 128.22, 221801 (juin 2022), p. 221801. DOI : [10.1103/PhysRevLett.128.221801](https://doi.org/10.1103/PhysRevLett.128.221801). arXiv : [2111.03327 \[hep-ex\]](https://arxiv.org/abs/2111.03327).
- [34] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Evidence for a new structure in the $J/\psi p$ and $J/\psi \bar{p}$ systems in $B_s^0 \rightarrow J/\psi p\bar{p}$ decays ». Phys. Rev. Lett. 128.6, 062001 (fév. 2022), p. 062001. DOI : [10.1103/PhysRevLett.128.062001](https://doi.org/10.1103/PhysRevLett.128.062001). arXiv : [2108.04720 \[hep-ex\]](https://arxiv.org/abs/2108.04720).
- [35] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « First Measurement of the $Z \rightarrow \mu^+ \mu^-$ Angular Coefficients in the Forward Region of $p\bar{p}$ Collisions at $\sqrt{s}=13$ TeV ». Phys. Rev. Lett. 129.9, 091801 (août 2022), p. 091801. DOI : [10.1103/PhysRevLett.129.091801](https://doi.org/10.1103/PhysRevLett.129.091801).
- [36] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Identification of charm jets at LHCb ». Journal of Instrumentation 17.2, P02028 (fév. 2022), P02028. DOI : [10.1088/1748-0221/17/02/P02028](https://doi.org/10.1088/1748-0221/17/02/P02028).
- [37] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Measurement of the charm mixing parameter $y_{CP} - y_{CP}^{K\pi}$ using two-body D^0 meson decays ». Phys. Rev. D 105.9, 092013 (mai 2022), p. 092013. DOI : [10.1103/PhysRevD.105.092013](https://doi.org/10.1103/PhysRevD.105.092013).
- [38] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Measurement of the photon polarization in $\Lambda_b^0 \rightarrow \Lambda \gamma$ decays ». Phys. Rev. D 105.5, L051104 (mars 2022), p. L051104. DOI : [10.1103/PhysRevD.105.L051104](https://doi.org/10.1103/PhysRevD.105.L051104). arXiv : [2111.10194 \[hep-ex\]](https://arxiv.org/abs/2111.10194).
- [39] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Observation of the $B^0 \rightarrow \bar{D}^{*0} K^+ \pi^-$ and $B_s^0 \rightarrow \bar{D}^{*0} K^- \pi^+$ decays ». Phys. Rev. D 105.7, 072005 (avr. 2022), p. 072005. DOI : [10.1103/PhysRevD.105.072005](https://doi.org/10.1103/PhysRevD.105.072005). arXiv : [2112.11428 \[hep-ex\]](https://arxiv.org/abs/2112.11428).
- [40] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Observation of Two New Excited Ξ_b^0 States Decaying to $\Lambda_b^0 K^- \pi^+$ ». Phys. Rev. Lett. 128.16, 162001 (avr. 2022), p. 162001. DOI : [10.1103/PhysRevLett.128.162001](https://doi.org/10.1103/PhysRevLett.128.162001). arXiv : [2110.04497 \[hep-ex\]](https://arxiv.org/abs/2110.04497).
- [41] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Tests of Lepton Universality Using $B^0 \rightarrow K_S^0 \ell^+ \ell^-$ and $B^+ \rightarrow K^{*+} \ell^+ \ell^-$ Decays ». Phys. Rev. Lett. 128.19, 191802 (mai 2022), p. 191802. DOI : [10.1103/PhysRevLett.128.191802](https://doi.org/10.1103/PhysRevLett.128.191802). arXiv : [2110.09501 \[hep-ex\]](https://arxiv.org/abs/2110.09501).
- [42] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « J/ψ and D^0 production in $\sqrt{s_{NN}}=68.5$ GeV PbNe collisions ». European Physical Journal C 83.7, 658 (juill. 2023), p. 658. DOI : [10.1140/epjc/s10052-023-11674-w](https://doi.org/10.1140/epjc/s10052-023-11674-w). arXiv : [2211.11652 \[hep-ex\]](https://arxiv.org/abs/2211.11652).
- [43] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Measurement of antiproton production from antihyperon decays in $p\bar{p}$ He collisions at $\sqrt{s_{NN}}=110$ GeV ». European Physical Journal C 83.6, 543 (juin 2023), p. 543. DOI : [10.1140/epjc/s10052-023-11673-x](https://doi.org/10.1140/epjc/s10052-023-11673-x). arXiv : [2205.09009 \[hep-ex\]](https://arxiv.org/abs/2205.09009).
- [44] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Measurement of the mass difference and relative production rate of the Ω_b^- and Ξ_b^- baryons ». Phys. Rev. D 108.5, 052008 (sept. 2023), p. 052008. DOI : [10.1103/PhysRevD.108.052008](https://doi.org/10.1103/PhysRevD.108.052008). arXiv : [2305.15329 \[hep-ex\]](https://arxiv.org/abs/2305.15329).

- [45] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Search for $D^*(2007)^0 \rightarrow \mu^+ \mu^-$ in $B^- \rightarrow \pi^- \mu^+ \mu^-$ decays ». *European Physical Journal C* 83.7, 666 (juill. 2023), p. 666. DOI : [10.1140/epjc/s10052-023-11759-6](https://doi.org/10.1140/epjc/s10052-023-11759-6). arXiv : [2304.01981 \[hep-ex\]](https://arxiv.org/abs/2304.01981).
- [46] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Observation of the decay $\Lambda_b^0 \rightarrow \Lambda_c^+ \tau^- \bar{\nu}_\tau$ ». *Phys. Rev. Lett.* 128.19, 191803 (mai 2022), p. 191803. DOI : [10.1103/PhysRevLett.128.191803](https://doi.org/10.1103/PhysRevLett.128.191803). arXiv : [2201.03497 \[hep-ex\]](https://arxiv.org/abs/2201.03497).
- [47] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Search for massive long-lived particles decaying semileptonically at $\sqrt{s}=13$ TeV ». *European Physical Journal C* 82.4, 373 (avr. 2022), p. 373. DOI : [10.1140/epjc/s10052-022-10186-3](https://doi.org/10.1140/epjc/s10052-022-10186-3).
- [48] R. Aaij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Study of Z Bosons Produced in Association with Charm in the Forward Region ». *Phys. Rev. Lett.* 128.8, 082001 (fév. 2022), p. 082001. DOI : [10.1103/PhysRevLett.128.082001](https://doi.org/10.1103/PhysRevLett.128.082001). arXiv : [2109.08084 \[hep-ex\]](https://arxiv.org/abs/2109.08084).
- [49] R. Aaij, C. Abellán Beteta, T. Ackernley et al. « Analysis of Neutral B -Meson Decays into Two Muons ». *Phys. Rev. Lett.* 128.4, 041801 (jan. 2022), p. 041801. DOI : [10.1103/PhysRevLett.128.041801](https://doi.org/10.1103/PhysRevLett.128.041801). arXiv : [2108.09284 \[hep-ex\]](https://arxiv.org/abs/2108.09284).
- [50] R. Aaij, C. Abellán Beteta, T. Ackernley et al. « Centrality determination in heavy-ion collisions with the LHCb detector ». *Journal of Instrumentation* 17.5, P05009 (mai 2022), P05009. DOI : [10.1088/1748-0221/17/05/P05009](https://doi.org/10.1088/1748-0221/17/05/P05009).
- [51] R. Aaij, C. Abellán Beteta, T. Ackernley et al. « J/ψ photoproduction in Pb-Pb peripheral collisions at $\sqrt{s_{NN}}=5$ TeV ». *Phys. Rev. C* 105.3, L032201 (mars 2022), p. L032201. DOI : [10.1103/PhysRevC.105.L032201](https://doi.org/10.1103/PhysRevC.105.L032201). arXiv : [2108.02681 \[hep-ex\]](https://arxiv.org/abs/2108.02681).
- [52] R. Aaij, C. Abellán Beteta, T. Ackernley et al. « Measurement of the $B_s^0 \rightarrow \mu^+ \mu^-$ decay properties and search for the $B^0 \rightarrow \mu^+ \mu^-$ and $B_s^0 \rightarrow \mu^+ \mu^- \gamma$ decays ». *Phys. Rev. D* 105.1, 012010 (jan. 2022), p. 012010. DOI : [10.1103/PhysRevD.105.012010](https://doi.org/10.1103/PhysRevD.105.012010). arXiv : [2108.09283 \[hep-ex\]](https://arxiv.org/abs/2108.09283).
- [53] R. Aaij, C. Abellán Beteta, T. Ackernley et al. « Measurement of the Nuclear Modification Factor and Prompt Charged Particle Production in $p - Pb$ and pp Collisions at $\sqrt{s_{NN}}=5$ TeV ». *Phys. Rev. Lett.* 128.14, 142004 (avr. 2022), p. 142004. DOI : [10.1103/PhysRevLett.128.142004](https://doi.org/10.1103/PhysRevLett.128.142004). arXiv : [2108.13115 \[hep-ex\]](https://arxiv.org/abs/2108.13115).
- [54] R. Aaij, M. Adinolfi, S. Aiola et al. « A Comparison of CPU and GPU Implementations for the LHCb Experiment Run 3 Trigger ». *Computing and Software for Big Science* 6.1, 1 (déc. 2022), p. 1. DOI : [10.1007/s41781-021-00070-2](https://doi.org/10.1007/s41781-021-00070-2). arXiv : [2105.04031 \[physics.ins-det\]](https://arxiv.org/abs/2105.04031).
- [55] R. Aij, A. S. W. Abdelmotteleb, C. Abellán Beteta et al. « Measurement of τ_L using the $B_s^0 \rightarrow J/\psi \eta$ decay mode ». *European Physical Journal C* 83.7, 629 (juill. 2023), p. 629. DOI : [10.1140/epjc/s10052-023-11634-4](https://doi.org/10.1140/epjc/s10052-023-11634-4). arXiv : [2206.03088 \[hep-ex\]](https://arxiv.org/abs/2206.03088).
- [56] K. Akiba, M. Alexander, W. Barter et al. « Measurement of thermal properties of the LHCb VELO detector using track-based software alignment ». *Journal of Instrumentation* 18.10, P10003 (oct. 2023), P10003. DOI : [10.1088/1748-0221/18/10/P10003](https://doi.org/10.1088/1748-0221/18/10/P10003). arXiv : [2205.13477 \[physics.ins-det\]](https://arxiv.org/abs/2205.13477).

- [57] Lukas Calefice, Arthur Hennequin, Louis Henry et al. « Effect of the high-level trigger for detecting long-lived particles at LHCb ». *Front. Big Data* 5 (2022), p. 1008737. DOI : [10.3389/fdata.2022.1008737](https://doi.org/10.3389/fdata.2022.1008737).
- [58] Giovanni Cavallero et LHCb RICH collaboration. « Characterisation and operations of the Multianode Photomultiplier Tubes for the LHCb RICH detectors ». *Nuclear Instruments and Methods in Physics Research A* 1056, 168632 (nov. 2023), p. 168632. DOI : [10.1016/j.nima.2023.168632](https://doi.org/10.1016/j.nima.2023.168632).
- [59] Jacopo Cerasoli et LHCb Collaboration. « Rare Decays at LHCb ». *Moscow University Physics Bulletin* 77.2 (avr. 2022), p. 189-190. DOI : [10.3103/S0027134922020230](https://doi.org/10.3103/S0027134922020230).
- [60] L. N. Cojocariu, D. Foulds-Holt, F. Keizer et al. « A multi-channel TDC-in-FPGA with 150 ps bins for time-resolved readout of Cherenkov photons ». *Nuclear Instruments and Methods in Physics Research A* 1055, 168483 (oct. 2023), p. 168483. DOI : [10.1016/j.nima.2023.168483](https://doi.org/10.1016/j.nima.2023.168483).
- [61] Oscar Augusto de Aguiar Francisco, Wiktor Byczynski, Kazu Akiba et al. « Microchannel cooling for the LHCb VELO Upgrade I ». *Nuclear Instruments and Methods in Physics Research A* 1039, 166874 (sept. 2022), p. 166874. DOI : [10.1016/j.nima.2022.166874](https://doi.org/10.1016/j.nima.2022.166874). arXiv : [2112.12763 \[physics.ins-det\]](https://arxiv.org/abs/2112.12763).
- [62] Paolo Gandini et LHCb Collaboration. « Spectroscopy at LHCb ». *Moscow University Physics Bulletin* 77.2 (avr. 2022), p. 199-200. DOI : [10.3103/S0027134922020357](https://doi.org/10.3103/S0027134922020357).
- [63] C. Giugliano et LHCb RICH Collaboration. « Quality assurance for the LHCb RICH upgrade Photon-Detection chain ». *Nuclear Instruments and Methods in Physics Research A* 1055, 168436 (oct. 2023), p. 168436. DOI : [10.1016/j.nima.2023.168436](https://doi.org/10.1016/j.nima.2023.168436).
- [64] Surapat Ek-In et LHCb Collaboration. « Charm Physics at LHCb ». *Moscow University Physics Bulletin* 77.2 (avr. 2022), p. 195-198. DOI : [10.3103/S0027134922020333](https://doi.org/10.3103/S0027134922020333).
- [65] Floris Keizer et LHCb RICH Collaboration. « A novel fast-timing readout chain for LHCb RICH LS3 and prototype beam tests ». *Nuclear Instruments and Methods in Physics Research A* 1055, 168475 (oct. 2023), p. 168475. DOI : [10.1016/j.nima.2023.168475](https://doi.org/10.1016/j.nima.2023.168475).
- [66] LHCb Collaboration. « Measurement of the lifetimes of promptly produced Ω_c^0 and Ξ_c^0 baryons ». *Science Bulletin* 67.5 (mars 2022), p. 479-487. DOI : [10.1016/j.scib.2021.11.022](https://doi.org/10.1016/j.scib.2021.11.022). arXiv : [2109.01334 \[hep-ex\]](https://arxiv.org/abs/2109.01334).
- [67] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Λ_c^+ polarimetry using the dominant hadronic mode ». *Journal of High Energy Physics* 2023.7, 228 (août 2023), p. 228. DOI : [10.1007/JHEP07\(2023\)228](https://doi.org/10.1007/JHEP07(2023)228). arXiv : [2301.07010 \[hep-ex\]](https://arxiv.org/abs/2301.07010).
- [68] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Amplitude analysis of the $D_s^+ \rightarrow \pi^-\pi^+\pi^+$ decay ». *Journal of High Energy Physics* 2023.7, 204 (juill. 2023), p. 204. DOI : [10.1007/JHEP07\(2023\)204](https://doi.org/10.1007/JHEP07(2023)204). arXiv : [2209.09840 \[hep-ex\]](https://arxiv.org/abs/2209.09840).
- [69] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Amplitude analysis of the $D^+ \rightarrow \pi^-\pi^+\pi^+$ decay and measurement of the $\pi^-\pi^+$ S-wave amplitude ». *Journal of High Energy Physics* 2023.6, 44 (juin 2023), p. 44. DOI : [10.1007/JHEP06\(2023\)044](https://doi.org/10.1007/JHEP06(2023)044). arXiv : [2208.03300 \[hep-ex\]](https://arxiv.org/abs/2208.03300).

- [70] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Associated production of prompt J/ψ and Υ mesons in pp collisions at $\sqrt{s} = 13$ TeV ». *Journal of High Energy Physics* 2023.8, 93 (août 2023), p. 93. DOI : [10.1007/JHEP08\(2023\)093](https://doi.org/10.1007/JHEP08(2023)093). arXiv : [2305.15580 \[hep-ex\]](https://arxiv.org/abs/2305.15580).
- [71] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Constraints on the CKM angle γ from $B^\pm \rightarrow D h^\pm$ decays using $D \rightarrow h^\pm h'^\mp \pi^0$ final states ». *Journal of High Energy Physics* 2022.7, 99 (juill. 2022), p. 99. DOI : [10.1007/JHEP07\(2022\)099](https://doi.org/10.1007/JHEP07(2022)099). arXiv : [2112.10617 \[hep-ex\]](https://arxiv.org/abs/2112.10617).
- [72] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Evidence for the decays $B^0 \rightarrow \bar{D}^{(*)0} \phi$ and updated measurements of the branching fractions of the $B_s^0 \rightarrow \bar{D}^{(*)0} \phi$ decays ». *Journal of High Energy Physics* 2023.10, 123 (oct. 2023), p. 123. DOI : [10.1007/JHEP10\(2023\)123](https://doi.org/10.1007/JHEP10(2023)123). arXiv : [2306.02768 \[hep-ex\]](https://arxiv.org/abs/2306.02768).
- [73] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « First observation and branching fraction measurement of the $\Lambda_b^0 \rightarrow D_s^- p$ decay ». *Journal of High Energy Physics* 2023.7, 75 (juill. 2023), p. 75. DOI : [10.1007/JHEP07\(2023\)075](https://doi.org/10.1007/JHEP07(2023)075). arXiv : [2212.12574 \[hep-ex\]](https://arxiv.org/abs/2212.12574).
- [74] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Measurement of $\chi_{c1}(3872)$ production in proton-proton collisions at $\sqrt{s} = 8$ and 13 TeV ». *Journal of High Energy Physics* 2022.1, 131 (jan. 2022), p. 131. DOI : [10.1007/JHEP01\(2022\)131](https://doi.org/10.1007/JHEP01(2022)131). arXiv : [2212.12664 \[hep-ex\]](https://arxiv.org/abs/2212.12664).
- [75] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Measurement of CP asymmetries and branching fraction ratios of B^- decays to two charm mesons ». *Journal of High Energy Physics* 2023.9, 202 (sept. 2023), p. 202. DOI : [10.1007/JHEP09\(2023\)202](https://doi.org/10.1007/JHEP09(2023)202). arXiv : [2306.09945 \[hep-ex\]](https://arxiv.org/abs/2306.09945).
- [76] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Measurement of CP asymmetries in $D_{(s)}^+ \rightarrow \eta \pi^+$ and $D_{(s)}^+ \rightarrow \eta' \pi^+$ decays ». *Journal of High Energy Physics* 2023.4, 81 (avr. 2023), p. 81. DOI : [10.1007/JHEP04\(2023\)081](https://doi.org/10.1007/JHEP04(2023)081).
- [77] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Measurement of Υ production in pp collisions at $\sqrt{s} = 5$ TeV ». *Journal of High Energy Physics* 2023.7, 69 (juill. 2023), p. 69. DOI : [10.1007/JHEP07\(2023\)069](https://doi.org/10.1007/JHEP07(2023)069).
- [78] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Measurement of the Λ_c^+ to D^0 production ratio in periphera PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV ». *Journal of High Energy Physics* 2023.6, 132 (juin 2023), p. 132. DOI : [10.1007/JHEP06\(2023\)132](https://doi.org/10.1007/JHEP06(2023)132). arXiv : [2210.06939 \[hep-ex\]](https://arxiv.org/abs/2210.06939).
- [79] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Measurement of the CKM angle γ with $B^\pm \rightarrow D[K^\mp \pi^\pm \pi^\pm \pi^\mp] h^\pm$ decays using a binned phase-space approach ». *Journal of High Energy Physics* 2023.7, 138 (juill. 2023), p. 138. DOI : [10.1007/JHEP07\(2023\)138](https://doi.org/10.1007/JHEP07(2023)138). arXiv : [2209.03692 \[hep-ex\]](https://arxiv.org/abs/2209.03692).
- [80] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Measurement of the ratio of branching fractions $B(B_c^+ \rightarrow B_s^0 \pi^+)/B(B_c^+ \rightarrow J/\psi \pi^+)$ ». *Journal of High Energy Physics* 2023.7, 66 (juill. 2023), p. 66. DOI : [10.1007/JHEP07\(2023\)066](https://doi.org/10.1007/JHEP07(2023)066). arXiv : [2210.12000 \[hep-ex\]](https://arxiv.org/abs/2210.12000).

- [81] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Measurement of the W boson mass ». *Journal of High Energy Physics* 2022.1, 36 (jan. 2022), p. 36. DOI : [10.1007/JHEP01\(2022\)036](https://doi.org/10.1007/JHEP01(2022)036). arXiv : [2109.01113 \[hep-ex\]](https://arxiv.org/abs/2109.01113).
- [82] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Measurement of the Z boson production cross-section in proton-lead collisions at $\sqrt{s_{NN}} = 8.16$ TeV ». *Journal of High Energy Physics* 2023.6, 22 (juin 2023), p. 22. DOI : [10.1007/JHEP06\(2023\)022](https://doi.org/10.1007/JHEP06(2023)022). arXiv : [2205.10213 \[hep-ex\]](https://arxiv.org/abs/2205.10213).
- [83] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Observation of $\Lambda_b^0 \rightarrow D^+ p \pi^- \pi^-$ and $\Lambda_b^0 \rightarrow D^{*+} p \pi^- \pi^-$ decays ». *Journal of High Energy Physics* 2022.3, 153 (mars 2022), p. 153. DOI : [10.1007/JHEP03\(2022\)153](https://doi.org/10.1007/JHEP03(2022)153).
- [84] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Observation of an exotic narrow doubly charmed tetraquark ». *Nature Physics* 18.7 (juin 2022), p. 751-754. DOI : [10.1038/s41567-022-01614-y](https://doi.org/10.1038/s41567-022-01614-y). arXiv : [2109.01038 \[hep-ex\]](https://arxiv.org/abs/2109.01038).
- [85] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Observation of the $B_s^0 \rightarrow \chi_{c1}(3872) \pi^+ \pi^-$ decay ». *Journal of High Energy Physics* 2023.7, 84 (juill. 2023), p. 84. DOI : [10.1007/JHEP07\(2023\)084](https://doi.org/10.1007/JHEP07(2023)084). arXiv : [2302.10629 \[hep-ex\]](https://arxiv.org/abs/2302.10629).
- [86] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Observation of the $B_s^0 \rightarrow D^{*+} D^{*-}$ decay ». *Journal of High Energy Physics* 2023.7, 119 (juill. 2023), p. 119. DOI : [10.1007/JHEP07\(2023\)119](https://doi.org/10.1007/JHEP07(2023)119). arXiv : [2210.14945 \[hep-ex\]](https://arxiv.org/abs/2210.14945).
- [87] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Observation of the $B^+ \rightarrow J/\psi \eta' K^+$ decay ». *Journal of High Energy Physics* 2023.8, 174 (août 2023), p. 174. DOI : [10.1007/JHEP08\(2023\)174](https://doi.org/10.1007/JHEP08(2023)174). arXiv : [2303.09443 \[hep-ex\]](https://arxiv.org/abs/2303.09443).
- [88] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Observation of the decays $B_{(s)}^0 \rightarrow D_{s1}(2536)^{\mp} K^{\pm}$ ». *Journal of High Energy Physics* 2023.10, 106 (oct. 2023), p. 106. DOI : [10.1007/JHEP10\(2023\)106](https://doi.org/10.1007/JHEP10(2023)106). arXiv : [2308.00587 \[hep-ex\]](https://arxiv.org/abs/2308.00587).
- [89] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Observation of the doubly charmed baryon decay $\Xi_{cc}^{++} \rightarrow \Xi_c^{'+} \pi^+$ ». *Journal of High Energy Physics* 2022.5, 38 (mai 2022), p. 38. DOI : [10.1007/JHEP05\(2022\)038](https://doi.org/10.1007/JHEP05(2022)038). arXiv : [2202.05648 \[hep-ex\]](https://arxiv.org/abs/2202.05648).
- [90] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Search for CP violation in $D_{(s)}^{(\star)+} \rightarrow K^- K^+ K^+$ decays ». *Journal of High Energy Physics* 2023.7, 67 (juill. 2023), p. 67. DOI : [10.1007/JHEP07\(2023\)067](https://doi.org/10.1007/JHEP07(2023)067). arXiv : [2303.04062 \[hep-ex\]](https://arxiv.org/abs/2303.04062).
- [91] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Search for CP violation in the phase space of $D^0 \rightarrow \pi^- \pi^+ \pi^0$ decays with the energy test ». *Journal of High Energy Physics* 2023.9, 129 (sept. 2023), p. 129. DOI : [10.1007/JHEP09\(2023\)129](https://doi.org/10.1007/JHEP09(2023)129). arXiv : [2306.12746 \[hep-ex\]](https://arxiv.org/abs/2306.12746).
- [92] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Search for the doubly heavy baryon Ξ_{bc}^+ decaying to $J/\psi \Xi_c^+$ ». *Chinese Physics C* 47.9, 093001 (sept. 2023), p. 093001. DOI : [10.1088/1674-1137/ace9c8](https://doi.org/10.1088/1674-1137/ace9c8). arXiv : [2204.09541 \[hep-ex\]](https://arxiv.org/abs/2204.09541).
- [93] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Search for the lepton-flavour violating decays $B^0 \rightarrow K^{*0} \tau^\pm \mu^\mp$ ». *Journal of High Energy Physics* 2023.6, 143 (juin 2023), p. 143. DOI : [10.1007/JHEP06\(2023\)143](https://doi.org/10.1007/JHEP06(2023)143). arXiv : [2209.09846 \[hep-ex\]](https://arxiv.org/abs/2209.09846).

- [94] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Search for the lepton-flavour violating decays $B^0 \rightarrow K^{*0} \mu^\pm e^\mp$ and $B_s^0 \rightarrow \phi \mu^\pm e^\mp$ ». *Journal of High Energy Physics* 2023.6, 73 (juin 2023), p. 73. DOI : [10.1007/JHEP06\(2023\)073](https://doi.org/10.1007/JHEP06(2023)073). arXiv : [2207.04005 \[hep-ex\]](https://arxiv.org/abs/2207.04005).
- [95] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Search for the radiative $\Xi_b^- \rightarrow \Xi^- \gamma$ decay ». *Journal of High Energy Physics* 2022.1, 69 (jan. 2022), p. 69. DOI : [10.1007/JHEP01\(2022\)069](https://doi.org/10.1007/JHEP01(2022)069). arXiv : [2108.07678 \[hep-ex\]](https://arxiv.org/abs/2108.07678).
- [96] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Search for the rare decays $W^+ \rightarrow D_s^+ \gamma$ and $Z \rightarrow D^0 \gamma$ at LHCb ». *Chinese Physics C* 47.9, 093002 (sept. 2023), p. 093002. DOI : [10.1088/1674-1137/aceae9](https://doi.org/10.1088/1674-1137/aceae9). arXiv : [2212.07120 \[hep-ex\]](https://arxiv.org/abs/2212.07120).
- [97] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Searches for rare B_s^0 and B^0 decays into four muons ». *Journal of High Energy Physics* 2022.3, 109 (mars 2022), p. 109. DOI : [10.1007/JHEP03\(2022\)109](https://doi.org/10.1007/JHEP03(2022)109). arXiv : [2111.11339 \[hep-ex\]](https://arxiv.org/abs/2111.11339).
- [98] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Study of B_c^+ decays to charmonia and three light hadrons ». *Journal of High Energy Physics* 2022.1, 65 (jan. 2022), p. 65. DOI : [10.1007/JHEP01\(2022\)065](https://doi.org/10.1007/JHEP01(2022)065). arXiv : [2111.03001 \[hep-ex\]](https://arxiv.org/abs/2111.03001).
- [99] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Study of B_c^+ meson decays to charmonia plus multihadron final states ». *Journal of High Energy Physics* 2023.7, 198 (juill. 2023), p. 198. DOI : [10.1007/JHEP07\(2023\)198](https://doi.org/10.1007/JHEP07(2023)198). arXiv : [2208.08660 \[hep-ex\]](https://arxiv.org/abs/2208.08660).
- [100] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Study of exclusive photoproduction of charmonium in ultra-peripheral lead-lead collisions ». *Journal of High Energy Physics* 2023.6, 146 (juin 2023), p. 146. DOI : [10.1007/JHEP06\(2023\)146](https://doi.org/10.1007/JHEP06(2023)146). arXiv : [2206.08221 \[hep-ex\]](https://arxiv.org/abs/2206.08221).
- [101] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Study of the Bose-Einstein correlations of same-sign pions in proton-lead collisions ». *Journal of High Energy Physics* 2023.9, 172 (sept. 2023), p. 172. DOI : [10.1007/JHEP09\(2023\)172](https://doi.org/10.1007/JHEP09(2023)172). arXiv : [2306.09755 \[hep-ex\]](https://arxiv.org/abs/2306.09755).
- [102] LHCb Collaboration, R. Aaij, A. S. W. Abdelmotteeb et al. « Study of the doubly charmed tetraquark T_{cc}^+ ». *Nature Communications* 13, 3351 (juin 2022), p. 3351. DOI : [10.1038/s41467-022-30206-w](https://doi.org/10.1038/s41467-022-30206-w). arXiv : [2109.01056 \[hep-ex\]](https://arxiv.org/abs/2109.01056).
- [103] LHCb Collaboration, R. Aaij, C. Abellán Beteta et al. « Addendum : Test of lepton universality in beauty-quark decays ». *Nature Physics* 19.10 (oct. 2023), p. 1517-1517. DOI : [10.1038/s41567-023-02095-3](https://doi.org/10.1038/s41567-023-02095-3).
- [104] LHCb Collaboration, R. Aaij, C. Abellán Beteta et al. « Measurement of prompt charged-particle production in pp collisions at $\sqrt{s} = 13$ TeV ». *Journal of High Energy Physics* 2022.1, 166 (jan. 2022), p. 166. DOI : [10.1007/JHEP01\(2022\)166](https://doi.org/10.1007/JHEP01(2022)166). arXiv : [2107.10090 \[hep-ex\]](https://arxiv.org/abs/2107.10090).
- [105] LHCb Collaboration, R. Aaij, C. Abellán Beteta et al. « Study of coherent J/ψ production in lead-lead collisions at $\sqrt{s_{NN}} = 5$ TeV ». *Journal of High Energy Physics* 2022.7, 117 (juill. 2022), p. 117. DOI : [10.1007/JHEP07\(2022\)117](https://doi.org/10.1007/JHEP07(2022)117).
- [106] LHCb Collaboration, R. Aaij, C. Abellán Beteta et al. « Test of lepton universality in beauty-quark decays ». *Nature Physics* 18.3 (mars 2022), p. 277-282. DOI : [10.1038/s41567-021-01478-8](https://doi.org/10.1038/s41567-021-01478-8). arXiv : [2103.11769 \[hep-ex\]](https://arxiv.org/abs/2103.11769).

- [107] LHCb Collaboration, R. Aaij, C. Abellán Beteta et al. « Precise determination of the B_s^0 - \overline{B}_s^0 oscillation frequency ». *Nature Physics* 18.1 (jan. 2022), p. 1-5. DOI : [10.1038/s41567-021-01394-x](https://doi.org/10.1038/s41567-021-01394-x). arXiv : [2104.04421 \[hep-ex\]](https://arxiv.org/abs/2104.04421).
- [108] Yiming Li et II LHCb UT Upgrade Team. « MAPS for the Upstream Tracker in LHCb Upgrade II ». *Nuclear Instruments and Methods in Physics Research A* 1032, 166629 (juin 2022), p. 166629. DOI : [10.1016/j.nima.2022.166629](https://doi.org/10.1016/j.nima.2022.166629).
- [109] Federica Oliva et LHCb RICH collaboration. « Large Area Picosecond Photodetector for the Upgrade II of the LHCb RICH ». *Nuclear Instruments and Methods in Physics Research A* 1057, 168658 (déc. 2023), p. 168658. DOI : [10.1016/j.nima.2023.168658](https://doi.org/10.1016/j.nima.2023.168658).
- [110] Stefano Perazzini, Fabio Ferrari et Vincenzo Maria Vagnoni. « Development of an MCP-Based Timing Layer for the LHCb ECAL Upgrade-2 ». *Instruments* 6.1 (2022), p. 7. DOI : [10.3390/instruments6010007](https://doi.org/10.3390/instruments6010007).
- [111] Efrén Rodríguez Rodríguez et LHCb Collaboration. « Silicon vertex detector with timing for the Upgrade II of LHCb ». *Nuclear Instruments and Methods in Physics Research A* 1048, 167965 (mars 2023), p. 167965. DOI : [10.1016/j.nima.2022.167965](https://doi.org/10.1016/j.nima.2022.167965).
- [112] S. A. Wotton et the LHCb RICH Collaboration. « The LHCb RICH upgrade for the high luminosity LHC era ». *Nuclear Instruments and Methods in Physics Research A* 1058, 168824 (jan. 2024), p. 168824. DOI : [10.1016/j.nima.2023.168824](https://doi.org/10.1016/j.nima.2023.168824).
- [113] Gianluca Zunica et LHCb Collaboration. « The Upgrade of LHCb VELO ». *Nuclear Instruments and Methods in Physics Research A* 1047, 167804 (fév. 2023), p. 167804. DOI : [10.1016/j.nima.2022.167804](https://doi.org/10.1016/j.nima.2022.167804).