

Publications P2IO 2021 :

- A. Raichoor, A. de Mattia, A. J. Ross et al., "The completed SDSS-IV extended Baryon Oscillation Spectroscopic Survey: Large-scale Structure Catalogues and Measurement of the isotropic BAO between redshift 0.6 and 1.1 for the Emission Line Galaxy Sample", *Monthly Notices of the Royal Astronomical Society*, Volume 500, Issue 3, January 2021, <https://doi.org/10.1093/mnras/staa3336>
- A. Acharyya, R. Adam et al., "Sensitivity of the Cherenkov Telescope Array to a dark matter signal from the Galactic centre", *JCAP01(2021)057*, <https://doi.org/10.1088/1475-7516/2021/01/057>
- R. Aaij et al. (LHCb Collaboration), "Observation of a new Ξ_b^0 state", *Phys. Rev. D* 103, 012004 – Published 6 January 2021, <https://doi.org/10.1103/PhysRevD.103.012004>
- A. Armatol, E. Armengaud, W. Armstrong et al., "A CUPID Li2100MoO4 scintillating bolometer tested in the CROSS underground facility", 2021 *JINST* 16 P02037, <https://doi.org/10.1088/1748-0221/16/02/P02037>
- R. Aaij et al. (LHCb Collaboration), "Measurement of differential bb^- - and cc^- -dijet cross-sections in the forward region of pp collisions at $\sqrt{s} = 13$ TeV", *J. High Energy Phys.* 2021, 23 (2021), [https://doi.org/10.1007/JHEP02\(2021\)023](https://doi.org/10.1007/JHEP02(2021)023)
- R. Aaij et al. (LHCb Collaboration), "Study of $B_s^0 \rightarrow J/\psi \pi^+ \pi^- K^+ K^-$ decays", *J. High Energy Phys.* 2021, 24 (2021), [https://doi.org/10.1007/JHEP02\(2021\)024](https://doi.org/10.1007/JHEP02(2021)024)
- R. Aaij et al. (LHCb Collaboration), "Measurement of the CKM angle γ in $B^\pm \rightarrow DK^\pm$ and $B^\pm \rightarrow D\pi^\pm$ decays with $D \rightarrow K_s^0 h^+ h^-$ ", *J. High Energy Phys.* 2021, 169 (2021), [https://doi.org/10.1007/JHEP02\(2021\)169](https://doi.org/10.1007/JHEP02(2021)169)
- R. Aaij et al. (LHCb Collaboration), "Measurement of differential bb^- - and cc^- -dijet cross-sections in the forward region of pp collisions at $\sqrt{s} = 13$ TeV", *J. High Energy Phys.* 2021, 23 (2021), [https://doi.org/10.1007/JHEP02\(2021\)023](https://doi.org/10.1007/JHEP02(2021)023)
- R. Aaij et al. (LHCb Collaboration), "First Observation of the Decay $B_s^0 \rightarrow K^- \mu^+ \nu_\mu$ and a Measurement of $|V_{ub}|/|V_{cb}|$ ", *Phys. Rev. Lett.* 126, 081804 – Published 25 February 2021, <https://doi.org/10.1103/PhysRevLett.126.081804>
- L. Heurtier, H.-L. Li, H. Song, S. Su, W. Suc and J.-H. Yu, "Precision Higgs couplings in neutral naturalness models: an effective field theory approach", *J. High Energy Phys.* 2021, 234 (2021), [https://doi.org/10.1007/JHEP02\(2021\)234](https://doi.org/10.1007/JHEP02(2021)234)
- P. Brax, A.-C. Davis, S. Melville and L. Khim Wong, "Spin precession as a new window into disformal scalar fields", *JCAP03(2021)001*, <https://doi.org/10.1088/1475-7516/2021/03/001>
- R. Aaij et al. (LHCb Collaboration), "Measurement of CP Violation in the Decay $B^+ \rightarrow K^+ \pi^0$ ", *Phys. Rev. Lett.* 126, 091802 – Published 2 March 2021, <https://doi.org/10.1103/PhysRevLett.126.091802>

- R. Aaij et al. (LHCb Collaboration), “Search for heavy neutral leptons in $W^+ \rightarrow \mu^+ \mu^\pm \text{jet}$ $W^+ \rightarrow \mu^+ \mu^\pm \text{jet}$ decays”, *Eur. Phys. J. C* 81, 248 (2021). <https://doi.org/10.1140/epjc/s10052-021-08973-5>
- G. Ballesteros, M. A.G. Garcia and M. Pierre, “How warm are non-thermal relics? Lyman- α bounds on out-of-equilibrium dark matter”, *JCAP03(2021)101*, <https://doi.org/10.1088/1475-7516/2021/03/101>
- R. Huang, E. Armengaud, C. Augier et al., “Pulse shape discrimination in CUPID-Mo using principal component analysis”, *2021 JINST 16 P03032*, <https://doi.org/10.1088/1748-0221/16/03/P03032>
- A. de Mattia, V. Ruhlmann-Kleider, A. Raichoor et al., “The Completed SDSS-IV extended Baryon Oscillation Spectroscopic Survey: measurement of the BAO and growth rate of structure of the emission line galaxy sample from the anisotropic power spectrum between redshift 0.6 and 1.1”, *2021MNRAS.501.5616D*, <https://doi.org/10.1093/mnras/staa3891>
- R. Aaij et al. (LHCb Collaboration), “Observation of Multiplicity Dependent Prompt $\chi_{c1}(3872)$ and $\psi(2S)$ Production in pp Collisions”, *Phys. Rev. Lett.* 126, 092001 – Published 5 March 2021, <https://doi.org/10.1103/PhysRevLett.126.092001>
- R. Aaij et al. (LHCb Collaboration), “Observation of CP violation in two-body $B_0(s)$ -meson decays to charged pions and kaons”, *J. High Energ. Phys.* 2021, 75 (2021), [https://doi.org/10.1007/JHEP03\(2021\)075](https://doi.org/10.1007/JHEP03(2021)075)
- R. Aaij et al. (LHCb Collaboration), “Observation of the $B_s^0 \rightarrow D^+ D^-$ decay”, *JHEP* 03(2021)099, [https://doi.org/10.1007/JHEP03\(2021\)099](https://doi.org/10.1007/JHEP03(2021)099)
- R. Aaij et al. (LHCb Collaboration), “Measurement of the CKM angle γ and $B_S^0 - \overline{B_S^0}$ mixing frequency with $B_S^0 \rightarrow D_S^\mp h^\pm \pi^\pm \pi^\mp$ decays”, *J. High Energ. Phys.* 2021, 137 (2021), [https://doi.org/10.1007/JHEP03\(2021\)137](https://doi.org/10.1007/JHEP03(2021)137)
- G. Bélanger, A. Mjallal, A. Pukhov, “Recasting direct detection limits within micrOMEGAs and implication for non-standard dark matter scenarios”, *Eur. Phys. J. C* (2021) 81:239, <https://doi.org/10.1140/epjc/s10052-021-09012-z>
- R. Aaij et al. (LHCb Collaboration), “Search for long-lived particles decaying to $e^\pm \mu^\mp \nu$ ”, *Eur. Phys. J. C* (2021) 81:261, <https://doi.org/10.1140/epjc/s10052-021-08994-0>
- R. Aaij et al. (LHCb Collaboration), “Observation of a New Excited D_s^* Meson in $B^0 \rightarrow D^- D^+ K^+ \pi^-$ Decays”, *Phys. Rev. Lett.* 126, 122002 – Published 26 March 2021, <https://doi.org/10.1103/PhysRevLett.126.122002>
- G. Morello, T. Zingales, M. Martin-Lagarde, R. Gastaud, P.-O. Lagage, “Phase curve pollution of exoplanet transmission spectra”, *AJ*, 161, 174 (2021), <https://doi.org/10.3847/1538-3881/abe048>

- H. Dutrieux, C. Lorcé, H. Moutarde et al., “**Phenomenological assessment of proton mechanical properties from deeply virtual Compton scattering**”, *Eur. Phys. J. C* 81, 300 (2021), <https://doi.org/10.1140/epjc/s10052-021-09069-w>
- B. Acar, G. Adamov, C. Adloff et al. (CMS HGCal collaboration), “**The DAQ system of the 12,000 channel CMS high granularity calorimeter prototype**”, *2021 JINST* 16 T04001, <https://doi.org/10.1088/1748-0221/16/04/T04001>
- B. Acar, G. Adamov, C. Adloff et al. (CMS HGCal collaboration), “**Construction and commissioning of CMS CE prototype silicon modules**”, *2021 JINST* 16 T04002, <https://doi.org/10.1088/1748-0221/16/04/T04002>
- R. Aaij et al. (LHCb Collaboration), “**Measurement of CP observables in $B^\pm \rightarrow D^{(*)}K^\pm$ and $B^\pm \rightarrow D^{(*)}\pi^\pm$ decays using two-body D final states**”, *J. High Energ. Phys.* 2021, 81 (2021), [https://doi.org/10.1007/JHEP04\(2021\)081](https://doi.org/10.1007/JHEP04(2021)081)
- R. Aaij et al. (LHCb Collaboration), “**Observation of the $\Lambda_b^0 \rightarrow \Lambda_c^+ K^+ K^- \pi^-$ decay**”, *Physics Letters B*, Volume 815, 10 April 2021, 136172, <https://doi.org/10.1016/j.physletb.2021.136172>
- M. Boglione, U. D'Alesio, C. Flore et al., “**Reweighting the Sivers function with jet data from STAR**”, *Physics Letters B*, Volume 815, 10 April 2021, 136135, <https://doi.org/10.1016/j.physletb.2021.136135>
- G. Morello, C. Danielski, S. Sarkar, “**The Ariel 0.6 - 7.8 μm stellar limb-darkening coefficients**”, *Experimental Astronomy* (2021) - Ariel Special Issue Supplemental, <https://doi.org/10.1007/s10686-021-09740-w>
- J. Rojas, J. Duprat, C. Engrand et al., “**The micrometeorite flux at Dome C (Antarctica), monitoring the accretion of extraterrestrial dust on Earth**”, *Earth and Planetary Science Letters*, Volume 560, 15 April 2021, 116794, <https://doi.org/10.1016/j.epsl.2021.116794>
- R. Aaij et al. (LHCb Collaboration), “**Angular Analysis of the $B^+ \rightarrow K^{*+} \mu^+ \mu^-$ Decay**”, *Phys. Rev. Lett.* 126, 161802 – Published 22 April 2021, <https://doi.org/10.1103/PhysRevLett.126.161802>
- C. Zhao, C.-H. Chuang, J. Bautista et al., “**The completed SDSS-IV extended Baryon Oscillation Spectroscopic Survey: 1000 multi-tracer mock catalogues with redshift evolution and systematics for galaxies and quasars of the final data release**”, *Mon.Not.Roy.Astron.Soc.* 503 (2021) 1, 1149-1173, <https://doi.org/10.1093/mnras/stab510>
- E. Armengaud, C. Augier, A. S. Barabash et al. (CUPID-Mo Collaboration), “**New Limit for Neutrinoless Double-Beta Decay of 100Mo from the CUPID-Mo Experiment**”, *PHYSICAL REVIEW LETTERS* 126, 181802 (2021), <https://doi.org/10.1103/PhysRevLett.126.181802>
- C. Hadjidakis, D. Kikoła, J.P. Lansberg et al., “**A fixed-target programme at the LHC: Physics case and projected performances for heavy-ion, hadron, spin and astroparticle studies**”, *Physics Reports*, Volume 911, 12 May 2021, Pages 1-83, <https://doi.org/10.1016/j.physrep.2021.01.002>

- R. Aaij et al. (LHCb Collaboration), “**Observation of the decay $\Lambda_b^0 \rightarrow \chi_{c1} p \pi^-$** ”, *J. High Energ. Phys.* 2021, 95 (2021), [https://doi.org/10.1007/JHEP05\(2021\)095](https://doi.org/10.1007/JHEP05(2021)095)
- A. Husson, H. Kim, A. Welker et al., “**A pulsed high-voltage decelerator system to deliver low-energy antiprotons**”, *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, Volume 1002, 21 June 2021, 165245, <https://doi.org/10.1016/j.nima.2021.165245>
- A. Arbuzov, A. Bacchetta, M. Butenschoen et al., “**On the physics potential to study the gluon content of proton and deuteron at NICA SPD**”, *Progress in Particle and Nuclear Physics*, Volume 119, July 2021, 103858, <https://doi.org/10.1016/j.pnnp.2021.103858>
- T. Schirmer, E. Habart, N. Ysard et al., “**Influence of the nano-grain depletion in photon-dominated regions**”, *A&A*, Volume 649, May 2021, <https://doi.org/10.1051/0004-6361/202140671>
- JP. Lansberg, and M.A. Ozelik, “**Curing the unphysical behaviour of NLO quarkonium production at the LHC and its relevance to constrain the gluon PDF at low scales**”, *Eur. Phys. J. C* 81, 497 (2021), <https://doi.org/10.1140/epjc/s10052-021-09258-7>
- Y. Mambrini and K. A. Olive, “**Gravitational production of dark matter during reheating**”, *Phys. Rev. D* 103, 115009 – Published 7 June 2021, <https://doi.org/10.1103/PhysRevD.103.115009>
- A. Papadopoulou, A. Ashkenazi, S. Gardiner et al. (e4v Collaboration), “**Inclusive electron scattering and the genie neutrino event generator**”, *Phys. Rev. D* 103, 113003 – Published 8 June 2021, <https://doi.org/10.1103/PhysRevD.103.113003>
- R. Aaij et al. (LHCb Collaboration), “**Measurement of the prompt-production cross-section ratio $\sigma(\chi_{c2})/\sigma(\chi_{c1})$ in pPb collisions at $\sqrt{s_{NN}}=8.16$ TeV**”, *Phys. Rev. C* 103, 064905 – Published 9 June 2021, <https://doi.org/10.1103/PhysRevC.103.064905>
- R.A. Lineros, M. Pierre, “**Dark matter candidates in a type-II radiative neutrino mass model**”, *J. High Energ. Phys.* 2021, 72 (2021), [https://doi.org/10.1007/JHEP06\(2021\)072](https://doi.org/10.1007/JHEP06(2021)072)
- R. Aaij et al. (LHCb Collaboration), “**Angular analysis of $B^0 \rightarrow D^{*-} D^{*+} s$ with $D^{*+}_s \rightarrow D^{+}_s \gamma$ decays**”, *J. High Energ. Phys.* 2021, 177 (2021), [https://doi.org/10.1007/JHEP06\(2021\)177](https://doi.org/10.1007/JHEP06(2021)177)
- R. Aaij et al. (LHCb Collaboration), “**Observation of new excited B^0_s states**”, *Eur. Phys. J. C* 81, 601 (2021), <https://doi.org/10.1140/epjc/s10052-021-09305-3>
- C. Danielski, A. Brucalassi, S. Benatti et al., “**The homogeneous characterisation of Ariel host stars**”, *Exp Astron* (2021), <https://doi.org/10.1007/s10686-021-09765-1>
- A. Kusina, J-P. Lansberg, I. Schienbein, and H-S. Shao, “**Reweighted nuclear PDFs using heavy-flavor production data at the LHC**”, *Phys. Rev. D* 104, 014010 – Published 13 July 2021, <https://doi.org/10.1103/PhysRevD.104.014010>

- R. Aaij et al. (LHCb Collaboration), “**Evidence of a $J/\psi\Lambda$ structure and observation of excited Ξ^- states in the $\Xi_b^- \rightarrow J/\psi\Lambda K^-$ decay**”, *Science Bulletin*, Vol. 66, Issue 13, 15 July 2021, Pages 1278-1287, <https://doi.org/10.1016/j.scib.2021.02.030>
- R. Aaij et al. (LHCb Collaboration), “**Observation of New Resonances Decaying to $J/\psi K^+$ and $J/\psi\phi$** », *Phys. Rev. Lett.* 127, 082001 – Published 17 August 2021, <https://doi.org/10.1103/PhysRevLett.127.082001>
- R. Aaij et al. (LHCb Collaboration), “**Precise measurement of the fs/fd ratio of fragmentation fractions and of B0s decay branching fractions**”, *Phys. Rev. D* 104, 032005 – Published 20 August 2021, <https://doi.org/10.1103/PhysRevD.104.032005>
- R. Aaij et al. (LHCb Collaboration), “**Measurement of CP asymmetry in $D^0 \rightarrow K^0_s K^0_s$ decays**”, *Phys. Rev. D* 104, L031102 – Published 27 August 2021, <https://doi.org/10.1103/PhysRevD.104.L031102>
- R. Aaij et al. (LHCb Collaboration), “**Search for the doubly heavy baryons Ω_{bc}^0 and Ξ_{bc}^0 decaying to $\Lambda_c^+ \pi^-$ and $\Xi_c^+ \pi^{*-}$** ”, 2021 *Chinese Phys. C* 45 093002, <https://doi.org/10.1088/1674-1137/ac0c70>
- R. Aaij et al. (LHCb Collaboration), “**Observation of the Mass Difference between Neutral Charm-Meson Eigenstates**”, *Phys. Rev. Lett.* 127, 111801 – Published 7 September 2021, <https://doi.org/10.1103/PhysRevLett.127.111801>
- S. Vagnozzi, L. Visinelli, P. Brax, A-C. Davis, and J. Sakstein, “**Direct detection of dark energy: The XENON1T excess and future prospects**”, *Phys. Rev. D* 104, 063023 – Published 15 September 2021, <https://doi.org/10.1103/PhysRevD.104.063023>
- M. A. Nefedov, “**Sudakov resummation from the BFKL evolution**”, *Phys. Rev. D* 104, 054039 – Published 28 September 2021, <https://doi.org/10.1103/PhysRevD.104.054039>
- R. Aaij et al. (LHCb Collaboration), “**Branching Fraction Measurements of the Rare $B^0_s \rightarrow \phi \mu^+ \mu^-$ and $B^0_s \rightarrow f_2(1525) \mu^+ \mu^-$ Decays**”, *Phys. Rev. Lett.* 127, 151801 – Published 5 October 2021, <https://doi.org/10.1103/PhysRevLett.127.151801>
- M. Dlamini et al. (Jefferson Lab Hall A Collaboration), “**Deep Exclusive Electroproduction of π^0 at High Q^2 in the Quark Valence Regime**”, *Phys. Rev. Lett.* 127, 152301 – Published 5 October 2021, <https://doi.org/10.1103/PhysRevLett.127.152301>
- R. Aaij et al. (LHCb Collaboration), “**Observation of a $\Lambda_b^0 - \bar{\Lambda}_b^0$ production asymmetry in proton-proton collisions at $\sqrt{s} = 7$ and 8 TeV**”, *J. High Energ. Phys.* 2021, 60 (2021), [https://doi.org/10.1007/JHEP10\(2021\)060](https://doi.org/10.1007/JHEP10(2021)060)
- M. Coquet, X. Du., J-Y Ollitrault, S. Schlichting, M. Winn, “**Intermediate mass dileptons as pre-equilibrium probes in heavy ion collisions**”, *Physics Letters B* 821, 10 October 2021, <https://doi.org/10.1016/j.physletb.2021.136626>

- R.H. Hewins, P-M. Zanetta, B. Zanda et al., “**NORTHWEST AFRICA (NWA) 12563 and ungrouped C2 chondrites: Alteration styles and relationships to asteroids**”, *Geochimica et Cosmochimica Acta*, Vol. 311, 15 October 2021, <https://doi.org/10.1016/j.gca.2021.06.035>
- K. Chrbolková, R. Brunetto, J. Ďurech et al., “**Comparison of space weathering spectral changes induced by solar wind and micrometeoroid impacts using ion- and femtosecond-laser-irradiated olivine and pyroxene**”, *A&A*, Volume 654, 22 October 2021, <https://doi.org/10.1051/0004-6361/202140372>
- B. Pire, K. Semenov-Tian-Shansky, L. Szymanowski, “**Transition distribution amplitudes and hard exclusive reactions with baryon number transfer**”, *Physics Reports*, Vol. 940, 15 December 2021, <https://doi.org/10.1016/j.physrep.2021.09.002>
- R. Aaij et al. (LHCb Collaboration), “**Search for time-dependent CP violation in $D^0 \rightarrow K^+K^-$ and $D^0 \rightarrow \pi^+\pi^-$ decays**”, *Phys. Rev. D* 104, 072010 – Published 26 October 2021, <https://doi.org/10.1103/PhysRevD.104.072010>
- M. Andreotti, S. Capelli, G. Cavallero et al., “**Characterization of signal-induced noise in Hamamatsu R11265 Multianode Photomultiplier Tubes**”, 2021 JINST 16 P11030, <https://doi.org/10.1088/1748-0221/16/11/P11030>
- R. Aaij et al. (LHCb Collaboration), “**First measurement of the C/CP-violating phase in $B^0_s \rightarrow J/\psi(B^0_s \rightarrow J/\psi(\rightarrow e^+e^-e^+e^-))\phi\phi$ decays**”, *Eur. Phys. J. C* 81, 1026 (2021), <https://doi.org/10.1140/epjc/s10052-021-09711-7>
- R. Aaij et al. (LHCb Collaboration), “**Angular analysis of the rare decay $B^0_s B^0_s \rightarrow \phi\mu^+\mu^-$** ”, *J. High Energ. Phys.* 2021, 43 (2021), [https://doi.org/10.1007/JHEP11\(2021\)043](https://doi.org/10.1007/JHEP11(2021)043)
- R. Aaij et al. (LHCb Collaboration), “**Observation of excited Ω_c baryons in $\Omega^- b \rightarrow \Xi^+ c K^- \pi^-$ decays**”, *Phys. Rev. D* 104, L091102 – Published 24 November 2021, <https://doi.org/10.1103/PhysRevD.104.L091102>
- R. Aaij et al. (LHCb Collaboration), “**Measurement of J/ψ production cross-sections in pp collisions at $\sqrt{s} = 5$ TeV**”, *J. High Energ. Phys.* 2021, 181 (2021), [https://doi.org/10.1007/JHEP11\(2021\)181](https://doi.org/10.1007/JHEP11(2021)181)
- J. R. Forshaw, J. Holguin, “**Coulomb gluons will generally destroy coherence**”, *J. High Energ. Phys.* 2021, 84 (2021), [https://doi.org/10.1007/JHEP12\(2021\)084](https://doi.org/10.1007/JHEP12(2021)084)
- R. Aaij et al. (LHCb Collaboration), “**Search for the doubly charmed baryon $\Xi^+ cc \Xi_{cc}^+$ in the $\Xi^+ c \pi^- \pi^+ \Xi^+ c \pi^- \pi^+$ final state**”, *J. High Energ. Phys.* 2021, 107 (2021), [https://doi.org/10.1007/JHEP12\(2021\)107](https://doi.org/10.1007/JHEP12(2021)107)
- R. Aaij et al. (LHCb Collaboration), “**Updated search for $B^+ c B_c^+$ decays to two charm mesons**”, *J. High Energ. Phys.* 2021, 117 (2021), [https://doi.org/10.1007/JHEP12\(2021\)117](https://doi.org/10.1007/JHEP12(2021)117)

- R. Aaij et al. (LHCb Collaboration), “**Simultaneous determination of CKM angle γ and charm mixing parameters**”, *J. High Energ. Phys.* 2021, 141 (2021), [https://doi.org/10.1007/JHEP12\(2021\)141](https://doi.org/10.1007/JHEP12(2021)141)
- R. Aaij et al. (LHCb Collaboration), “**Observation of the suppressed $\Lambda_0 b \rightarrow D p K^-$ decay with $D \rightarrow K + \pi^-$ and measurement of its CP asymmetry**”, *Phys. Rev. D* 104, 112008 – Published 27 December 2021, <https://doi.org/10.1103/PhysRevD.104.112008>