## Publication List from all Collaborations and Experiments

## Oliver Gutsche

## February 2, 2024

- A. Hayrapetyan et al., Measurement of the double-differential inclusive jet cross section in proton-proton collisions at  $\sqrt{s} = 5.02$  TeV, (2024). http://arxiv.org/abs/2401.11355, arXiv:2401.11355 [hep-ex]
- A. Hayrapetyan et al., Extracting the speed of sound in the strongly interacting matter created in ultrarelativistic lead-lead collisions at the LHC, (2024). http://arxiv.org/abs/2401.06896, arXiv:2401.06896 [nucl-ex]
- A. Hayrapetyan et al., Test of lepton flavor universality in  $\mathbf{B}^{\pm} \to \mathbf{K}^{\pm} \mu^{+} \mu^{-}$  and  $\mathbf{B}^{\pm} \to \mathbf{K}^{\pm} \mathbf{e}^{+} \mathbf{e}^{-}$  decays in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2024). http://arxiv.org/abs/2401.07090, arXiv:2401.07090 [hep-ex]
- A. Hayrapetyan et al., Observation of the  $\Lambda_b^0 \rightarrow J/\psi \Xi^- K^+ decay$ , (2024). http://arxiv.org/abs/2401.16303, arXiv:2401.16303 [hep-ex]
- A. Hayrapetyan et al., Search for flavor changing neutral current interactions of the top quark in final states with a photon and additional jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2312.08229, arXiv:2312.08229 [hep-ex]
- A. Hayrapetyan et al., Measurement of multidifferential cross sections for dijet production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2312.16669, arXiv:2312.16669 [hep-ex]
- A. Hayrapetyan et al., Observation of enhanced long-range elliptic anisotropies inside high-multiplicity jets in pp collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2312.17103, arXiv:2312.17103 [hep-ex]
- A. Hayrapetyan et al., Search for the lepton flavor violating  $\tau \to 3~\mu$  decay in proton-proton collisions at  $\sqrt{s} = 13~\text{TeV}$ , (2023). http://arxiv.org/abs/2312.02371, arXiv:2312.02371 [hep-ex]
- A. Hayrapetyan et al., Search for charged-lepton flavor violation in the production and decay of top quarks using trilepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2312.03199, arXiv:2312.03199 [hep-ex]
- A. Hayrapetyan et al., Evidence for tWZ production in proton-proton collisions at  $\sqrt{s} = 13$  TeV in multilepton final states, (2023). http://arxiv.org/abs/2312.11668, arXiv:2312.11668 [hep-ex]
- A. Tumasyan et al., Measurement of simplified template cross sections of the Higgs boson produced in association with W or Z bosons in the H  $\rightarrow b\bar{b}$  decay channel in proton-proton collisions at  $\sqrt{s}$  =13 TeV, (2023). http://arxiv.org/abs/2312.07562, arXiv:2312.07562 [hep-ex]
- A. Tumasyan et al., Higher-order moments of the elliptic flow distribution in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, (2023). http://arxiv.org/abs/2311.11370, arXiv:2311.11370 [nucl-ex]
- A. Tumasyan et al., Search for high-mass exclusive diphoton production with tagged protons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2311.02725, arXiv:2311.02725 [hep-ex]
- A. Hayrapetyan et al., Search for new Higgs bosons via same-sign top quark pair production in association with a jet in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2311.03261, arXiv:2311.03261 [hep-ex]
- A. Tumasyan et al., Search for a new resonance decaying into two spin-0 bosons in a final state with two photons and two bottom quarks in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2310.01643, arXiv:2310.01643 [hep-ex]
- A. Hayrapetyan et al., Search for dark matter particles in W  $^+$ W  $^-$  events with transverse momentum imbalance in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2310.12229, arXiv:2310.12229 [hep-ex]
- A. Tumasyan et al., Study of azimuthal anisotropy of  $\Upsilon(1S)$  mesons in pPb collisions at  $\sqrt{s_{NN}} = 8.16$  TeV, (2023). http://arxiv.org/abs/2310.03233, arXiv:2310.03233 [hep-ex]

February 2, 2024 1 of 64

- A. Hayrapetyan et al., Search for an exotic decay of the Higgs boson into a Z boson and a pseudoscalar particle in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2311.00130, arXiv:2311.00130 [hep-ex]
- A. Hayrapetyan et al., Search for W' bosons decaying to a top and a bottom quark in leptonic final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2310.19893, arXiv:2310.19893 [hep-ex]
- A. Tumasyan et al., Search for central exclusive production of top quark pairs in proton-proton collisions at  $\sqrt{s}$  = 13 TeV with tagged protons, (2023). http://arxiv.org/abs/2310.11231, arXiv:2310.11231 [hep-ex]
- A. Hayrapetyan et al., Search for narrow trijet resonances in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2310.14023, arXiv:2310.14023 [hep-ex]
- A. Hayrapetyan et al., Search for stealth supersymmetry in final states with two photons, jets, and low missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2310.03154, arXiv:2310.03154 [hep-ex]
- A. Hayrapetyan et al., **Development of the CMS detector for the CERN LHC Run 3**, (2023). http://arxiv.org/abs/2309.05466, arXiv:2309.05466 [physics.ins-det]
- A. Hayrapetyan et al., Inclusive and differential cross section measurements of  $t\bar{t}b\bar{b}$  production in the lepton+jets channel at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2309.14442, arXiv:2309.14442 [hep-ex]
- A. Hayrapetyan et al., Search for scalar leptoquarks produced in lepton-quark collisions and coupled to  $\tau$  leptons, (2023). http://arxiv.org/abs/2308.06143, arXiv:2308.06143 [hep-ex]
- A. Hayrapetyan et al., Measurement of the Higgs boson production via vector boson fusion and its decay into bottom quarks in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2023). http://arxiv.org/abs/2308.01253, arXiv:2308.01253 [hep-ex]
- A. Tumasyan et al., Multiplicity and transverse momentum dependence of charge-balance functions in pPb and PbPb collisions at LHC energies, (2023). http://arxiv.org/abs/2307.11185, arXiv:2307.11185 [nucl-ex]
- A. Tumasyan et al., Two-particle Bose-Einstein correlations and their Lévy parameters in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, (2023). http://arxiv.org/abs/2306.11574, arXiv:2306.11574 [nucl-ex]
- V. Khachatryan et al., Exclusive and semi-exclusive pi+pi- production in proton-proton collisions at sqrt(s) = 7 TeV, (2017). http://arxiv.org/abs/1706.08310, arXiv:1706.08310 [hep-ex]
- G.L. Bayatian et al., CMS expression of interest in the SLHC, (2007)
- G. Aad et al., Evidence for the Higgs Boson Decay to a Z Boson and a Photon at the LHC, Phys. Rev. Lett. 132 (2024) 021803, doi:10.1103/PhysRevLett.132.021803, arXiv:2309.03501 [hep-ex]
- A. Tumasyan et al., Measurement of the production cross section for a W boson in association with a charm quark in protonproton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 84 (2024) 27, doi:10.1140/epjc/s10052-023-12258-4, arXiv:2308.02285 [hep-ex]
- A. Hayrapetyan et al., Search for Inelastic Dark Matter in Events with Two Displaced Muons and Missing Transverse Momentum in Proton-Proton Collisions at s=13 TeV, Phys. Rev. Lett. 132 (2024) 041802, doi:10.1103/PhysRevLett.132.041802, arXiv:2305.11649 [hep-ex]
- A. Tumasyan et al., Study of charm hadronization with prompt  $\Lambda_c^+$  baryons in proton-proton and lead-lead collisions at  $\sqrt{s_{\rm NN}}=5.02$  TeV, JHEP. 01 (2024) 128, doi:10.1007/JHEP01(2024)128, arXiv:2307.11186 [nucl-ex]
- A. Hayrapetyan et al., Measurement of the  $\tau$  lepton polarization in Z boson decays in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 01 (2024) 101, doi:10.1007/JHEP01(2024)101, arXiv:2309.12408 [hep-ex]
- A. Hayrapetyan et al., Luminosity determination using Z boson production at the CMS experiment, Eur. Phys. J. C. 84 (2024) 26, doi:10.1140/epjc/s10052-023-12268-2, arXiv:2309.01008 [hep-ex]
- G. Aad et al., Combination of inclusive top-quark pair production cross-section measurements using ATLAS and CMS data at  $\sqrt{s} = 7$  and 8 TeV, JHEP. 07 (2023) 213, doi:10.1007/JHEP07(2023)213, arXiv:2205.13830 [hep-ex]
- A. Tumasyan et al., Observation of triple J/ $\psi$  meson production in proton-proton collisions, Nature Phys. 19 (2023) 338–350, doi:10.1038/s41567-022-01838-y, arXiv:2111.05370 [hep-ex]
- A. Tumasyan et al., Search for Higgs boson decays to a Z boson and a photon in proton-proton collisions at  $\sqrt{s}$  = 13 TeV, JHEP. 05 (2023) 233, doi:10.1007/JHEP05(2023)233, arXiv:2204.12945 [hep-ex]

February 2, 2024 2 of 64

- A. Tumasyan et al., Observation of  $\tau$  lepton pair production in ultraperipheral lead-lead collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Rev. Lett. 131 (2023) 151803, doi:10.1103/PhysRevLett.131.151803, arXiv:2206.05192 [nucl-ex]
- A. Tumasyan et al., CMS pythia 8 colour reconnection tunes based on underlying-event data, Eur. Phys. J. C. 83 (2023) 587, doi:10.1140/epjc/s10052-023-11630-8, arXiv:2205.02905 [hep-ex]
- A. Tumasyan et al., **Strange hadron collectivity in pPb and PbPb collisions**, *JHEP*. 05 (2023) 007, doi:10.1007/JHEP05(2023)00 arXiv:2205.00080 [nucl-ex]
- A. Tumasyan et al., Search for medium effects using jets from bottom quarks in PbPb collisions at sNN=5.02TeV, Phys. Lett. B. 844 (2023) 137849, doi:10.1016/j.physletb.2023.137849, arXiv:2210.08547 [hep-ex]
- A. Tumasyan et al., Search for a heavy composite Majorana neutrino in events with dilepton signatures from proton-proton collisions at s=13 TeV, Phys. Lett. B. 843 (2023) 137803, doi:10.1016/j.physletb.2023.137803, arXiv:2210.03082 [hep-ex]
- A. Tumasyan et al., Search for pair-produced vector-like leptons in final states with third-generation leptons and at least three b quark jets in proton-proton collisions at s=13TeV, Phys. Lett. B. 846 (2023) 137713, doi:10.1016/j.physletb.2023.137713, arXiv:2208.09700 [hep-ex]
- A. Tumasyan et al., Search for CP violation in ttH and tH production in multilepton channels in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 092, doi:10.1007/JHEP07(2023)092, arXiv:2208.02686 [hep-ex]
- A. Tumasyan et al., Search for high-mass exclusive  $\gamma\gamma \to WW$  and  $\gamma\gamma \to ZZ$  production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 229, doi:10.1007/JHEP07(2023)229, arXiv:2211.16320 [hep-ex]
- A. Tumasyan et al., Two-particle azimuthal correlations in  $\gamma p$  interactions using pPb collisions at sNN=8.16TeV, Phys. Lett. B. 844 (2023) 137905, doi:10.1016/j.physletb.2023.137905, arXiv:2204.13486 [nucl-ex]
- A. Tumasyan et al., Measurements of jet multiplicity and jet transverse momentum in multijet events in proton-proton collisions at  $\sqrt{s} = 13 \, TeV$ , Eur. Phys. J. C. 83 (2023) 742, doi:10.1140/epjc/s10052-023-11753-y, arXiv:2210.13557 [hep-ex]
- A. Tumasyan et al., Measurement of the top quark pole mass using  $t\bar{t}$ +jet events in the dilepton final state in proton-proton collisions at  $\sqrt{s}=13$  TeV, *JHEP*. 07 (2023) 077, doi:10.1007/JHEP07(2023)077, arXiv:2207.02270 [hep-ex]
- A. Tumasyan et al., Precision measurement of the Z boson invisible width in pp collisions at s=13 TeV, Phys. Lett. B. 842 (2023) 137563, doi:10.1016/j.physletb.2022.137563, arXiv:2206.07110 [hep-ex]
- A. Tumasyan et al., Search for narrow resonances in the b-tagged dijet mass spectrum in proton-proton collisions at s=13 TeV, Phys. Rev. D. 108 (2023) 012009, doi:10.1103/PhysRevD.108.012009, arXiv:2205.01835 [hep-ex]
- A. Tumasyan et al., Search for pair production of vector-like quarks in leptonic final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 020, doi:10.1007/JHEP07(2023)020, arXiv:2209.07327 [hep-ex]
- A. Tumasyan et al., Search for Higgs boson decays into Z and J/ $\psi$  and for Higgs and Z boson decays into J/ $\psi$  or Y pairs in pp collisions at s=13 TeV, Phys. Lett. B. 842 (2023) 137534, doi:10.1016/j.physletb.2022.137534, arXiv:2206.03525 [hep-ex]
- A. Tumasyan et al., Search for heavy resonances and quantum black holes in e $\mu$ , e $\tau$ , and  $\mu\tau$  final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 05 (2023) 227, doi:10.1007/JHEP05(2023)227, arXiv:2205.06709 [hep-ex]
- A. Tumasyan et al., Search for exotic Higgs boson decays  $H \to \mathcal{A}\mathcal{A} \to 4\gamma$  with events containing two merged diphotons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 131 (2023) 101801, doi:10.1103/PhysRevLett.131.101801, arXiv:2209.06197 [hep-ex]
- A. Tumasyan et al., Measurement of the tt charge asymmetry in events with highly Lorentz-boosted top quarks in pp collisions at s=13 TeV, Phys. Lett. B. 846 (2023) 137703, doi:10.1016/j.physletb.2023.137703, arXiv:2208.02751 [hep-ex]
- A. Tumasyan et al., Search for Nonresonant Pair Production of Highly Energetic Higgs Bosons Decaying to Bottom Quarks, Phys. Rev. Lett. 131 (2023) 041803, doi:10.1103/PhysRevLett.131.041803, arXiv:2205.06667 [hep-ex]
- A. Tumasyan et al., Searches for additional Higgs bosons and for vector leptoquarks in  $\tau\tau$  final states in protonproton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 073, doi:10.1007/JHEP07(2023)073, arXiv:2208.02717 [hep-ex]

February 2, 2024 3 of 64

- A. Tumasyan et al., Search for new physics using effective field theory in 13 TeV pp collision events that contain a top quark pair and a boosted Z or Higgs boson, *Phys. Rev. D.* 108 (2023) 032008, doi:10.1103/PhysRevD.108.032008, arXiv:2208.12837 [hep-ex]
- A. Tumasyan et al., Proton reconstruction with the CMS-TOTEM Precision Proton Spectrometer, JINST. 18 (2023) P09009, doi:10.1088/1748-0221/18/09/P09009, arXiv:2210.05854 [hep-ex]
- A. Tumasyan et al., Probing Heavy Majorana Neutrinos and the Weinberg Operator through Vector Boson Fusion Processes in Proton-Proton Collisions at s=13 TeV, Phys. Rev. Lett. 131 (2023) 011803, doi:10.1103/PhysRevLett.131.011803, arXiv:2206.08956 [hep-ex]
- A. Tumasyan et al., Search for supersymmetry in final states with a single electron or muon using angular correlations and heavy-object identification in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 09 (2023) 149, doi:10.1007/JHEP09(2023)149, arXiv:2211.08476 [hep-ex]
- A. Tumasyan et al., Measurement of differential cross sections for the production of a Z boson in association with jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 108 (2023) 052004, doi:10.1103/PhysRevD.108.052004, arXiv:2205.02872 [hep-ex]
- A. Tumasyan et al., Search for a charged Higgs boson decaying into a heavy neutral Higgs boson and a W boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 09 (2023) 032, doi:10.1007/JHEP09(2023)032, arXiv:2207.01046 [hep-ex]
- A. Tumasyan et al., Measurements of Higgs boson production in the decay channel with a pair of  $\tau$  leptons in protonproton collisions at  $\sqrt{s}=13$  TeV, Eur. Phys. J. C. 83 (2023) 562, doi:10.1140/epjc/s10052-023-11452-8, arXiv:2204.12957 [hep-ex]
- A. Tumasyan et al., Search for Higgs boson pairs decaying to WW\*WW\*, WW\*  $\tau\tau$ , and  $\tau\tau\tau\tau$  in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 095, doi:10.1007/JHEP07(2023)095, arXiv:2206.10268 [hep-ex]
- A. Tumasyan et al., Measurement of the differential  $t\bar{t}$  production cross section as a function of the jet mass and extraction of the top quark mass in hadronic decays of boosted top quarks, Eur. Phys. J. C. 83 (2023) 560, doi:10.1140/epjc/s10052-023-11587-8, arXiv:2211.01456 [hep-ex]
- A. Tumasyan et al., Azimuthal Correlations within Exclusive Dijets with Large Momentum Transfer in Photon-Lead Collisions, Phys. Rev. Lett. 131 (2023) 051901, doi:10.1103/PhysRevLett.131.051901, arXiv:2205.00045 [nucl-ex]
- A. Tumasyan et al., Measurement of the B  $^0_S \rightarrow \mu^+ \mu^-$  decay properties and search for the B  $^0 \rightarrow \mu^+ \mu^-$  decay in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 842 (2023) 137955, doi:10.1016/j.physletb.2023.137955, arXiv:2212.10311 [hep-ex]
- A. Tumasyan et al., Search for new physics in the  $\tau$  lepton plus missing transverse momentum final state in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 09 (2023) 051, doi:10.1007/JHEP09(2023)051, arXiv:2212.12604 [hep-ex]
- A. Tumasyan et al., Azimuthal anisotropy of dijet events in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, JHEP. 07 (2023) 139, doi:10.1007/JHEP07(2023)139, arXiv:2210.08325 [hep-ex]
- A. Tumasyan et al., Search for nonresonant Higgs boson pair production in the four leptons plus twob jets final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2023) 130, doi:10.1007/JHEP06(2023)130, arXiv:2206.10657 [hep-ex]
- A. Tumasyan et al., Observation of same-sign WW production from double parton scattering in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 131 (2023) 091803, doi:10.1103/PhysRevLett.131.091803, arXiv:2206.02681 [hep-ex]
- A. Tumasyan et al., Search for new heavy resonances decaying to WW, WZ, ZZ, WH, or ZH boson pairs in the all-jets final state in proton-proton collisions at s=13TeV, Phys. Lett. B. 844 (2023) 137813, doi:10.1016/j.physletb.2023.137813, arXiv:2210.00043 [hep-ex]
- A. Tumasyan et al., Search for long-lived particles decaying to a pair of muons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 05 (2023) 228, doi:10.1007/JHEP05(2023)228, arXiv:2205.08582 [hep-ex]
- A. Tumasyan et al., Search for CP violating top quark couplings in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 023, doi:10.1007/JHEP07(2023)023, arXiv:2205.07434 [hep-ex]

February 2, 2024 4 of 64

- A. Tumasyan et al., Search for electroweak production of charginos and neutralinos at s=13TeV in final states containing hadronic decays of WW, WZ, or WH and missing transverse momentum, *Phys. Lett. B.* 842 (2023) 137460, doi:10.1016/j.physletb.2022.137460, arXiv:2205.09597 [hep-ex]
- A. Tumasyan et al., Search for light Higgs bosons from supersymmetric cascade decays in pp collisions at  $\sqrt{s} = 13 \, \text{TeV}$ , Eur. Phys. J. C. 83 (2023) 571, doi:10.1140/epjc/s10052-023-11581-0, arXiv:2204.13532 [hep-ex]
- A. Tumasyan et al., Search for a massive scalar resonance decaying to a light scalar and a Higgs boson in the four b quarks final state with boosted topology, *Phys. Lett. B.* 842 (2023) 137392, doi:10.1016/j.physletb.2022.137392, arXiv:2204.12413 [hep-ex]
- A. Tumasyan et al., Search for direct pair production of supersymmetric partners of  $\tau$  leptons in the final state with two hadronically decaying  $\tau$  leptons and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 108 (2023) 012011, doi:10.1103/PhysRevD.108.012011, arXiv:2207.02254 [hep-ex]
- A. Tumasyan et al., Measurement of the cross section of top quark-antiquark pair production in association with a W boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 219, doi:10.1007/JHEP07(2023)219, arXiv:2208.06485 [hep-ex]
- A. Tumasyan et al., Measurement of the mass dependence of the transverse momentum of lepton pairs in Drell-Yan production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 83 (2023) 628, doi:10.1140/epjc/s10052-023-11631-7, arXiv:2205.04897 [hep-ex]
- A. Tumasyan et al., Measurements of the Higgs boson production cross section and couplings in the W boson pair decay channel in proton-proton collisions at  $\sqrt{s}=13TeV$ , Eur. Phys. J. C. 83 (2023) 667, doi:10.1140/epjc/s10052-023-11632-6, arXiv:2206.09466 [hep-ex]
- A. Tumasyan et al., Constraints on anomalous Higgs boson couplings to vector bosons and fermions from the production of Higgs bosons using the  $\tau\tau$  final state, *Phys. Rev. D.* 108 (2023) 032013, doi:10.1103/PhysRevD.108.032013, arXiv:2205.05120 [hep-ex]
- A. Tumasyan et al., Search for the Higgs boson decay to a pair of electrons in proton-proton collisions at s=13TeV, Phys. Lett. B. 846 (2023) 137783, doi:10.1016/j.physletb.2023.137783, arXiv:2208.00265 [hep-ex]
- A. Tumasyan et al., Search for resonant and nonresonant production of pairs of dijet resonances in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 161, doi:10.1007/JHEP07(2023)161, arXiv:2206.09997 [hep-ex]
- A. Tumasyan et al., Azimuthal correlations in **Z** +jets events in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 83 (2023) 722, doi:10.1140/epjc/s10052-023-11833-z, arXiv:2210.16139 [hep-ex]
- A. Tumasyan et al., Search for CP violation using  $t\bar{t}$  events in the lepton+jets channel in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2023) 081, doi:10.1007/JHEP06(2023)081, arXiv:2205.02314 [hep-ex]
- A. Tumasyan et al., Search for long-lived particles using out-of-time trackless jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 210, doi:10.1007/JHEP07(2023)210, arXiv:2212.06695 [hep-ex]
- A. Tumasyan et al., Reconstruction of decays to merged photons using end-to-end deep learning with domain continuation in the CMS detector, *Phys. Rev. D.* 108 (2023) 052002, doi:10.1103/PhysRevD.108.052002, arXiv:2204.12313 [hep-ex]
- A. Tumasyan et al., Measurement of the dependence of the hadron production fraction ratio  $f_s/f_u$  and  $f_d/f_u$  on B meson kinematic variables in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 131 (2023) 121901, doi:10.1103/PhysRevLett.131.121901, arXiv:2212.02309 [hep-ex]
- A. Tumasyan et al., Observation of electroweak W+W- pair production in association with two jets in proton-proton collisions at s=13TeV, Phys. Lett. B. 841 (2023) 137495, doi:10.1016/j.physletb.2022.137495, arXiv:2205.05711 [hep-ex]
- A. Tumasyan et al., Measurement of the Higgs boson inclusive and differential fiducial production cross sections in the diphoton decay channel with pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 091, doi:10.1007/JHEP07(2023)091, arXiv:2208.12279 [hep-ex]
- A. Tumasyan et al., Search for the exotic decay of the Higgs boson into two light pseudoscalars with four photons in the final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 148, doi:10.1007/JHEP07(2023)148, arXiv:2208.01469 [hep-ex]

February 2, 2024 5 of 64

- A. Tumasyan et al., Measurement of the electroweak production of W  $\gamma$  in association with two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 108 (2023) 032017, doi:10.1103/PhysRevD.108.032017, arXiv:2212.12592 [hep-ex]
- A. Tumasyan et al., Measurement of inclusive and differential cross sections for single top quark production in association with a W boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2023) 046, doi:10.1007/JHEP07(2023)046, arXiv:2208.00924 [hep-ex]
- A. Tumasyan et al., Search for a vector-like quark T  $' \rightarrow$  tH via the diphoton decay mode of the Higgs boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 09 (2023) 057, doi:10.1007/JHEP09(2023)057, arXiv:2302.12802 [hep-ex]
- A. Hayrapetyan et al., Search for a high-mass dimuon resonance produced in association with b quark jets at  $\sqrt{s} = 13$  TeV, JHEP. 10 (2023) 043, doi:10.1007/JHEP10(2023)043, arXiv:2307.08708 [hep-ex]
- A. Tumasyan et al., Measurement of the top quark mass using a profile likelihood approach with the lepton + jets final states in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 83 (2023) 963, doi:10.1140/epjc/s10052-023-12050-4, arXiv:2302.01967 [hep-ex]
- A. Hayrapetyan et al., Observation of four top quark production in proton-proton collisions at s=13TeV, Phys. Lett. B. 847 (2023) 138290, doi:10.1016/j.physletb.2023.138290, arXiv:2305.13439 [hep-ex]
- A. Hayrapetyan et al., Measurements of inclusive and differential cross sections for the Higgs boson production and decay to four-leptons in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP.~08~(2023)~040, doi:10.1007/JHEP08(2023)040, arXiv:2305.07532~[hep-ex]
- A. Hayrapetyan et al., Search for direct production of GeV-scale resonances decaying to a pair of muons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 12 (2023) 070, doi:10.1007/JHEP12(2023)070, arXiv:2309.16003 [hep-ex]
- A. Tumasyan et al., Search for top squarks in the four-body decay mode with single lepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 06 (2023) 060, doi:10.1007/JHEP06(2023)060, arXiv:2301.08096 [hep-ex]
- A. Tumasyan et al., First measurement of the forward rapidity gap distribution in pPb collisions at sNN=8.16 TeV, Phys. Rev. D. 108 (2023) 092004, doi:10.1103/PhysRevD.108.092004, arXiv:2301.07630 [hep-ex]
- A. Tumasyan et al., Performance of the local reconstruction algorithms for the CMS hadron calorimeter with Run 2 data, JINST. 18 (2023) P11017, doi:10.1088/1748-0221/18/11/P11017, arXiv:2306.10355 [hep-ex]
- A. Tumasyan et al., Measurements of the azimuthal anisotropy of prompt and nonprompt charmonia in PbPb collisions at  $\sqrt{s_{\rm NN}} = 5.02$  TeV, JHEP. 10 (2023) 115, doi:10.1007/JHEP10(2023)115, arXiv:2305.16928 [hep-ex]
- A. Hayrapetyan et al., Search for the lepton-flavor violating decay of the Higgs boson and additional Higgs bosons in the e  $\mu$  final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 108 (2023) 072004, doi:10.1103/PhysRevD.108.072004, arXiv:2305.18106 [hep-ex]
- A. Tumasyan et al., First measurement of the top quark pair production cross section in proton-proton collisions at  $\sqrt{s} = 13.6$  TeV, *JHEP*. 08 (2023) 204, doi:10.1007/JHEP08(2023)204, arXiv:2303.10680 [hep-ex]
- A. Tumasyan et al., A search for decays of the Higgs boson to invisible particles in events with a top-antitop quark pair or a vector boson in proton-proton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 83 (2023) 933, doi:10.1140/epjc/s10052-023-11952-7, arXiv:2303.01214 [hep-ex]
- A. Tumasyan et al., Probing Small Bjorken-x Nuclear Gluonic Structure via Coherent J/ $\psi$  Photoproduction in Ultraperipheral Pb-Pb Collisions at sNN=5.02 TeV, Phys. Rev. Lett. 131 (2023) 262301, doi:10.1103/PhysRevLett.131.262301, arXiv:2303.16984 [nucl-ex]
- A. Hayrapetyan et al., Observation of the rare decay of the  $\eta$  meson to four muons, *Phys. Rev. Lett.* 131 (2023) 091903, doi:10.1103/PhysRevLett.131.091903, arXiv:2305.04904 [hep-ex]
- A. Tumasyan et al., Search for resonances in events with photon and jet final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 12 (2023) 189, doi:10.1007/JHEP12(2023)189, arXiv:2305.07998 [hep-ex]
- A. Hayrapetyan et al., Search for new physics in multijet events with at least one photon and large missing transverse momentum in proton-proton collisions at 13 TeV, *JHEP*. 10 (2023) 046, doi:10.1007/JHEP10(2023)046, arXiv:2307.16216 [hep-ex]

February 2, 2024 6 of 64

- A. Hayrapetyan et al., Search for physics beyond the standard model in top quark production with additional leptons in the context of effective field theory, *JHEP*. 12 (2023) 068, doi:10.1007/JHEP12(2023)068, arXiv:2307.15761 [hep-ex]
- A. Tumasyan et al., Search for top squark pair production in a final state with at least one hadronically decaying tau lepton in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP.~07~(2023)~110, doi:10.1007/JHEP07(2023)110, arXiv:2304.07174 [hep-ex]
- A. Tumasyan et al., Evidence for four-top quark production in proton-proton collisions at s=13TeV, Phys. Lett. B. 844 (2023) 138076, doi:10.1016/j.physletb.2023.138076, arXiv:2303.03864 [hep-ex]
- A. Tumasyan et al., Search for electroweak production of charginos and neutralinos in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 04 (2022) 147, doi:10.1007/JHEP04(2022)147, arXiv:2106.14246 [hep-ex]
- A. Tumasyan et al., Measurement of W  $^{\pm}\gamma$  differential cross sections in proton-proton collisions at  $\sqrt{s}=$  13 TeV and effective field theory constraints, *Phys. Rev. D.* 105 (2022) 052003, doi:10.1103/PhysRevD.105.052003, arXiv:2111.13948 [hep-ex]
- A. Tumasyan et al., Search for a right-handed W boson and a heavy neutrino in proton-proton collisions at  $\sqrt{s}$  = 13 TeV, JHEP. 04 (2022) 047, doi:10.1007/JHEP04(2022)047, arXiv:2112.03949 [hep-ex]
- A. Tumasyan et al., Search for resonant production of strongly coupled dark matter in proton-proton collisions at 13 TeV, JHEP. 06 (2022) 156, doi:10.1007/JHEP06(2022)156, arXiv:2112.11125 [hep-ex]
- A. Tumasyan et al., Search for supersymmetry in final states with two or three soft leptons and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 04 (2022) 091, doi:10.1007/JHEP04(2022)091, arXiv:2111.06296 [hep-ex]
- A. Tumasyan et al., Search for flavor-changing neutral current interactions of the top quark and the Higgs boson decaying to a bottom quark-antiquark pair at  $\sqrt{s} = 13$  TeV, JHEP. 02 (2022) 169, doi:10.1007/JHEP02(2022)169, arXiv:2112.09734 [hep-ex]
- A. Tumasyan et al., Measurement of the inclusive  $t\bar{t}$  production cross section in proton-proton collisions at  $\sqrt{s}$  = 5.02 TeV, JHEP. 04 (2022) 144, doi:10.1007/JHEP04(2022)144, arXiv:2112.09114 [hep-ex]
- A. Tumasyan et al., Measurement of the inclusive and differential Higgs boson production cross sections in the decay mode to a pair of  $\tau$  leptons in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 128 (2022) 081805, doi:10.1103/PhysRevLett.128.081805, arXiv:2107.11486 [hep-ex]
- A. Tumasyan et al., Search for Flavor-Changing Neutral Current Interactions of the Top Quark and Higgs Boson in Final States with Two Photons in Proton-Proton Collisions at  $\sqrt{s} = 13 TeV$ , Phys. Rev. Lett. 129 (2022) 032001, doi:10.1103/PhysRevLett.129.032001, arXiv:2111.02219 [hep-ex]
- A. Tumasyan et al., Measurement of the inclusive and differential WZ production cross sections, polarization angles, and triple gauge couplings in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2022) 032, doi:10.1007/JHEP07(2022)032, arXiv:2110.11231 [hep-ex]
- A. Tumasyan et al., Strategies and performance of the CMS silicon tracker alignment during LHC Run 2, Nucl. Instrum. Meth. A. 1037 (2022) 166795, doi:10.1016/j.nima.2022.166795, arXiv:2111.08757 [physics.ins-det]
- A. Tumasyan et al., Search for heavy resonances decaying to  $\mathbf{Z}(\nu\bar{\nu})\mathbf{V}(\mathbf{q}\ \bar{q}')$  in proton-proton collisions at  $\sqrt{s} = \mathbf{13}\ \text{TeV}$ , Phys. Rev. D. 106 (2022) 012004, doi:10.1103/PhysRevD.106.012004, arXiv:2109.08268 [hep-ex]
- A. Tumasyan et al., Study of quark and gluon jet substructure in **Z**+jet and dijet events from pp collisions, *JHEP*. 01 (2022) 188, doi:10.1007/JHEP01(2022)188, arXiv:2109.03340 [hep-ex]
- A. Tumasyan et al., Search for long-lived particles decaying to leptons with large impact parameter in proton-proton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 82 (2022) 153, doi:10.1140/epjc/s10052-022-10027-3, arXiv:2110.04809 [hep-ex]
- A. Tumasyan et al., Search for heavy resonances decaying to WW, WZ, or WH boson pairs in the lepton plus merged jet final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 105 (2022) 032008, doi:10.1103/PhysRevD.105.032008, arXiv:2109.06055 [hep-ex]
- A. Tumasyan et al., Measurement of double-parton scattering in inclusive production of four jets with low transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 01 (2022) 177, doi:10.1007/JHEP01(2022)177, arXiv:2109.13822 [hep-ex]

February 2, 2024 7 of 64

- A. Tumasyan et al., Study of dijet events with large rapidity separation in proton-proton collisions at  $\sqrt{s} =$  **2.76 TeV**, *JHEP*. 03 (2022) 189, doi:10.1007/JHEP03(2022)189, arXiv:2111.04605 [hep-ex]
- A. Tumasyan et al., Search for resonances decaying to three W bosons in the hadronic final state in proton-proton collisions at  $\sqrt{s}$  =13 TeV, Phys. Rev. D. 106 (2022) 012002, doi:10.1103/PhysRevD.106.012002, arXiv:2112.13090 [hep-ex]
- A. Tumasyan et al., Search for a heavy resonance decaying into a top quark and a W boson in the lepton+jets final state at  $\sqrt{s} = 13$  TeV, *JHEP*. 04 (2022) 048, doi:10.1007/JHEP04(2022)048, arXiv:2111.10216 [hep-ex]
- A. Tumasyan et al., Observation of Bs0 mesons and measurement of the Bs0/B+ yield ratio in PbPb collisions at Image 1 TeV, Phys. Lett. B. 829 (2022) 137062, doi:10.1016/j.physletb.2022.137062, arXiv:2109.01908 [hep-ex]
- A.M. Sirunyan et al., Using Z Boson Events to Study Parton-Medium Interactions in Pb-Pb Collisions, Phys. Rev. Lett. 128 (2022) 122301, doi:10.1103/PhysRevLett.128.122301, arXiv:2103.04377 [hep-ex]
- A. Tumasyan et al., Measurements of the associated production of a W boson and a charm quark in protonproton collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 82 (2022) 1094, doi:10.1140/epjc/s10052-022-10897-7, arXiv:2112.00895 [hep-ex]
- A. Tumasyan et al., Measurement of the production cross section for Z+b jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 105 (2022) 092014, doi:10.1103/PhysRevD.105.092014, arXiv:2112.09659 [hep-ex]
- A. Tumasyan et al., Search for low-mass dilepton resonances in Higgs boson decays to four-lepton final states in protonproton collisions at  $\sqrt{s}=13TeV$ , Eur. Phys. J. C. 82 (2022) 290, doi:10.1140/epjc/s10052-022-10127-0, arXiv:2111.01299 [hep-ex]
- A. Tumasyan et al., Fragmentation of jets containing a prompt J / $\psi$  meson in PbPb and pp collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 825 (2022) 136842, doi:10.1016/j.physletb.2021.136842, arXiv:2106.13235 [hep-ex]
- A. Tumasyan et al., Probing Charm Quark Dynamics via Multiparticle Correlations in Pb-Pb Collisions at  $\sqrt{s_{NN}}$  =5.02 TeV, Phys. Rev. Lett. 129 (2022) 022001, doi:10.1103/PhysRevLett.129.022001, arXiv:2112.12236 [hep-ex]
- A. Tumasyan et al., Evidence for WW/WZ vector boson scattering in the decay channel  $\ell\nu$ qq produced in association with two jets in proton-proton collisions at s=13 TeV, Phys. Lett. B. 834 (2022) 137438, doi:10.1016/j.physletb.2022.137438, arXiv:2112.05259 [hep-ex]
- A. Tumasyan et al., Search for heavy resonances decaying to a pair of Lorentz-boosted Higgs bosons in final states with leptons and a bottom quark pair at  $\sqrt{s}$ = 13 TeV, JHEP. 05 (2022) 005, doi:10.1007/JHEP05(2022)005, arXiv:2112.03161 [hep-ex]
- A. Tumasyan et al., Search for strongly interacting massive particles generating trackless jets in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 82 (2022) 213, doi:10.1140/epjc/s10052-022-10095-5, arXiv:2105.09178 [hep-ex]
- A. Tumasyan et al., A new calibration method for charm jet identification validated with proton-proton collision events at  $\sqrt{s}$  =13 TeV, JINST. 17 (2022) P03014, doi:10.1088/1748-0221/17/03/P03014, arXiv:2111.03027 [hep-ex]
- A. Tumasyan et al., Search for long-lived particles decaying into muon pairs in proton-proton collisions at  $\sqrt{s}$  = 13 TeV collected with a dedicated high-rate data stream, *JHEP*. 04 (2022) 062, doi:10.1007/JHEP04(2022)062, arXiv:2112.13769 [hep-ex]
- A. Tumasyan et al., Analysis of the CP structure of the Yukawa coupling between the Higgs boson and  $\tau$  leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2022) 012, doi:10.1007/JHEP06(2022)012, arXiv:2110.04836 [hep-ex]
- A. Tumasyan et al., Inclusive and differential cross section measurements of single top quark production in association with a **Z** boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 02 (2022) 107, doi:10.1007/JHEP02(2022)107, arXiv:2111.02860 [hep-ex]
- A. Tumasyan et al., Search for heavy resonances decaying to ZZ or ZW and axion-like particles mediating non-resonant ZZ or ZH production at  $\sqrt{s} = 13$  TeV, JHEP. 04 (2022) 087, doi:10.1007/JHEP04(2022)087, arXiv:2111.13669 [hep-ex]
- A. Tumasyan et al., Search for long-lived particles produced in association with a **Z** boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 03 (2022) 160, doi:10.1007/JHEP03(2022)160, arXiv:2110.13218 [hep-ex]
- A. Tumasyan et al., Measurement and QCD analysis of double-differential inclusive jet cross sections in protonproton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 02 (2022) 142, doi:10.1007/JHEP02(2022)142, arXiv:2111.10431 [hep-ex]

February 2, 2024 8 of 64

- A.M. Sirunyan et al., Evidence for X(3872) in Pb-Pb Collisions and Studies of its Prompt Production at  $\sqrt{s_{NN}}$ =5.02 TeV, Phys. Rev. Lett. 128 (2022) 032001, doi:10.1103/PhysRevLett.128.032001, arXiv:2102.13048 [hep-ex]
- A. Tumasyan et al., Search for W  $\gamma$  resonances in proton-proton collisions at  $\sqrt{s}=13$  TeV using hadronic decays of Lorentz-boosted W bosons, Phys. Lett. B. 826 (2022) 136888, doi:10.1016/j.physletb.2022.136888, arXiv:2106.10509 [hep-ex]
- A. Tumasyan et al., **Observation of B**  $^{0}$  $\rightarrow \psi$ (**2S**)**K**  $^{0}_{S}\pi^{+}\pi^{-}$  and **B**  $^{0}_{S}\rightarrow \psi$ (**2S**)**K**  $^{0}_{S}$  decays, Eur. Phys. J. C. 82 (2022) 499, doi:10.1140/epjc/s10052-022-10315-y, arXiv:2201.09131 [hep-ex]
- A. Tumasyan et al., Search for Higgs Boson Pair Production in the Four b Quark Final State in Proton-Proton Collisions at s=13 TeV, Phys. Rev. Lett. 129 (2022) 081802, doi:10.1103/PhysRevLett.129.081802, arXiv:2202.09617 [hep-ex]
- A. Tumasyan et al., Search for long-lived heavy neutral leptons with displaced vertices in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2022) 081, doi:10.1007/JHEP07(2022)081, arXiv:2201.05578 [hep-ex]
- A. Tumasyan et al., Search for new physics in the lepton plus missing transverse momentum final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2022) 067, doi:10.1007/JHEP07(2022)067, arXiv:2202.06075 [hep-ex]
- A. Tumasyan et al., Measurement of the Higgs boson width and evidence of its off-shell contributions to ZZ production, Nature Phys. 18 (2022) 1329–1334, doi:10.1038/s41567-022-01682-0, arXiv:2202.06923 [hep-ex]
- A. Tumasyan et al., Measurement of the inclusive and differential  $t\bar{t}\gamma$  cross sections in the dilepton channel and effective field theory interpretation in proton-proton collisions at  $\sqrt{s}$  =13 TeV, JHEP. 05 (2022) 091, doi:10.1007/JHEP05(2022)091, arXiv:2201.07301 [hep-ex]
- A. Tumasyan et al., Search for resonances decaying to three W bosons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 129 (2022) 021802, doi:10.1103/PhysRevLett.129.021802, arXiv:2201.08476 [hep-ex]
- A. Tumasyan et al., Precision measurement of the W boson decay branching fractions in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 105 (2022) 072008, doi:10.1103/PhysRevD.105.072008, arXiv:2201.07861 [hep-ex]
- A. Tumasyan et al., Inclusive nonresonant multilepton probes of new phenomena at  $\sqrt{s}$ =13 TeV, Phys. Rev. D. 105 (2022) 112007, doi:10.1103/PhysRevD.105.112007, arXiv:2202.08676 [hep-ex]
- A. Tumasyan et al., **Identification of hadronic tau lepton decays using a deep neural network**, *JINST*. 17 (2022) P07023, doi:10.1088/1748-0221/17/07/P07023, arXiv:2201.08458 [hep-ex]
- A. Tumasyan et al., Search for invisible decays of the Higgs boson produced via vector boson fusion in proton-proton collisions at s=13 TeV, Phys. Rev. D. 105 (2022) 092007, doi:10.1103/PhysRevD.105.092007, arXiv:2201.11585 [hep-ex]
- A. Tumasyan et al., Search for new particles in an extended Higgs sector with four b quarks in the final state at s=13TeV, Phys. Lett. B. 835 (2022) 137566, doi:10.1016/j.physletb.2022.137566, arXiv:2203.00480 [hep-ex]
- A. Tumasyan et al., Observation of the  $B_c^+$  Meson in Pb-Pb and pp Collisions at  $\sqrt{s_{NN}}$ =5.02 TeV and Measurement of its Nuclear Modification Factor, *Phys. Rev. Lett.* 128 (2022) 252301, doi:10.1103/PhysRevLett.128.252301, arXiv:2201.02659 [hep-ex]
- A. Tumasyan et al., Search for a W' boson decaying to a vector-like quark and a top or bottom quark in the all-jets final state at  $\sqrt{s} = 13$  TeV, *JHEP*. 09 (2022) 088, doi:10.1007/JHEP09(2022)088, arXiv:2202.12988 [hep-ex]
- A. Tumasyan et al., Search for high-mass resonances decaying to a jet and a Lorentz-boosted resonance in proton-proton collisions at s=13TeV, Phys. Lett. B. 832 (2022) 137263, doi:10.1016/j.physletb.2022.137263, arXiv:2201.02140 [hep-ex]
- A. Tumasyan et al., Measurement of the Drell-Yan forward-backward asymmetry at high dilepton masses in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 2022 (2022) 063, doi:10.1007/JHEP08(2022)063, arXiv:2202.12327 [hep-ex]
- A. Tumasyan et al., Search for higgsinos decaying to two Higgs bosons and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 05 (2022) 014, doi:10.1007/JHEP05(2022)014, arXiv:2201.04206 [hep-ex]
- A. Tumasyan et al., Nuclear modification of  $\Upsilon$  states in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 835 (2022) 137397, doi:10.1016/j.physletb.2022.137397, arXiv:2202.11807 [hep-ex]

February 2, 2024 9 of 64

- A. Tumasyan et al., Search for single production of a vector-like T quark decaying to a top quark and a Z boson in the final state with jets and missing transverse momentum at  $\sqrt{s} = 13$  TeV, JHEP. 05 (2022) 093, doi:10.1007/JHEP05(2022)093, arXiv:2201.02227 [hep-ex]
- A. Tumasyan et al., Search for charged-lepton flavor violation in top quark production and decay in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2022) 082, doi:10.1007/JHEP06(2022)082, arXiv:2201.07859 [hep-ex]
- A. Tumasyan et al., First Search for Exclusive Diphoton Production at High Mass with Tagged Protons in Proton-Proton Collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 129 (2022) 011801, doi:10.1103/PhysRevLett.129.011801, arXiv:2110.05916 [hep-ex]
- A.M. Sirunyan et al., Correlations of azimuthal anisotropy Fourier harmonics with subevent cumulants in pPb collisions at  $\sqrt{s_{NN}} = 8.16$ TeV, Phys.~Rev.~C.~103~(2021)~014902, doi:10.1103/PhysRevC.103.014902, arXiv:1905.09935 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in final states with two oppositely charged same-flavor leptons and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 04 (2021) 123, doi:10.1007/JHEP04(2021)123, arXiv:2012.08600 [hep-ex]
- A.M. Sirunyan et al., Measurement of prompt  $D^0$  and  $\overline{D}^0$  meson azimuthal anisotropy and search for strong electric fields in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 816 (2021) 136253, doi:10.1016/j.physletb.2021.136253, arXiv:2009.12628 [hep-ex]
- A.M. Sirunyan et al., Measurement of differential cross sections for **Z** bosons produced in association with charm jets in pp collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 04 (2021) 109, doi:10.1007/JHEP04(2021)109, arXiv:2012.04119 [hep-ex]
- A.M. Sirunyan et al., Development and validation of HERWIG 7 tunes from CMS underlying-event measurements, Eur. Phys. J. C. 81 (2021) 312, doi:10.1140/epjc/s10052-021-08949-5, arXiv:2011.03422 [hep-ex]
- A.M. Sirunyan et al., Measurement of the inclusive and differential Higgs boson production cross sections in the leptonic WW decay mode at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2021) 003, doi:10.1007/JHEP03(2021)003, arXiv:2007.01984 [hep-ex]
- A.M. Sirunyan et al., Measurement of the CP-violating phase  $\phi_s$  in the B  $_s^0 \to \mathbf{J} / \psi \phi(\mathbf{1020}) \to \mu^+ \mu^- \mathbf{K} + \mathbf{K}^-$  channel in proton-proton collisions at  $\sqrt{s} = \mathbf{13}$  TeV, Phys. Lett. B. 816 (2021) 136188, doi:10.1016/j.physletb.2021.136188, arXiv:2007.02434 [hep-ex]
- A.M. Sirunyan et al., Measurement of the azimuthal anisotropy of Image 1 and Image 2 mesons in PbPb collisions at sNN=5.02TeV, Phys. Lett. B. 819 (2021) 136385, doi:10.1016/j.physletb.2021.136385, arXiv:2006.07707 [hep-ex]
- A.M. Sirunyan et al., Measurements of production cross sections of polarized same-sign W boson pairs in association with two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 812 (2021) 136018, doi:10.1016/j.physletb.2020.136018, arXiv:2009.09429 [hep-ex]
- A.M. Sirunyan et al., Evidence for electroweak production of four charged leptons and two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 812 (2021) 135992, doi:10.1016/j.physletb.2020.135992, arXiv:2008.07013 [hep-ex]
- A.M. Sirunyan et al., Measurement of b jet shapes in proton-proton collisions at  $\sqrt{s} = 5.02$  TeV, JHEP. 05 (2021) 054, doi:10.1007/JHEP05(2021)054, arXiv:2005.14219 [hep-ex]
- A.M. Sirunyan et al., Measurements of  $pp \to ZZ$  production cross sections and constraints on anomalous triple gauge couplings at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 81 (2021) 200, doi:10.1140/epjc/s10052-020-08817-8, arXiv:2009.01186 [hep-ex]
- A.M. Sirunyan et al., Measurement of the Z boson differential production cross section using its invisible decay mode (Z  $\nu\bar{\nu}$ ) in proton-proton collisions at  $\sqrt{s}=$  13 TeV, JHEP. 05 (2021) 205, doi:10.1007/JHEP05(2021)205, arXiv:2012.09254 [hep-ex]
- A.M. Sirunyan et al., Search for long-lived particles using displaced jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 104 (2021) 012015, doi:10.1103/PhysRevD.104.012015, arXiv:2012.01581 [hep-ex]
- A.M. Sirunyan et al., Search for dark photons in Higgs boson production via vector boson fusion in protonproton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 03 (2021) 011, doi:10.1007/JHEP03(2021)011, arXiv:2009.14009 [hep-ex]

February 2, 2024 10 of 64

- A.M. Sirunyan et al., Search for the lepton flavor violating decay  $\tau \to 3$   $\mu$  in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 01 (2021) 163, doi:10.1007/JHEP01(2021)163, arXiv:2007.05658 [hep-ex]
- V. Khachatryan et al., **The very forward CASTOR calorimeter of the CMS experiment**, *JINST*. 16 (2021) P02010, doi:10.1088/1748-0221/16/02/P02010, arXiv:2011.01185 [physics.ins-det]
- T.C. Collaboration et al., Search for new physics in top quark production with additional leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV using effective field theory, *JHEP*. 03 (2021) 095, doi:10.1007/JHEP03(2021)095, arXiv:2012.04120 [hep-ex]
- A.M. Sirunyan et al., Measurement of the Higgs boson production rate in association with top quarks in final states with electrons, muons, and hadronically decaying tau leptons at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 81 (2021) 378, doi:10.1140/epjc/s10052-021-09014-x, arXiv:2011.03652 [hep-ex]
- A.M. Sirunyan et al., Angular analysis of the decay B  $^+ \rightarrow$  K  $^*(892)$   $^+\mu^+\mu^-$  in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 04 (2021) 124, doi:10.1007/JHEP04(2021)124, arXiv:2010.13968 [hep-ex]
- A.M. Sirunyan et al., Search for the rare decay of the W boson into a pion and a photon in proton-proton collisions at s=13TeV, Phys. Lett. B. 819 (2021) 136409, doi:10.1016/j.physletb.2021.136409, arXiv:2011.06028 [hep-ex]
- A.M. Sirunyan et al., Search for top squark pair production using dilepton final states in pp collision data collected at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 81 (2021) 3, doi:10.1140/epjc/s10052-020-08701-5, arXiv:2008.05936 [hep-ex]
- A.M. Sirunyan et al., Studies of charm and beauty hadron long-range correlations in pp and pPb collisions at LHC energies, *Phys. Lett. B.* 813 (2021) 136036, doi:10.1016/j.physletb.2020.136036, arXiv:2009.07065 [hep-ex]
- A.M. Sirunyan et al., Observation of Forward Neutron Multiplicity Dependence of Dimuon Acoplanarity in Ultraperipheral Pb-Pb Collisions at  $\sqrt{s_{NN}}$ =5.02 TeV, Phys. Rev. Lett. 127 (2021) 122001, doi:10.1103/PhysRevLett.127.122001, arXiv:2011.05239 [hep-ex]
- A.M. Sirunyan et al., Search for nonresonant Higgs boson pair production in final states with two bottom quarks and two photons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2021) 257, doi:10.1007/JHEP03(2021)257, arXiv:2011.12373 [hep-ex]
- A.M. Sirunyan et al., Measurement of differential  $t\bar{t}$  production cross sections using top quarks at large transverse momenta in pp collisions at  $\sqrt{s}=$  13 TeV, Phys. Rev. D. 103 (2021) 052008, doi:10.1103/PhysRevD.103.052008, arXiv:2008.07860 [hep-ex]
- A.M. Sirunyan et al., Electron and photon reconstruction and identification with the CMS experiment at the CERN LHC, JINST. 16 (2021) P05014, doi:10.1088/1748-0221/16/05/P05014, arXiv:2012.06888 [hep-ex]
- A.M. Sirunyan et al., Search for dark matter produced in association with a leptonically decaying Z boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 81 (2021) 13, doi:10.1140/epjc/s10052-020-08739-5, arXiv:2008.04735 [hep-ex]
- A.M. Sirunyan et al., First measurement of the cross section for top quark pair production with additional charm jets using dileptonic final states in pp collisions at s=13TeV, Phys. Lett. B. 820 (2021) 136565, doi:10.1016/j.physletb.2021.136565, arXiv:2012.09225 [hep-ex]
- A.M. Sirunyan et al., Search for singly and pair-produced leptoquarks coupling to third-generation fermions in proton-proton collisions at s=13 TeV, Phys. Lett. B. 819 (2021) 136446, doi:10.1016/j.physletb.2021.136446, arXiv:2012.04178 [hep-ex]
- A.M. Sirunyan et al., **Evidence for Higgs boson decay to a pair of muons**, *JHEP*. 01 (2021) 148, doi:10.1007/JHEP01(2021)148, arXiv:2009.04363 [hep-ex]
- A.M. Sirunyan et al., MUSiC: a model-unspecific search for new physics in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 81 (2021) 629, doi:10.1140/epjc/s10052-021-09236-z, arXiv:2010.02984 [hep-ex]
- K. Lee et al., Probing effective field theory operators in the associated production of top quarks with a Z boson in multilepton final states at  $\sqrt{s} = 13$  TeV, *JHEP*. 12 (2021) 083, doi:10.1007/JHEP12(2021)083, arXiv:2107.13896 [hep-ex]
- A.M. Sirunyan et al., Search for top squark production in fully-hadronic final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *Phys. Rev. D.* 104 (2021) 052001, doi:10.1103/PhysRevD.104.052001, arXiv:2103.01290 [hep-ex]
- A.M. Sirunyan et al., Search for resonant and nonresonant new phenomena in high-mass dilepton final states at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2021) 208, doi:10.1007/JHEP07(2021)208, arXiv:2103.02708 [hep-ex]

February 2, 2024 11 of 64

- A. Tumasyan et al., Combined searches for the production of supersymmetric top quark partners in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 81 (2021) 970, doi:10.1140/epjc/s10052-021-09721-5, arXiv:2107.10892 [hep-ex]
- A. Tumasyan et al., Search for new particles in events with energetic jets and large missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 11 (2021) 153, doi:10.1007/JHEP11(2021)153, arXiv:2107.13021 [hep-ex]
- A. Tumasyan et al., Search for chargino-neutralino production in events with Higgs and W bosons using 137 fb  $^{-1}$  of proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 10 (2021) 045, doi:10.1007/JHEP10(2021)045, arXiv:2107.12553 [hep-ex]
- A.M. Sirunyan et al., Measurement of the W  $\gamma$  Production Cross Section in Proton-Proton Collisions at  $\sqrt{s}$ =13 TeV and Constraints on Effective Field Theory Coefficients, *Phys. Rev. Lett.* 126 (2021) 252002, doi:10.1103/PhysRevLett.126.252002, arXiv:2102.02283 [hep-ex]
- A.M. Sirunyan et al., Measurements of the differential cross sections of the production of **Z** + jets and  $\gamma$  + jets and of **Z** boson emission collinear with a jet in pp collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 05 (2021) 285, doi:10.1007/JHEP05(2021)285, arXiv:2102.02238 [hep-ex]
- A.M. Sirunyan et al., Search for a heavy vector resonance decaying to a Z boson and a Higgs boson in proton-proton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 81 (2021) 688, doi:10.1140/epjc/s10052-021-09348-6, arXiv:2102.08198 [hep-ex]
- A. Tumasyan et al., Measurement of the electroweak production of **Z**  $\gamma$  and two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV and constraints on anomalous quartic gauge couplings, *Phys. Rev. D.* 104 (2021) 072001, doi:10.1103/PhysRevD.104.072001, arXiv:2106.11082 [hep-ex]
- A.M. Sirunyan et al., Measurements of angular distance and momentum ratio distributions in three-jet and Z + two-jet final states in pp collisions, Eur. Phys. J. C. 81 (2021) 852, doi:10.1140/epjc/s10052-021-09570-2, arXiv:2102.08816 [hep-ex]
- A.M. Sirunyan et al., Search for a heavy resonance decaying to a top quark and a W boson at  $\sqrt{s} = 13$  TeV in the fully hadronic final state, *JHEP*. 12 (2021) 106, doi:10.1007/JHEP12(2021)106, arXiv:2104.12853 [hep-ex]
- A. Tumasyan et al., Measurements of the pp  $\rightarrow$  W  $^{\pm}\gamma\gamma$  and pp  $\rightarrow$  Z  $\gamma\gamma$  cross sections at  $\sqrt{s}=$  13 TeV and limits on anomalous quartic gauge couplings, *JHEP*. 10 (2021) 174, doi:10.1007/JHEP10(2021)174, arXiv:2105.12780 [hep-ex]
- A. Tumasyan et al., Measurement of the top quark mass using events with a single reconstructed top quark in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 12 (2021) 161, doi:10.1007/JHEP12(2021)161, arXiv:2108.10407 [hep-ex]
- A. Tumasyan et al., Search for Long-Lived Particles Decaying in the CMS End Cap Muon Detectors in Proton-Proton Collisions at  $\sqrt{s}$  =13 TeV, Phys. Rev. Lett. 127 (2021) 261804, doi:10.1103/PhysRevLett.127.261804, arXiv:2107.04838 [hep-ex]
- A. Tumasyan et al., Measurement of the inclusive and differential t  $\bar{t}\gamma$  cross sections in the single-lepton channel and EFT interpretation at  $\sqrt{s}=13$  TeV, JHEP. 12 (2021) 180, doi:10.1007/JHEP12(2021)180, arXiv:2107.01508 [hep-ex]
- A.M. Sirunyan et al., Search for top squarks in final states with two top quarks and several light-flavor jets in proton-proton collisions at  $\sqrt{s}=13$  TeV, Phys. Rev. D. 104 (2021) 032006, doi:10.1103/PhysRevD.104.032006, arXiv:2102.06976 [hep-ex]
- A.M. Sirunyan et al., Measurements of Higgs boson production cross sections and couplings in the diphoton decay channel at  $\sqrt{s} = 13$  TeV, *JHEP*. 07 (2021) 027, doi:10.1007/JHEP07(2021)027, arXiv:2103.06956 [hep-ex]
- A.M. Sirunyan et al., Constraints on the Initial State of Pb-Pb Collisions via Measurements of Z-Boson Yields and Azimuthal Anisotropy at  $\sqrt{s_{NN}}$ =5.02 TeV, Phys. Rev. Lett. 127 (2021) 102002, doi:10.1103/PhysRevLett.127.102002, arXiv:2103.14089 [hep-ex]
- A. Tumasyan et al., Measurement of prompt open-charm production cross sections in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 11 (2021) 225, doi:10.1007/JHEP11(2021)225, arXiv:2107.01476 [hep-ex]
- A.M. Sirunyan et al., Search for W' bosons decaying to a top and a bottom quark at s=13TeV in the hadronic final state, *Phys. Lett. B.* 820 (2021) 136535, doi:10.1016/j.physletb.2021.136535, arXiv:2104.04831 [hep-ex]

February 2, 2024 12 of 64

- A.M. Sirunyan et al., In-medium modification of dijets in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, JHEP. 05 (2021) 116, doi:10.1007/JHEP05(2021)116, arXiv:2101.04720 [hep-ex]
- A.M. Sirunyan et al., Constraints on anomalous Higgs boson couplings to vector bosons and fermions in its production and decay using the four-lepton final state, *Phys. Rev. D.* 104 (2021) 052004, doi:10.1103/PhysRevD.104.052004, arXiv:2104.12152 [hep-ex]
- A. Tumasyan et al., Measurements of the electroweak diboson production cross sections in proton-proton collisions at  $\sqrt{s} = 5.02$  TeV using leptonic decays, *Phys. Rev. Lett.* 127 (2021) 191801, doi:10.1103/PhysRevLett.127.191801, arXiv:2107.01137 [hep-ex]
- A.M. Sirunyan et al., Search for lepton-flavor violating decays of the Higgs boson in the  $\mu\tau$  and e  $\tau$  final states in proton-proton collisions at  $\sqrt{s}=$  13 TeV, Phys. Rev. D. 104 (2021) 032013, doi:10.1103/PhysRevD.104.032013, arXiv:2105.03007 [hep-ex]
- A.M. Sirunyan et al., Observation of a New Excited Beauty Strange Baryon Decaying to  $\Xi_b^-\pi^+\pi^-$ , Phys. Rev. Lett. 126 (2021) 252003, doi:10.1103/PhysRevLett.126.252003, arXiv:2102.04524 [hep-ex]
- A.M. Sirunyan et al., Search for long-lived particles decaying to jets with displaced vertices in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *Phys. Rev. D.* 104 (2021) 052011, doi:10.1103/PhysRevD.104.052011, arXiv:2104.13474 [hep-ex]
- A.M. Sirunyan et al., Measurements of production cross sections of the Higgs boson in the four-lepton final state in protonproton collisions at  $\sqrt{s}=13TeV$ , Eur. Phys. J. C. 81 (2021) 488, doi:10.1140/epjc/s10052-021-09200-x, arXiv:2103.04956 [hep-ex]
- A. Tumasyan et al., Measurement of differential  $t\bar{t}$  production cross sections in the full kinematic range using lepton+jets events from proton-proton collisions at  $\sqrt{s}=13$  TeV, Phys. Rev. D. 104 (2021) 092013, doi:10.1103/PhysRevD.104.092013, arXiv:2108.02803 [hep-ex]
- A. Tumasyan et al., Observation of tW production in the single-lepton channel in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2021) 111, doi:10.1007/JHEP11(2021)111, arXiv:2109.01706 [hep-ex]
- A.M. Sirunyan et al., First measurement of large area jet transverse momentum spectra in heavy-ion collisions, *JHEP*. 05 (2021) 284, doi:10.1007/JHEP05(2021)284, arXiv:2102.13080 [hep-ex]
- A. Tumasyan et al., Study of Z boson plus jets events using variables sensitive to double-parton scattering in pp collisions at 13 TeV, JHEP. 10 (2021) 176, doi:10.1007/JHEP10(2021)176, arXiv:2105.14511 [hep-ex]
- A.M. Sirunyan et al., Search for charged Higgs bosons produced in vector boson fusion processes and decaying into vector boson pairs in protonproton collisions at  $\sqrt{s} = 13 \, TeV$ , Eur. Phys. J. C. 81 (2021) 723, doi:10.1140/epjc/s10052-021-09472-3, arXiv:2104.04762 [hep-ex]
- A.M. Sirunyan et al., Precision luminosity measurement in proton-proton collisions at  $\sqrt{s} = 13$  TeV in 2015 and 2016 at CMS, Eur. Phys. J. C. 81 (2021) 800, doi:10.1140/epjc/s10052-021-09538-2, arXiv:2104.01927 [hep-ex]
- A. Tumasyan et al., Search for a heavy Higgs boson decaying into two lighter Higgs bosons in the  $\tau\tau$ bb final state at 13 TeV, *JHEP*. 11 (2021) 057, doi:10.1007/JHEP11(2021)057, arXiv:2106.10361 [hep-ex]
- A.M. Sirunyan et al., Study of Drell-Yan dimuon production in proton-lead collisions at  $\sqrt{s_{NN}}=8.16$  TeV, JHEP. 05 (2021) 182, doi:10.1007/JHEP05(2021)182, arXiv:2102.13648 [hep-ex]
- A.M. Sirunyan et al., Performance of the CMS muon trigger system in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JINST. 16 (2021) P07001, doi:10.1088/1748-0221/16/07/P07001, arXiv:2102.04790 [hep-ex]
- A.M. Sirunyan et al., Hard color-singlet exchange in dijet events in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 104 (2021) 032009, doi:10.1103/PhysRevD.104.032009, arXiv:2102.06945 [hep-ex]
- A.M. Sirunyan et al., Measurement of the single top quark and antiquark production cross sections in the t channel and their ratio in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 800 (2020) 135042, doi:10.1016/j.physletb.2019.135042, arXiv:1812.10514 [hep-ex]
- A.M. Sirunyan et al., Search for electroweak production of a vector-like T quark using fully hadronic final states, *JHEP*. 01 (2020) 036, doi:10.1007/JHEP01(2020)036, arXiv:1909.04721 [hep-ex]
- A.M. Sirunyan et al., Measurement of properties of B  $_s^0 \rightarrow \mu^+\mu^-$  decays and search for B  $_s^0 \rightarrow \mu^+\mu^-$  with the CMS experiment, *JHEP*. 04 (2020) 188, doi:10.1007/JHEP04(2020)188, arXiv:1910.12127 [hep-ex]

February 2, 2024 13 of 64

- A.M. Sirunyan et al., Search for a heavy Higgs boson decaying to a pair of W bosons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2020) 034, doi:10.1007/JHEP03(2020)034, arXiv:1912.01594 [hep-ex]
- A.M. Sirunyan et al., Search for a Narrow Resonance Lighter than 200 GeV Decaying to a Pair of Muons in Proton-Proton Collisions at  $\sqrt{s} = \text{TeV}$ , Phys. Rev. Lett. 124 (2020) 131802, doi:10.1103/PhysRevLett.124.131802, arXiv:1912.04776 [hep-ex]
- A.M. Sirunyan et al., Extraction and validation of a new set of CMS PYTHIA8 tunes from underlying-event measurements, Eur. Phys. J. C. 80 (2020) 4, doi:10.1140/epjc/s10052-019-7499-4, arXiv:1903.12179 [hep-ex]
- A.M. Sirunyan et al., A deep neural network to search for new long-lived particles decaying to jets, Mach. Learn. Sci. Tech. 1 (2020) 035012, doi:10.1088/2632-2153/ab9023, arXiv:1912.12238 [hep-ex]
- A.M. Sirunyan et al., Study of J/ $\psi$  meson production inside jets in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 804 (2020) 135409, doi:10.1016/j.physletb.2020.135409, arXiv:1910.01686 [hep-ex]
- A.M. Sirunyan et al., Measurement of the  $t\bar{t}b\bar{b}$  production cross section in the all-jet final state in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 803 (2020) 135285, doi:10.1016/j.physletb.2020.135285, arXiv:1909.05306 [hep-ex]
- A.M. Sirunyan et al., Search for direct pair production of supersymmetric partners to the  $\tau$  lepton in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 80 (2020) 189, doi:10.1140/epjc/s10052-020-7739-7, arXiv:1907.13179 [hep-ex]
- A.M. Sirunyan et al., Measurement of  $t\bar{t}$  normalised multi-differential cross sections in pp collisions at  $\sqrt{s} = 13$  TeV, and simultaneous determination of the strong coupling strength, top quark pole mass, and parton distribution functions, Eur. Phys. J. C. 80 (2020) 658, doi:10.1140/epjc/s10052-020-7917-7, arXiv:1904.05237 [hep-ex]
- A.M. Sirunyan et al., Measurement of the Jet Mass Distribution and Top Quark Mass in Hadronic Decays of Boosted Top Quarks in pp Collisions at  $\sqrt{s} = \text{TeV}$ , Phys. Rev. Lett. 124 (2020) 202001, doi:10.1103/PhysRevLett.124.202001, arXiv:1911.03800 [hep-ex]
- A.M. Sirunyan et al., Bose-Einstein correlations of charged hadrons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2020) 014, doi:10.1007/JHEP03(2020)014, arXiv:1910.08815 [hep-ex]
- A.M. Sirunyan et al., Search for high mass dijet resonances with a new background prediction method in protonproton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 05 (2020) 033, doi:10.1007/JHEP05(2020)033, arXiv:1911.03947 [hep-ex]
- A.M. Sirunyan et al., Calibration of the CMS hadron calorimeters using proton-proton collision data at  $\sqrt{s} =$  13 TeV, JINST. 15 (2020) P05002, doi:10.1088/1748-0221/15/05/P05002, arXiv:1910.00079 [physics.ins-det]
- A.M. Sirunyan et al., A search for the standard model Higgs boson decaying to charm quarks, *JHEP*. 03 (2020) 131, doi:10.1007/JHEP03(2020)131, arXiv:1912.01662 [hep-ex]
- A.M. Sirunyan et al., Performance of the reconstruction and identification of high-momentum muons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JINST. 15 (2020) P02027, doi:10.1088/1748-0221/15/02/P02027, arXiv:1912.03516 [physics.ins-det]
- A.M. Sirunyan et al., Strange hadron production in pp and pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Rev. C. 101 (2020) 064906, doi:10.1103/PhysRevC.101.064906, arXiv:1910.04812 [hep-ex]
- A.M. Sirunyan et al., Constraints on the  $\chi_{c1}$  versus  $\chi_{c2}$  Polarizations in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. Lett. 124 (2020) 162002, doi:10.1103/PhysRevLett.124.162002, arXiv:1912.07706 [hep-ex]
- A.M. Sirunyan et al., Evidence for WW production from double-parton interactions in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 80 (2020) 41, doi:10.1140/epjc/s10052-019-7541-6, arXiv:1909.06265 [hep-ex]
- A.M. Sirunyan et al., Studies of charm quark diffusion inside jets using PbPb and pp collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Rev. Lett. 125 (2020) 102001, doi:10.1103/PhysRevLett.125.102001, arXiv:1911.01461 [hep-ex]
- A.M. Sirunyan et al., Measurement of differential cross sections and charge ratios for t-channel single top quark production in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 80 (2020) 370, doi:10.1140/epjc/s10052-020-7858-1, arXiv:1907.08330 [hep-ex]
- A.M. Sirunyan et al., Running of the top quark mass from proton-proton collisions at  $\sqrt{s} = 13$ TeV, Phys. Lett. B. 803 (2020) 135263, doi:10.1016/j.physletb.2020.135263, arXiv:1909.09193 [hep-ex]

February 2, 2024 14 of 64

- A.M. Sirunyan et al., Search for a heavy pseudoscalar Higgs boson decaying into a 125 GeV Higgs boson and a Z boson in final states with two tau and two light leptons at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2020) 065, doi:10.1007/JHEP03(2020)065, arXiv:1910.11634 [hep-ex]
- A.M. Sirunyan et al., Measurement of the top quark forward-backward production asymmetry and the anomalous chromoelectric and chromomagnetic moments in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2020) 146, doi:10.1007/JHEP06(2020)146, arXiv:1912.09540 [hep-ex]
- A.M. Sirunyan et al., Observation of nuclear modifications in W  $^{\pm}$  boson production in pPb collisions at  $\sqrt{s_{NN}} = 8.16$  TeV, Phys. Lett. B. 800 (2020) 135048, doi:10.1016/j.physletb.2019.135048, arXiv:1905.01486 [hep-ex]
- A.M. Sirunyan et al., Search for top squark pair production in a final state with two tau leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 02 (2020) 015, doi:10.1007/JHEP02(2020)015, arXiv:1910.12932 [hep-ex]
- A.M. Sirunyan et al., Search for physics beyond the standard model in multilepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2020) 051, doi:10.1007/JHEP03(2020)051, arXiv:1911.04968 [hep-ex]
- A.M. Sirunyan et al., Search for dijet resonances using events with three jets in proton-proton collisions at s=13TeV, Phys. Lett. B. 805 (2020) 135448, doi:10.1016/j.physletb.2020.135448, arXiv:1911.03761 [hep-ex]
- A.M. Sirunyan et al., Observation of the  $\Lambda_b^0 \to \mathbf{J}/\psi \Lambda \phi$  decay in proton-proton collisions at  $\sqrt{s} = \mathbf{13}$  TeV, Phys. Lett. B. 802 (2020) 135203, doi:10.1016/j.physletb.2020.135203, arXiv:1911.03789 [hep-ex]
- A.M. Sirunyan et al., Mixed higher-order anisotropic flow and nonlinear response coefficients of charged particles in PbPb collisions at  $\sqrt{s_{_{NN}}} = 2.76$  and 5.02 TeV, Eur. Phys. J. C. 80 (2020) 534, doi:10.1140/epjc/s10052-020-7834-9, arXiv:1910.08789 [hep-ex]
- A.M. Sirunyan et al., Measurement of electroweak production of a W boson in association with two jets in proton-proton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 80 (2020) 43, doi:10.1140/epjc/s10052-019-7585-7, arXiv:1903.04040 [hep-ex]
- A.M. Sirunyan et al., Determination of the strong coupling constant  $\alpha_S(m_Z)$  from measurements of inclusive W  $^{\pm}$  and Z boson production cross sections in proton-proton collisions at  $\sqrt{s}=7$  and 8 TeV, *JHEP*. 06 (2020) 018, doi:10.1007/JHEP06(2020)018, arXiv:1912.04387 [hep-ex]
- A.M. Sirunyan et al., Search for new neutral Higgs bosons through the  $\mathbf{H} \to \mathbf{Z}\mathbf{A} \to \ell^+\ell^-b\bar{b}$  process in pp collisions at  $\sqrt{s} = \mathbf{13}$  TeV, JHEP. 03 (2020) 055, doi:10.1007/JHEP03(2020)055, arXiv:1911.03781 [hep-ex]
- A.M. Sirunyan et al., Combined search for supersymmetry with photons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 801 (2020) 135183, doi:10.1016/j.physletb.2019.135183, arXiv:1907.00857 [hep-ex]
- A.M. Sirunyan et al., Search for lepton flavour violating decays of a neutral heavy Higgs boson to  $\mu\tau$  and e  $\tau$  in proton-proton collisions at  $\sqrt{s}=$  13 TeV, JHEP. 03 (2020) 103, doi:10.1007/JHEP03(2020)103, arXiv:1911.10267 [hep-ex]
- A.M. Sirunyan et al., A multi-dimensional search for new heavy resonances decaying to boosted WW, WZ, or ZZ boson pairs in the dijet final state at 13 TeV, Eur. Phys. J. C. 80 (2020) 237, doi:10.1140/epjc/s10052-020-7773-5, arXiv:1906.05977 [hep-ex]
- A.M. Sirunyan et al., Search for a charged Higgs boson decaying into top and bottom quarks in events with electrons or muons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP.~01~(2020)~096, doi:10.1007/JHEP01(2020)096, arXiv:1908.09206 [hep-ex]
- A.M. Sirunyan et al., Search for production of four top quarks in final states with same-sign or multiple leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 80 (2020) 75, doi:10.1140/epjc/s10052-019-7593-7, arXiv:1908.06463 [hep-ex]
- A.M. Sirunyan et al., Measurement of the top quark pair production cross section in dilepton final states containing one  $\tau$  lepton in pp collisions at  $\sqrt{s}=$  13 TeV, JHEP. 02 (2020) 191, doi:10.1007/JHEP02(2020)191, arXiv:1911.13204 [hep-ex]
- A.M. Sirunyan et al., Search for light pseudoscalar boson pairs produced from decays of the 125 GeV Higgs boson in final states with two muons and two nearby tracks in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 800 (2020) 135087, doi:10.1016/j.physletb.2019.135087, arXiv:1907.07235 [hep-ex]
- A.M. Sirunyan et al., Measurement of top quark pair production in association with a Z boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2020) 056, doi:10.1007/JHEP03(2020)056, arXiv:1907.11270 [hep-ex]

February 2, 2024 15 of 64

- A.M. Sirunyan et al., Production of  $\Lambda_c^+$  baryons in proton-proton and lead-lead collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 803 (2020) 135328, doi:10.1016/j.physletb.2020.135328, arXiv:1906.03322 [hep-ex]
- A.M. Sirunyan et al., A Deep Neural Network for Simultaneous Estimation of b Jet Energy and Resolution, Comput. Softw. Big Sci. 4 (2020) 10, doi:10.1007/s41781-020-00041-z, arXiv:1912.06046 [physics.data-an]
- A.M. Sirunyan et al., Multiparticle correlation studies in pPb collisions at  $\sqrt{s_{NN}} = 8.16$  TeV, Phys. Rev. C. 101 (2020) 014912, doi:10.1103/PhysRevC.101.014912, arXiv:1904.11519 [hep-ex]
- A.M. Sirunyan et al., Searches for physics beyond the standard model with the  $M_{T2}$  variable in hadronic final states with and without disappearing tracks in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 80 (2020) 3, doi:10.1140/epjc/s10052-019-7493-x, arXiv:1909.03460 [hep-ex]
- A.M. Sirunyan et al., Search for dark matter particles produced in association with a Higgs boson in protonproton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 03 (2020) 025, doi:10.1007/JHEP03(2020)025, arXiv:1908.01713 [hep-ex]
- A.M. Sirunyan et al., Search for direct top squark pair production in events with one lepton, jets, and missing transverse momentum at 13 TeV with the CMS experiment, *JHEP*. 05 (2020) 032, doi:10.1007/JHEP05(2020)032, arXiv:1912.08887 [hep-ex]
- A.M. Sirunyan et al., Search for Supersymmetry with a Compressed Mass Spectrum in Events with a Soft  $\tau$  Lepton, a Highly Energetic Jet, and Large Missing Transverse Momentum in Proton-Proton Collisions at  $\sqrt{s} = \text{TeV}$ , Phys. Rev. Lett. 124 (2020) 041803, doi:10.1103/PhysRevLett.124.041803, arXiv:1910.01185 [hep-ex]
- A.M. Sirunyan et al., Evidence for Top Quark Production in Nucleus-Nucleus Collisions, Phys. Rev. Lett. 125 (2020) 222001, doi:10.1103/PhysRevLett.125.222001, arXiv:2006.11110 [hep-ex]
- A.M. Sirunyan et al., Search for disappearing tracks in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 806 (2020) 135502, doi:10.1016/j.physletb.2020.135502, arXiv:2004.05153 [hep-ex]
- A.M. Sirunyan et al., Dependence of inclusive jet production on the anti-k  $_T$  distance parameter in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 12 (2020) 082, doi:10.1007/JHEP12(2020)082, arXiv:2005.05159 [hep-ex]
- A.M. Sirunyan et al., Search for an excited lepton that decays via a contact interaction to a lepton and two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 05 (2020) 052, doi:10.1007/JHEP05(2020)052, arXiv:2001.04521 [hep-ex]
- A.M. Sirunyan et al., Measurements of  $t\bar{t}H$  Production and the CP Structure of the Yukawa Interaction between the Higgs Boson and Top Quark in the Diphoton Decay Channel, *Phys. Rev. Lett.* 125 (2020) 061801, doi:10.1103/PhysRevLett.125.061801, arXiv:2003.10866 [hep-ex]
- A.M. Sirunyan et al., Performance of the CMS Level-1 trigger in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JINST. 15 (2020) P10017, doi:10.1088/1748-0221/15/10/P10017, arXiv:2006.10165 [hep-ex]
- A.M. Sirunyan et al., Measurements of the W boson rapidity, helicity, double-differential cross sections, and charge asymmetry in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 102 (2020) 092012, doi:10.1103/PhysRevD.102.092012, arXiv:2008.04174 [hep-ex]
- A.M. Sirunyan et al., Search for physics beyond the standard model in events with jets and two same-sign or at least three charged leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 80 (2020) 752, doi:10.1140/epjc/s10052-020-8168-3, arXiv:2001.10086 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in pp collisions at  $\sqrt{s} = 13$  TeV with 137 fb  $^{-1}$  in final states with a single lepton using the sum of masses of large-radius jets, *Phys. Rev. D.* 101 (2020) 052010, doi:10.1103/PhysRevD.101.052010, arXiv:1911.07558 [hep-ex]
- A.M. Sirunyan et al., Measurement of the top quark Yukawa coupling from  $t\bar{t}$  kinematic distributions in the dilepton final state in proton-proton collisions at  $\sqrt{s}=13$  TeV, Phys. Rev. D. 102 (2020) 092013, doi:10.1103/PhysRevD.102.092013, arXiv:2009.07123 [hep-ex]
- A.M. Sirunyan et al., Measurement of single-diffractive dijet production in proton-proton collisions at  $\sqrt{s}=8$  TeV with the CMS and TOTEM experiments, Eur. Phys. J. C. 80 (2020) 1164, doi:10.1140/epjc/s10052-020-08562-y, arXiv:2002.12146 [hep-ex]
- A.M. Sirunyan et al., **Pileup mitigation at CMS in 13 TeV data**, *JINST*. 15 (2020) P09018, doi:10.1088/1748-0221/15/09/P09018, arXiv:2003.00503 [hep-ex]

February 2, 2024 16 of 64

- A.M. Sirunyan et al., **Observation of the B**  $_s^0 \rightarrow \mathbf{X(3872)}$   $\phi$  **decay**, *Phys. Rev. Lett.* 125 (2020) 152001, doi:10.1103/PhysRevLett.125.152001, arXiv:2005.04764 [hep-ex]
- G. Aad et al., Combination of the W boson polarization measurements in top quark decays using ATLAS and CMS data at  $\sqrt{s} = 8$  TeV, *JHEP*. 08 (2020) 051, doi:10.1007/JHEP08(2020)051, arXiv:2005.03799 [hep-ex]
- A.M. Sirunyan et al., Investigation into the event-activity dependence of  $\Upsilon(nS)$  relative production in proton-proton collisions at  $\sqrt{s} = 7$  TeV, JHEP. 11 (2020) 001, doi:10.1007/JHEP11(2020)001, arXiv:2007.04277 [hep-ex]
- A.M. Sirunyan et al., Search for a light pseudoscalar Higgs boson in the boosted  $\mu\mu\tau\tau$  final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 08 (2020) 139, doi:10.1007/JHEP08(2020)139, arXiv:2005.08694 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in proton-proton collisions at  $\sqrt{s} = 13$  TeV in events with high-momentum Z bosons and missing transverse momentum, *JHEP*. 09 (2020) 149, doi:10.1007/JHEP09(2020)149, arXiv:2008.04422 [hep-ex]
- A.M. Sirunyan et al., Measurements of production cross sections of WZ and same-sign WW boson pairs in association with two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 809 (2020) 135710, doi:10.1016/j.physletb.2020.135710, arXiv:2005.01173 [hep-ex]
- A.M. Sirunyan et al., Search for decays of the 125 GeV Higgs boson into a Z boson and a  $\rho$  or  $\phi$  meson, JHEP. 11 (2020) 039, doi:10.1007/JHEP11(2020)039, arXiv:2007.05122 [hep-ex]
- A.M. Sirunyan et al., Measurement of the cross section for  $t\bar{t}$  production with additional jets and b jets in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2020) 125, doi:10.1007/JHEP07(2020)125, arXiv:2003.06467 [hep-ex]
- A.M. Sirunyan et al., Measurement of the associated production of a Z boson with charm or bottom quark jets in proton-proton collisions at  $\sqrt{s}$ =13 TeV, Phys. Rev. D. 102 (2020) 032007, doi:10.1103/PhysRevD.102.032007, arXiv:2001.06899 [hep-ex]
- A.M. Sirunyan et al., Search for charged Higgs bosons decaying into a top and a bottom quark in the all-jet final state of pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2020) 126, doi:10.1007/JHEP07(2020)126, arXiv:2001.07763 [hep-ex]
- A.M. Sirunyan et al., Measurement of the cross section for electroweak production of a Z boson, a photon and two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV and constraints on anomalous quartic couplings, *JHEP*. 06 (2020) 076, doi:10.1007/JHEP06(2020)076, arXiv:2002.09902 [hep-ex]
- A.M. Sirunyan et al., Study of central exclusive  $\pi^+\pi^-$  production in proton-proton collisions at  $\sqrt{s} = 5.02$  and 13 TeV, Eur. Phys. J. C. 80 (2020) 718, doi:10.1140/epjc/s10052-020-8166-5, arXiv:2003.02811 [hep-ex]
- A.M. Sirunyan et al., Search for resonant pair production of Higgs bosons in the bbZZ channel in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 102 (2020) 032003, doi:10.1103/PhysRevD.102.032003, arXiv:2006.06391 [hep-ex]
- A.M. Sirunyan et al., Measurements with silicon photomultipliers of dose-rate effects in the radiation damage of plastic scintillator tiles in the CMS hadron endcap calorimeter, JINST. 15 (2020) P06009, doi:10.1088/1748-0221/15/06/P06009, arXiv:2001.06553 [physics.ins-det]
- A.M. Sirunyan et al., W  $^+$ W  $^-$  boson pair production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 102 (2020) 092001, doi:10.1103/PhysRevD.102.092001, arXiv:2009.00119 [hep-ex]
- A.M. Sirunyan et al., The production of isolated photons in PbPb and pp collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, JHEP. 07 (2020) 116, doi:10.1007/JHEP07(2020)116, arXiv:2003.12797 [hep-ex]
- A.M. Sirunyan et al., Search for a light charged Higgs boson in the H  $^{\pm}\rightarrow$  cs channel in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 102 (2020) 072001, doi:10.1103/PhysRevD.102.072001, arXiv:2005.08900 [hep-ex]
- A.M. Sirunyan et al., Measurement of quark- and gluon-like jet fractions using jet charge in PbPb and pp collisions at 5.02 TeV, JHEP. 07 (2020) 115, doi:10.1007/JHEP07(2020)115, arXiv:2004.00602 [hep-ex]
- A.M. Sirunyan et al., **Identification of heavy, energetic, hadronically decaying particles using machine-learning techniques**, *JINST*. 15 (2020) P06005, doi:10.1088/1748-0221/15/06/P06005, arXiv:2004.08262 [hep-ex]
- A.M. Sirunyan et al., Measurement of the  $\Upsilon(1S)$  pair production cross section and search for resonances decaying to  $\Upsilon(1S)$   $\mu^+\mu^-$  in proton-proton collisions at  $\sqrt{s}=13$  TeV, Phys. Lett. B. 808 (2020) 135578, doi:10.1016/j.physletb.2020.135578, arXiv:2002.06393 [hep-ex]

February 2, 2024 17 of 64

- A.M. Sirunyan et al., Measurement of B  $_c(2S)$  + and B  $_c^*(2S)$  + cross section ratios in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *Phys. Rev. D.* 102 (2020) 092007, doi:10.1103/PhysRevD.102.092007, arXiv:2008.08629 [hep-ex]
- A.M. Sirunyan et al., A search for bottom-type, vector-like quark pair production in a fully hadronic final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 102 (2020) 112004, doi:10.1103/PhysRevD.102.112004, arXiv:2008.09835 [hep-ex]
- A.M. Sirunyan et al., Measurement of CKM matrix elements in single top quark t-channel production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 808 (2020) 135609, doi:10.1016/j.physletb.2020.135609, arXiv:2004.12181 [hep-ex]
- A.M. Sirunyan et al., Reconstruction of signal amplitudes in the CMS electromagnetic calorimeter in the presence of overlapping proton-proton interactions, *JINST*. 15 (2020) P10002, doi:10.1088/1748-0221/15/10/P10002, arXiv:2006.14359 [physics.ins-det]
- A.M. Sirunyan et al., A measurement of the Higgs boson mass in the diphoton decay channel, *Phys. Lett. B.* 805 (2020) 135425, doi:10.1016/j.physletb.2020.135425, arXiv:2002.06398 [hep-ex]
- A.M. Sirunyan et al., Observation of electroweak production of W  $\gamma$  with two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *Phys. Lett. B.* 811 (2020) 135988, doi:10.1016/j.physletb.2020.135988, arXiv:2008.10521 [hep-ex]
- A.M. Sirunyan et al., Inclusive search for highly boosted Higgs bosons decaying to bottom quark-antiquark pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 12 (2020) 085, doi:10.1007/JHEP12(2020)085, arXiv:2006.13251 [hep-ex]
- A.M. Sirunyan et al., Study of excited  $\Lambda_b^0$  states decaying to  $\Lambda_b^0 \pi^+ \pi^-$  in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 803 (2020) 135345, doi:10.1016/j.physletb.2020.135345, arXiv:2001.06533 [hep-ex]
- M. Aaboud et al., Combinations of single-top-quark production cross-section measurements and f  $_{LV}$ V  $_{tb}$  determinations at  $\sqrt{s}=7$  and 8 TeV with the ATLAS and CMS experiments, JHEP. 05 (2019) 088, doi:10.1007/JHEP05(2019)088, arXiv:1902.07158 [hep-ex]
- A.M. Sirunyan et al., Non-Gaussian elliptic-flow fluctuations in PbPb collisions at  $\sqrt{s_{_{NN}}} = 5.02$  TeV, Phys. Lett. B. 789 (2019) 643–665, doi:10.1016/j.physletb.2018.11.063, arXiv:1711.05594 [nucl-ex]
- A.M. Sirunyan et al., Probing the chiral magnetic wave in pPb and PbPb collisions at  $\sqrt{s_{NN}}$  =5.02TeV using charge-dependent azimuthal anisotropies, Phys. Rev. C. 100 (2019) 064908, doi:10.1103/PhysRevC.100.064908, arXiv:1708.08901 [nucl-ex]
- A.M. Sirunyan et al., Measurements of  $t\bar{t}$  differential cross sections in proton-proton collisions at  $\sqrt{s} = 13$  TeV using events containing two leptons, *JHEP*. 02 (2019) 149, doi:10.1007/JHEP02(2019)149, arXiv:1811.06625 [hep-ex]
- A.M. Sirunyan et al., Measurement of exclusive  $\Upsilon$  photoproduction from protons in pPb collisions at  $\sqrt{s_{NN}}=$  5.02 TeV, Eur. Phys. J. C. 79 (2019) 277, doi:10.1140/epjc/s10052-019-6774-8, arXiv:1809.11080 [hep-ex]
- A.M. Sirunyan et al., Search for new particles decaying to a jet and an emerging jet, JHEP. 02 (2019) 179, doi:10.1007/JHEP02(2019)179, arXiv:1810.10069 [hep-ex]
- A.M. Sirunyan et al., Studies of Beauty Suppression via Nonprompt  $D^0$  Mesons in Pb-Pb Collisions at  $Q^2 = 4 \text{GeV}^2$ , Phys. Rev. Lett. 123 (2019) 022001, doi:10.1103/PhysRevLett.123.022001, arXiv:1810.11102 [hep-ex]
- A.M. Sirunyan et al., Measurement of differential cross sections for Z boson pair production in association with jets at  $\sqrt{s} = 8$  and 13 TeV, Phys. Lett. B. 789 (2019) 19–44, doi:10.1016/j.physletb.2018.11.007, arXiv:1806.11073 [hep-ex]
- A.M. Sirunyan et al., Search for narrow H  $\gamma$  resonances in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 122 (2019) 081804, doi:10.1103/PhysRevLett.122.081804, arXiv:1808.01257 [hep-ex]
- A.M. Sirunyan et al., Measurement of inclusive and differential Higgs boson production cross sections in the diphoton decay channel in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 01 (2019) 183, doi:10.1007/JHEP01(2019)183, arXiv:1807.03825 [hep-ex]
- A.M. Sirunyan et al., Search for a standard model-like Higgs boson in the mass range between 70 and 110 GeV in the diphoton final state in proton-proton collisions at  $\sqrt{s} = 8$  and 13 TeV, Phys. Lett. B. 793 (2019) 320–347, doi:10.1016/j.physletb.2019.03.064, arXiv:1811.08459 [hep-ex]
- A.M. Sirunyan et al., Search for single production of vector-like quarks decaying to a top quark and a W boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 90, doi:10.1140/epjc/s10052-019-6556-3, arXiv:1809.08597 [hep-ex]

February 2, 2024 18 of 64

- A.M. Sirunyan et al., Observation of prompt J/ $\psi$  meson elliptic flow in high-multiplicity pPb collisions at  $\sqrt{s_{NN}} = 8.16$  TeV, Phys. Lett. B. 791 (2019) 172–194, doi:10.1016/j.physletb.2019.02.018, arXiv:1810.01473 [hep-ex]
- A.M. Sirunyan et al., Measurement of associated production of a W boson and a charm quark in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 269, doi:10.1140/epjc/s10052-019-6752-1, arXiv:1811.10021 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetric partners of electrons and muons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *Phys. Lett. B.* 790 (2019) 140–166, doi:10.1016/j.physletb.2019.01.005, arXiv:1806.05264 [hep-ex]
- A.M. Sirunyan et al., Evidence for light-by-light scattering and searches for axion-like particles in ultraperipheral PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 797 (2019) 134826, doi:10.1016/j.physletb.2019.134826, arXiv:1810.04602 [hep-ex]
- A.M. Sirunyan et al., Measurement of B  $_s^0$  meson production in pp and PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 796 (2019) 168–190, doi:10.1016/j.physletb.2019.07.014, arXiv:1810.03022 [hep-ex]
- A.M. Sirunyan et al., Search for new physics in final states with a single photon and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 02 (2019) 074, doi:10.1007/JHEP02(2019)074, arXiv:1810.00196 [hep-ex]
- A.M. Sirunyan et al., Measurement of the  $t\bar{t}$  production cross section, the top quark mass, and the strong coupling constant using dilepton events in pp collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 368, doi:10.1140/epjc/s10052-019-6863-8, arXiv:1812.10505 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in events with a photon, a lepton, and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 01 (2019) 154, doi:10.1007/JHEP01(2019)154, arXiv:1812.04066 [hep-ex]
- A.M. Sirunyan et al., Search for a W' boson decaying to a  $\tau$  lepton and a neutrino in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *Phys. Lett. B.* 792 (2019) 107–131, doi:10.1016/j.physletb.2019.01.069, arXiv:1807.11421 [hep-ex]
- A.M. Sirunyan et al., Measurement of prompt  $\psi(\mathbf{2S})$  production cross sections in proton-lead and proton-proton collisions at  $\sqrt{s_{_{NN}}} = \mathbf{5.02}$  TeV, Phys. Lett. B. 790 (2019) 509–532, doi:10.1016/j.physletb.2019.01.058, arXiv:1805.02248 [hep-ex]
- A.M. Sirunyan et al., Search for rare decays of **Z** and Higgs bosons to J / $\psi$  and a photon in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 94, doi:10.1140/epjc/s10052-019-6562-5, arXiv:1810.10056 [hep-ex]
- A.M. Sirunyan et al., Measurement and interpretation of differential cross sections for Higgs boson production at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 792 (2019) 369–396, doi:10.1016/j.physletb.2019.03.059, arXiv:1812.06504 [hep-ex]
- A.M. Sirunyan et al., Search for  $t\bar{t}H$  production in the  $H\to b\bar{b}$  decay channel with leptonic  $t\bar{t}$  decays in protonproton collisions at  $\sqrt{s}=13$  TeV, JHEP.~03~(2019)~026,~doi:10.1007/JHEP03(2019)026,~arXiv:1804.03682~[hep-ex]
- A.M. Sirunyan et al., Search for pair-produced three-jet resonances in proton-proton collisions at  $\sqrt{s}$  =13 TeV, Phys. Rev. D. 99 (2019) 012010, doi:10.1103/PhysRevD.99.012010, arXiv:1810.10092 [hep-ex]
- A.M. Sirunyan et al., Combination of searches for Higgs boson pair production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 122 (2019) 121803, doi:10.1103/PhysRevLett.122.121803, arXiv:1811.09689 [hep-ex]
- A.M. Sirunyan et al., Search for heavy neutrinos and third-generation leptoquarks in hadronic states of two  $\tau$  leptons and two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP.~03~(2019)~170,~doi:10.1007/JHEP03(2019)170,~arXiv:1811.00806~[hep-ex]
- A.M. Sirunyan et al., Jet Shapes of Isolated Photon-Tagged Jets in Pb-Pb and pp Collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Rev. Lett. 122 (2019) 152001, doi:10.1103/PhysRevLett.122.152001, arXiv:1809.08602 [hep-ex]
- A.M. Sirunyan et al., Search for associated production of a Higgs boson and a single top quark in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 99 (2019) 092005, doi:10.1103/PhysRevD.99.092005, arXiv:1811.09696 [hep-ex]
- A.M. Sirunyan et al., A search for pair production of new light bosons decaying into muons in proton-proton collisions at 13 TeV, Phys. Lett. B. 796 (2019) 131–154, doi:10.1016/j.physletb.2019.07.013, arXiv:1812.00380 [hep-ex]
- A.M. Sirunyan et al., Search for heavy Majorana neutrinos in same-sign dilepton channels in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 01 (2019) 122, doi:10.1007/JHEP01(2019)122, arXiv:1806.10905 [hep-ex]

February 2, 2024 19 of 64

- A.M. Sirunyan et al., Search for heavy resonances decaying into two Higgs bosons or into a Higgs boson and a W or Z boson in proton-proton collisions at 13 TeV, *JHEP*. 01 (2019) 051, doi:10.1007/JHEP01(2019)051, arXiv:1808.01365 [hep-ex]
- A.M. Sirunyan et al., Search for pair production of second-generation leptoquarks at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 99 (2019) 032014, doi:10.1103/PhysRevD.99.032014, arXiv:1808.05082 [hep-ex]
- A.M. Sirunyan et al., Measurement of the energy density as a function of pseudorapidity in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 391, doi:10.1140/epjc/s10052-019-6861-x, arXiv:1812.04095 [hep-ex]
- A.M. Sirunyan et al., Study of the underlying event in top quark pair production in pp collisions at 13 TeV, Eur. Phys. J. C. 79 (2019) 123, doi:10.1140/epjc/s10052-019-6620-z, arXiv:1807.02810 [hep-ex]
- A.M. Sirunyan et al., Measurement of the differential Drell-Yan cross section in proton-proton collisions at  $\sqrt{s}$  = 13 TeV, *JHEP*. 12 (2019) 059, doi:10.1007/JHEP12(2019)059, arXiv:1812.10529 [hep-ex]
- A.M. Sirunyan et al., Search for the Higgs boson decaying to two muons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 122 (2019) 021801, doi:10.1103/PhysRevLett.122.021801, arXiv:1807.06325 [hep-ex]
- A.M. Sirunyan et al., Search for pair production of first-generation scalar leptoquarks at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 99 (2019) 052002, doi:10.1103/PhysRevD.99.052002, arXiv:1811.01197 [hep-ex]
- A.M. Sirunyan et al., Search for contact interactions and large extra dimensions in the dilepton mass spectra from proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 04 (2019) 114, doi:10.1007/JHEP04(2019)114, arXiv:1812.10443 [hep-ex]
- A.M. Sirunyan et al., Search for an exotic decay of the Higgs boson to a pair of light pseudoscalars in the final state with two muons and two b quarks in pp collisions at 13 TeV, *Phys. Lett. B.* 795 (2019) 398–423, doi:10.1016/j.physletb.2019.06.021, arXiv:1812.06359 [hep-ex]
- A.M. Sirunyan et al., Search for low-mass resonances decaying into bottom quark-antiquark pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 99 (2019) 012005, doi:10.1103/PhysRevD.99.012005, arXiv:1810.11822 [hep-ex]
- A.M. Sirunyan et al., Measurement of differential cross sections for inclusive isolated-photon and photon+jets production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 20, doi:10.1140/epjc/s10052-018-6482-9, arXiv:1807.00782 [hep-ex]
- A.M. Sirunyan et al., Search for long-lived particles decaying into displaced jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 99 (2019) 032011, doi:10.1103/PhysRevD.99.032011, arXiv:1811.07991 [hep-ex]
- A.M. Sirunyan et al., Search for resonant  $t\bar{t}$  production in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 04 (2019) 031, doi:10.1007/JHEP04(2019)031, arXiv:1810.05905 [hep-ex]
- A.M. Sirunyan et al., Inclusive search for supersymmetry in pp collisions at  $\sqrt{s} = 13$  TeV using razor variables and boosted object identification in zero and one lepton final states, *JHEP*. 03 (2019) 031, doi:10.1007/JHEP03(2019)031, arXiv:1812.06302 [hep-ex]
- A.M. Sirunyan et al., Search for a W' boson decaying to a vector-like quark and a top or bottom quark in the all-jets final state, *JHEP*. 03 (2019) 127, doi:10.1007/JHEP03(2019)127, arXiv:1811.07010 [hep-ex]
- A.M. Sirunyan et al., Search for excited leptons in  $\ell\ell\gamma$  final states in proton-proton collisions at  $\sqrt{s}=$  13 TeV, JHEP. 04 (2019) 015, doi:10.1007/JHEP04(2019)015, arXiv:1811.03052 [hep-ex]
- A.M. Sirunyan et al., Observation of Single Top Quark Production in Association with a Z Boson in Proton-Proton Collisions at  $\sqrt{s}$  =13 TeV, Phys. Rev. Lett. 122 (2019) 132003, doi:10.1103/PhysRevLett.122.132003, arXiv:1812.05900 [hep-ex]
- A.M. Sirunyan et al., Search for resonant production of second-generation sleptons with same-sign dimuon events in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 305, doi:10.1140/epjc/s10052-019-6800-x, arXiv:1811.09760 [hep-ex]
- A.M. Sirunyan et al., Search for nonresonant Higgs boson pair production in the  $b\bar{b}b\bar{b}$  final state at  $\sqrt{s} = 13$  TeV, JHEP. 04 (2019) 112, doi:10.1007/JHEP04(2019)112, arXiv:1810.11854 [hep-ex]
- A.M. Sirunyan et al., Search for Higgs boson pair production in the  $\gamma\gamma b\bar{b}$  final state in pp collisions at  $\sqrt{s}=13$  TeV, Phys. Lett. B. 788 (2019) 7–36, doi:10.1016/j.physletb.2018.10.056, arXiv:1806.00408 [hep-ex]

February 2, 2024 20 of 64

- A.M. Sirunyan et al., Measurement of the top quark mass in the all-jets final state at  $\sqrt{s} = 13$  TeV and combination with the lepton+jets channel, Eur. Phys. J. C. 79 (2019) 313, doi:10.1140/epjc/s10052-019-6788-2, arXiv:1812.10534 [hep-ex]
- A.M. Sirunyan et al., Combined measurements of Higgs boson couplings in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 79 (2019) 421, doi:10.1140/epjc/s10052-019-6909-y, arXiv:1809.10733 [hep-ex]
- A.M. Sirunyan et al., Search for top quark partners with charge 5/3 in the same-sign dilepton and single-lepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2019) 082, doi:10.1007/JHEP03(2019)082, arXiv:1810.03188 [hep-ex]
- A.M. Sirunyan et al., Search for production of Higgs boson pairs in the four b quark final state using large-area jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 01 (2019) 040, doi:10.1007/JHEP01(2019)040, arXiv:1808.01473 [hep-ex]
- A.M. Sirunyan et al., Search for the associated production of the Higgs boson and a vector boson in proton-proton collisions at  $\sqrt{s}=$  13 TeV via Higgs boson decays to  $\tau$  leptons, *JHEP*. 06 (2019) 093, doi:10.1007/JHEP06(2019)093, arXiv:1809.03590 [hep-ex]
- A.M. Sirunyan et al., Search for a heavy resonance decaying to a top quark and a vector-like top quark in the lepton+jets final state in pp collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 208, doi:10.1140/epjc/s10052-019-6688-5, arXiv:1812.06489 [hep-ex]
- A.M. Sirunyan et al., Search for vector-like quarks in events with two oppositely charged leptons and jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 364, doi:10.1140/epjc/s10052-019-6855-8, arXiv:1812.09768 [hep-ex]
- A.M. Sirunyan et al., Centrality and pseudorapidity dependence of the transverse energy density in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Rev. C. 100 (2019) 024902, doi:10.1103/PhysRevC.100.024902, arXiv:1810.05745 [hep-ex]
- A.M. Sirunyan et al., Search for invisible decays of a Higgs boson produced through vector boson fusion in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 793 (2019) 520–551, doi:10.1016/j.physletb.2019.04.025, arXiv:1809.05937 [hep-ex]
- A.M. Sirunyan et al., Measurement of inclusive very forward jet cross sections in proton-lead collisions at  $\sqrt{s_{NN}}$  = 5.02 TeV, JHEP. 05 (2019) 043, doi:10.1007/JHEP05(2019)043, arXiv:1812.01691 [hep-ex]
- A.M. Sirunyan et al., Search for dark matter in events with a leptoquark and missing transverse momentum in proton-proton collisions at 13 TeV, *Phys. Lett. B.* 795 (2019) 76–99, doi:10.1016/j.physletb.2019.05.046, arXiv:1811.10151 [hep-ex]
- A.M. Sirunyan et al., Search for dark matter particles produced in association with a top quark pair at  $\sqrt{s} =$  13 TeV, Phys. Rev. Lett. 122 (2019) 011803, doi:10.1103/PhysRevLett.122.011803, arXiv:1807.06522 [hep-ex]
- A.M. Sirunyan et al., Search for an  $L_{\mu}-L_{\tau}$  gauge boson using  $\mathbf{Z}\to 4\mu$  events in proton-proton collisions at  $\sqrt{s}=$  13 TeV, Phys. Lett. B. 792 (2019) 345–368, doi:10.1016/j.physletb.2019.01.072, arXiv:1808.03684 [hep-ex]
- A.M. Sirunyan et al., Measurement of nuclear modification factors of  $\Upsilon(1S)$ ,  $\Upsilon(2S)$ , and  $\Upsilon(3S)$  mesons in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 790 (2019) 270–293, doi:10.1016/j.physletb.2019.01.006, arXiv:1805.09215 [hep-ex]
- A.M. Sirunyan et al., Measurements of properties of the Higgs boson decaying to a W boson pair in pp collisions at  $\sqrt{s} = 13$  TeV, *Phys. Lett. B.* 791 (2019) 96, doi:10.1016/j.physletb.2018.12.073, arXiv:1806.05246 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in events with a photon, jets, b-jets, and missing transverse momentum in protonproton collisions at 13 TeV, Eur. Phys. J. C. 79 (2019) 444, doi:10.1140/epjc/s10052-019-6926-x, arXiv:1901.06726 [hep-ex]
- A.M. Sirunyan et al., Search for dark photons in decays of Higgs bosons produced in association with Z bosons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 10 (2019) 139, doi:10.1007/JHEP10(2019)139, arXiv:1908.02699 [hep-ex]
- A.M. Sirunyan et al., Measurement of the top quark Yukawa coupling from  $t\bar{t}$  kinematic distributions in the lepton+jets final state in proton-proton collisions at  $\sqrt{s}=13$  TeV, Phys. Rev. D. 100 (2019) 072007, doi:10.1103/PhysRevD.100.072007, arXiv:1907.01590 [hep-ex]

February 2, 2024 21 of 64

- A.M. Sirunyan et al., Measurement of exclusive  $\rho(770)^0$  photoproduction in ultraperipheral pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Eur. Phys. J. C. 79 (2019) 702, doi:10.1140/epjc/s10052-019-7202-9, arXiv:1902.01339 [hep-ex]
- A.M. Sirunyan et al., Search for charged Higgs bosons in the H  $^{\pm} \rightarrow \tau^{\pm} \nu_{\tau}$  decay channel in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2019) 142, doi:10.1007/JHEP07(2019)142, arXiv:1903.04560 [hep-ex]
- A.M. Sirunyan et al., Performance of missing transverse momentum reconstruction in proton-proton collisions at  $\sqrt{s} = 13$  TeV using the CMS detector, JINST. 14 (2019) P07004, doi:10.1088/1748-0221/14/07/P07004, arXiv:1903.06078 [hep-ex]
- A.M. Sirunyan et al., Charged-particle angular correlations in XeXe collisions at  $\sqrt{s_{_{NN}}} = 5.44$  TeV, Phys. Rev. C. 100 (2019) 044902, doi:10.1103/PhysRevC.100.044902, arXiv:1901.07997 [hep-ex]
- A.M. Sirunyan et al., Measurements of the pp  $\rightarrow$  WZ inclusive and differential production cross section and constraints on charged anomalous triple gauge couplings at  $\sqrt{s}=13$  TeV, JHEP. 04 (2019) 122, doi:10.1007/JHEP04(2019)122, arXiv:1901.03428 [hep-ex]
- A.M. Sirunyan et al., Measurements of the Higgs boson width and anomalous HVV couplings from on-shell and off-shell production in the four-lepton final state, Phys. Rev. D. 99 (2019) 112003, doi:10.1103/PhysRevD.99.112003, arXiv:1901.00174 [hep-ex]
- A.M. Sirunyan et al., Search for low mass vector resonances decaying into quark-antiquark pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *Phys. Rev. D.* 100 (2019) 112007, doi:10.1103/PhysRevD.100.112007, arXiv:1909.04114 [hep-ex]
- A.M. Sirunyan et al., Search for pair production of vectorlike quarks in the fully hadronic final state,  $Phys.\ Rev.\ D.\ 100\ (2019)\ 072001,\ doi:10.1103/PhysRevD.100.072001,\ arXiv:1906.11903\ [hep-ex]$
- A.M. Sirunyan et al., Pseudorapidity distributions of charged hadrons in xenon-xenon collisions at  $\sqrt{s_{NN}} = 5.44$  TeV, Phys. Lett. B. 799 (2019) 135049, doi:10.1016/j.physletb.2019.135049, arXiv:1902.03603 [hep-ex]
- A.M. Sirunyan et al., Search for vector-like leptons in multilepton final states in proton-proton collisions at  $\sqrt{s}$  = 13 TeV, Phys. Rev. D. 100 (2019) 052003, doi:10.1103/PhysRevD.100.052003, arXiv:1905.10853 [hep-ex]
- A.M. Sirunyan et al., Search for a low-mass  $\tau^+\tau^-$  resonance in association with a bottom quark in proton-proton collisions at  $\sqrt{s}=$  13 TeV, JHEP. 05 (2019) 210, doi:10.1007/JHEP05(2019)210, arXiv:1903.10228 [hep-ex]
- A.M. Sirunyan et al., Search for a light charged Higgs boson decaying to a W boson and a CP-odd Higgs boson in final states with e  $\mu\mu$  or  $\mu\mu\mu$  in proton-proton collisions at  $\sqrt{s}=$  13 TeV, Phys. Rev. Lett. 123 (2019) 131802, doi:10.1103/PhysRevLett.123.131802, arXiv:1905.07453 [hep-ex]
- A.M. Sirunyan et al., Constraints on anomalous HVV couplings from the production of Higgs bosons decaying to  $\tau$  lepton pairs, Phys.~Rev.~D.~100~(2019)~112002, doi:10.1103/PhysRevD.100.112002, arXiv:1903.06973 [hep-ex]
- A.M. Sirunyan et al., Measurements of triple-differential cross sections for inclusive isolated-photon+jet events in pp collisions at  $\sqrt{s}=8TeV,\ Eur.\ Phys.\ J.\ C.\ 79\ (2019)\ 969,\ doi:10.1140/epjc/s10052-019-7451-7,\ arXiv:1907.08155\ [hep-ex]$
- A.M. Sirunyan et al., Azimuthal separation in nearly back-to-back jet topologies in inclusive 2- and 3-jet events in pp collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 773, doi:10.1140/epjc/s10052-019-7276-4, arXiv:1902.04374 [hep-ex]
- A.M. Sirunyan et al., Search for the production of four top quarks in the single-lepton and opposite-sign dilepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2019) 082, doi:10.1007/JHEP11(2019)082, arXiv:1906.02805 [hep-ex]
- A.M. Sirunyan et al., Combination of CMS searches for heavy resonances decaying to pairs of bosons or leptons, *Phys. Lett. B.* 798 (2019) 134952, doi:10.1016/j.physletb.2019.134952, arXiv:1906.00057 [hep-ex]
- A.M. Sirunyan et al., Measurement of the average very forward energy as a function of the track multiplicity at central pseudorapidities in proton-proton collisions at  $\sqrt{s}=13TeV$ , Eur. Phys. J. C. 79 (2019) 893, doi:10.1140/epjc/s10052-019-7402-3, arXiv:1908.01750 [hep-ex]
- A.M. Sirunyan et al., Study of the  $B^+ \to J/\psi \overline{\Lambda} p$  decay in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 12 (2019) 100, doi:10.1007/JHEP12(2019)100, arXiv:1907.05461 [hep-ex]
- A.M. Sirunyan et al., Search for MSSM Higgs bosons decaying to  $\mu + \mu \text{in proton-proton collisions at s=13TeV}$ , Phys. Lett. B. 798 (2019) 134992, doi:10.1016/j.physletb.2019.134992, arXiv:1907.03152 [hep-ex]

February 2, 2024 22 of 64

- A.M. Sirunyan et al., Search for resonances decaying to a pair of Higgs bosons in the  $b\bar{b}q\bar{q}'\ell\nu$  final state in protonproton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 10 (2019) 125, doi:10.1007/JHEP10(2019)125, arXiv:1904.04193 [hep-ex]
- A.M. Sirunyan et al., Measurement of the top quark polarization and  $t\bar{t}$  spin correlations using dilepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 100 (2019) 072002, doi:10.1103/PhysRevD.100.072002, arXiv:1907.03729 [hep-ex]
- A.M. Sirunyan et al., An embedding technique to determine  $\tau\tau$  backgrounds in proton-proton collision data, JINST. 14 (2019) P06032, doi:10.1088/1748-0221/14/06/P06032, arXiv:1903.01216 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry using Higgs boson to diphoton decays at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2019) 109, doi:10.1007/JHEP11(2019)109, arXiv:1908.08500 [hep-ex]
- A.M. Sirunyan et al., Search for anomalous triple gauge couplings in WW and WZ production in lepton + jet events in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 12 (2019) 062, doi:10.1007/JHEP12(2019)062, arXiv:1907.08354 [hep-ex]
- A.M. Sirunyan et al., Search for a heavy pseudoscalar boson decaying to a Z and a Higgs boson at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 564, doi:10.1140/epjc/s10052-019-7058-z, arXiv:1903.00941 [hep-ex]
- A.M. Sirunyan et al., Search for anomalous electroweak production of vector boson pairs in association with two jets in proton-proton collisions at 13 TeV, *Phys. Lett. B.* 798 (2019) 134985, doi:10.1016/j.physletb.2019.134985, arXiv:1905.07445 [hep-ex]
- A.M. Sirunyan et al., Search for long-lived particles using nonprompt jets and missing transverse momentum with proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 797 (2019) 134876, doi:10.1016/j.physletb.2019.134876, arXiv:1906.06441 [hep-ex]
- A.M. Sirunyan et al., Measurements of differential **Z** boson production cross sections in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 12 (2019) 061, doi:10.1007/JHEP12(2019)061, arXiv:1909.04133 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry with a compressed mass spectrum in the vector boson fusion topology with 1-lepton and 0-lepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 08 (2019) 150, doi:10.1007/JHEP08(2019)150, arXiv:1905.13059 [hep-ex]
- A.M. Sirunyan et al., Observation of Two Excited B  $_c^+$  States and Measurement of the B  $_c^+$ (2S) Mass in pp Collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 122 (2019) 132001, doi:10.1103/PhysRevLett.122.132001, arXiv:1902.00571 [hep-ex]
- A.M. Sirunyan et al., Measurement of electroweak WZ boson production and search for new physics in WZ + two jets events in pp collisions at  $\sqrt{s} = 13$ TeV, Phys. Lett. B. 795 (2019) 281–307, doi:10.1016/j.physletb.2019.05.042, arXiv:1901.04060 [hep-ex]
- A.M. Sirunyan et al., Search for Physics beyond the Standard Model in Events with Overlapping Photons and Jets, Phys. Rev. Lett. 123 (2019) 241801, doi:10.1103/PhysRevLett.123.241801, arXiv:1907.06275 [hep-ex]
- A.M. Sirunyan et al., Search for W boson decays to three charged pions, Phys. Rev. Lett. 122 (2019) 151802, doi:10.1103/PhysRevLett.122.151802, arXiv:1901.11201 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in final states with photons and missing transverse momentum in proton-proton collisions at 13 TeV, *JHEP*. 06 (2019) 143, doi:10.1007/JHEP06(2019)143, arXiv:1903.07070 [hep-ex]
- A.M. Sirunyan et al., Search for the pair production of light top squarks in the e  $^{\pm}\mu^{\mp}$  final state in proton-proton collisions at  $\sqrt{s}=$  13 TeV, JHEP. 03 (2019) 101, doi:10.1007/JHEP03(2019)101, arXiv:1901.01288 [hep-ex]
- A.M. Sirunyan et al., Search for Higgs and Z boson decays to  $J/\psi$  or Y pairs in the four-muon final state in proton-proton collisions at s=13TeV, *Phys. Lett. B.* 797 (2019) 134811, doi:10.1016/j.physletb.2019.134811, arXiv:1905.10408 [hep-ex]
- A.M. Sirunyan et al., Search for Low-Mass Quark-Antiquark Resonances Produced in Association with a Photon at  $\sqrt{s}$  =13 TeV, Phys. Rev. Lett. 123 (2019) 231803, doi:10.1103/PhysRevLett.123.231803, arXiv:1905.10331 [hep-ex]
- A.M. Sirunyan et al., Search for new physics in top quark production in dilepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 79 (2019) 886, doi:10.1140/epjc/s10052-019-7387-y, arXiv:1903.11144 [hep-ex]
- T.C. Collaboration et al., Search for supersymmetry in proton-proton collisions at 13 TeV in final states with jets and missing transverse momentum, *JHEP*. 10 (2019) 244, doi:10.1007/JHEP10(2019)244, arXiv:1908.04722 [hep-ex]

February 2, 2024 23 of 64

- A.M. Sirunyan et al., Search for long-lived particles using delayed photons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 100 (2019) 112003, doi:10.1103/PhysRevD.100.112003, arXiv:1909.06166 [hep-ex]
- A.M. Sirunyan et al., Search for dark matter produced in association with a single top quark or a top quark pair in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2019) 141, doi:10.1007/JHEP03(2019)141, arXiv:1901.01553 [hep-ex]
- M. Aaboud et al., Combination of inclusive and differential  $t\bar{t}$  charge asymmetry measurements using ATLAS and CMS data at  $\sqrt{s}=7$  and 8 TeV, *JHEP*. 04 (2018) 033, doi:10.1007/JHEP04(2018)033, arXiv:1709.05327 [hep-ex]
- A.M. Sirunyan et al., Search for vectorlike light-flavor quark partners in proton-proton collisions at  $\sqrt{s}$  =8 TeV, Phys. Rev. D. 97 (2018) 072008, doi:10.1103/PhysRevD.97.072008, arXiv:1708.02510 [hep-ex]
- A.M. Sirunyan et al., Search for a massive resonance decaying to a pair of Higgs bosons in the four b quark final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 781 (2018) 244–269, doi:10.1016/j.physletb.2018.03.084, arXiv:1710.04960 [hep-ex]
- A.M. Sirunyan et al., Inclusive search for a highly boosted Higgs boson decaying to a bottom quark-antiquark pair, *Phys. Rev. Lett.* 120 (2018) 071802, doi:10.1103/PhysRevLett.120.071802, arXiv:1709.05543 [hep-ex]
- A.M. Sirunyan et al., Search for the flavor-changing neutral current interactions of the top quark and the Higgs boson which decays into a pair of b quarks at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2018) 102, doi:10.1007/JHEP06(2018)102, arXiv:1712.02399 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry with Higgs boson to diphoton decays using the razor variables at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 779 (2018) 166–190, doi:10.1016/j.physletb.2017.12.069, arXiv:1709.00384 [hep-ex]
- A.M. Sirunyan et al., Search for gauge-mediated supersymmetry in events with at least one photon and missing transverse momentum in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 780 (2018) 118–143, doi:10.1016/j.physletb.2018.02.045, arXiv:1711.08008 [hep-ex]
- A.M. Sirunyan et al., Search for natural supersymmetry in events with top quark pairs and photons in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 03 (2018) 167, doi:10.1007/JHEP03(2018)167, arXiv:1707.03325 [hep-ex]
- A.M. Sirunyan et al., Azimuthal correlations for inclusive 2-jet, 3-jet, and 4-jet events in pp collisions at  $\sqrt{s} =$  13 TeV, Eur. Phys. J. C. 78 (2018) 566, doi:10.1140/epjc/s10052-018-6033-4, arXiv:1712.05471 [hep-ex]
- A.M. Sirunyan et al., Search for lepton flavour violating decays of the Higgs boson to  $\mu\tau$  and e  $\tau$  in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2018) 001, doi:10.1007/JHEP06(2018)001, arXiv:1712.07173 [hep-ex]
- A.M. Sirunyan et al., Search for low mass vector resonances decaying into quark-antiquark pairs in protonproton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 01 (2018) 097, doi:10.1007/JHEP01(2018)097, arXiv:1710.00159 [hep-ex]
- A.M. Sirunyan et al., Measurement of quarkonium production cross sections in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 780 (2018) 251–272, doi:10.1016/j.physletb.2018.02.033, arXiv:1710.11002 [hep-ex]
- A.M. Sirunyan et al., Electroweak production of two jets in association with a Z boson in protonproton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 78 (2018) 589, doi:10.1140/epjc/s10052-018-6049-9, arXiv:1712.09814 [hep-ex]
- A.M. Sirunyan et al., Search for ZZ resonances in the 2 \$ \$2  $\nu$  final state in proton-proton collisions at 13 TeV, JHEP. 03 (2018) 003, doi:10.1007/JHEP03(2018)003, arXiv:1711.04370 [hep-ex]
- A.M. Sirunyan et al., Search for Z  $\gamma$  resonances using leptonic and hadronic final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 09 (2018) 148, doi:10.1007/JHEP09(2018)148, arXiv:1712.03143 [hep-ex]
- A.M. Sirunyan et al., Measurements of the  $pp \to ZZ$  production cross section and the  $Z \to 4\ell$  branching fraction, and constraints on anomalous triple gauge couplings at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 78 (2018) 165, doi:10.1140/epjc/s10052-018-5567-9, arXiv:1709.08601 [hep-ex]
- A.M. Sirunyan et al., Study of jet quenching with isolated-photon+jet correlations in PbPb and pp collisions at  $\sqrt{s_{_{NN}}} = 5.02$  TeV, Phys. Lett. B. 785 (2018) 14–39, doi:10.1016/j.physletb.2018.07.061, arXiv:1711.09738 [nucl-ex]
- A.M. Sirunyan et al., Search for massive resonances decaying into WW, WZ, ZZ, qW, and qZ with dijet final states at  $\sqrt{s} = 13 TeV$ , Phys. Rev. D. 97 (2018) 072006, doi:10.1103/PhysRevD.97.072006, arXiv:1708.05379 [hep-ex]
- A.M. Sirunyan et al., Observation of electroweak production of same-sign W boson pairs in the two jet and two same-sign lepton final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 120 (2018) 081801, doi:10.1103/PhysRevLett.120.081801, arXiv:1709.05822 [hep-ex]

February 2, 2024 24 of 64

- A.M. Sirunyan et al., Constraints on the double-parton scattering cross section from same-sign W boson pair production in proton-proton collisions at  $\sqrt{s}=8$  TeV, JHEP. 02 (2018) 032, doi:10.1007/JHEP02(2018)032, arXiv:1712.02280 [hep-ex]
- A.M. Sirunyan et al., Search for Higgs boson pair production in events with two bottom quarks and two tau leptons in protonproton collisions at  $\sqrt{s}$  =13TeV, Phys. Lett. B. 778 (2018) 101–127, doi:10.1016/j.physletb.2018.01.001, arXiv:1707.02909 [hep-ex]
- A.M. Sirunyan et al., Search for the X(5568) state decaying into  $B_s^0 \pi^{\pm}$  in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. Lett. 120 (2018) 202005, doi:10.1103/PhysRevLett.120.202005, arXiv:1712.06144 [hep-ex]
- A.M. Sirunyan et al., Search for pair production of excited top quarks in the lepton + jets final state, *Phys. Lett. B.* 778 (2018) 349–370, doi:10.1016/j.physletb.2018.01.049, arXiv:1711.10949 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in events with at least three electrons or muons, jets, and missing transverse momentum in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 02 (2018) 067, doi:10.1007/JHEP02(2018)067, arXiv:1710.09154 [hep-ex]
- A.M. Sirunyan et al., Search for top squarks and dark matter particles in opposite-charge dilepton final states at  $\sqrt{s} = 13$  TeV, *Phys. Rev. D.* 97 (2018) 032009, doi:10.1103/PhysRevD.97.032009, arXiv:1711.00752 [hep-ex]
- A.M. Sirunyan et al., Observation of Correlated Azimuthal Anisotropy Fourier Harmonics in pp and p + Pb Collisions at the LHC, Phys. Rev. Lett. 120 (2018) 092301, doi:10.1103/PhysRevLett.120.092301, arXiv:1709.09189 [nucl-ex]
- A.M. Sirunyan et al., Search for the pair production of third-generation squarks with two-body decays to a bottom or charm quark and a neutralino in protonproton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 778 (2018) 263–291, doi:10.1016/j.physletb.2018.01.012, arXiv:1707.07274 [hep-ex]
- A.M. Sirunyan et al., Search for decays of stopped exotic long-lived particles produced in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP.~05~(2018)~127,~doi:10.1007/JHEP05(2018)127,~arXiv:1801.00359~[hep-ex]
- A.M. Sirunyan et al., Search for excited quarks of light and heavy flavor in  $\gamma+$  jet final states in protonproton collisions at  $\sqrt{s}=$  13TeV, Phys. Lett. B. 781 (2018) 390–411, doi:10.1016/j.physletb.2018.04.007, arXiv:1711.04652 [hep-ex]
- A.M. Sirunyan et al., Constraints on the chiral magnetic effect using charge-dependent azimuthal correlations in pPb and PbPb collisions at the CERN Large Hadron Collider, Phys. Rev. C. 97 (2018) 044912, doi:10.1103/PhysRevC.97.044912, arXiv:1708.01602 [nucl-ex]
- A.M. Sirunyan et al., Measurement of differential cross sections in the kinematic angular variable  $\phi^*$  for inclusive Z boson production in pp collisions at  $\sqrt{s}=8$  TeV, JHEP. 03 (2018) 172, doi:10.1007/JHEP03(2018)172, arXiv:1710.07955 [hep-ex]
- A.M. Sirunyan et al., Search for Physics Beyond the Standard Model in Events with High-Momentum Higgs Bosons and Missing Transverse Momentum in Proton-Proton Collisions at 13 TeV, *Phys. Rev. Lett.* 120 (2018) 241801, doi:10.1103/PhysRevLett.120.241801, arXiv:1712.08501 [hep-ex]
- A.M. Sirunyan et al., Bose-Einstein correlations in pp, pPb, and PbPb collisions at  $\sqrt{s_{NN}} = 0.9 7$  TeV, Phys. Rev. C. 97 (2018) 064912, doi:10.1103/PhysRevC.97.064912, arXiv:1712.07198 [hep-ex]
- A.M. Sirunyan et al., Search for electroweak production of charginos and neutralinos in multilepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 03 (2018) 166, doi:10.1007/JHEP03(2018)166, arXiv:1709.05406 [hep-ex]
- A.M. Sirunyan et al., Measurement of the underlying event activity in inclusive **Z** boson production in protonproton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 07 (2018) 032, doi:10.1007/JHEP07(2018)032, arXiv:1711.04299 [hep-ex]
- A.M. Sirunyan et al., Search for Higgsino pair production in pp collisions at  $\sqrt{s}=13$  TeV in final states with large missing transverse momentum and two Higgs bosons decaying via  $H\to b\bar{b}$ , Phys.~Rev.~D. 97 (2018) 032007, doi:10.1103/PhysRevD.97.032007, arXiv:1709.04896 [hep-ex]
- A.M. Sirunyan et al., Search for new physics in events with a leptonically decaying **Z** boson and a large transverse momentum imbalance in protonproton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 78 (2018) 291, doi:10.1140/epjc/s10052-018-5740-1, arXiv:1711.00431 [hep-ex]

February 2, 2024 25 of 64

- A.M. Sirunyan et al., Evidence for the Higgs boson decay to a bottom quarkantiquark pair, *Phys. Lett. B.* 780 (2018) 501–532, doi:10.1016/j.physletb.2018.02.050, arXiv:1709.07497 [hep-ex]
- A.M. Sirunyan et al., Study of dijet events with a large rapidity gap between the two leading jets in pp collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C. 78 (2018) 242, doi:10.1140/epjc/s10052-018-5691-6, arXiv:1710.02586 [hep-ex]
- A.M. Sirunyan et al., **Search for new long-lived particles at**  $\sqrt{s} = 13$  **TeV**, *Phys. Lett. B.* 780 (2018) 432–454, doi:10.1016/j.physletb.2018.03.019, arXiv:1711.09120 [hep-ex]
- A.M. Sirunyan et al., Nuclear modification factor of D  $^0$  mesons in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 782 (2018) 474–496, doi:10.1016/j.physletb.2018.05.074, arXiv:1708.04962 [nucl-ex]
- A.M. Sirunyan et al., Measurement of the Splitting Function in pp and Pb-Pb Collisions at  $\sqrt{s_{_{NN}}} = 5.02$  TeV, Phys. Rev. Lett. 120 (2018) 142302, doi:10.1103/PhysRevLett.120.142302, arXiv:1708.09429 [nucl-ex]
- A.M. Sirunyan et al., Search for supersymmetry in events with one lepton and multiple jets exploiting the angular correlation between the lepton and the missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 780 (2018) 384–409, doi:10.1016/j.physletb.2018.03.028, arXiv:1709.09814 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in proton-proton collisions at 13 TeV using identified top quarks, *Phys. Rev. D.* 97 (2018) 012007, doi:10.1103/PhysRevD.97.012007, arXiv:1710.11188 [hep-ex]
- A.M. Sirunyan et al., Search for resonant and nonresonant Higgs boson pair production in the  $b\bar{b}\ell\nu\ell\nu$  final state in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 01 (2018) 054, doi:10.1007/JHEP01(2018)054, arXiv:1708.04188 [hep-ex]
- A.M. Sirunyan et al., Measurement of angular parameters from the decay  $B^0 \to K^{*0}\mu^+\mu^-$  in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 781 (2018) 517–541, doi:10.1016/j.physletb.2018.04.030, arXiv:1710.02846 [hep-ex]
- A.M. Sirunyan et al., Pseudorapidity distributions of charged hadrons in proton-lead collisions at  $\sqrt{s_{NN}} = 5.02$  and 8.16 TeV, JHEP. 01 (2018) 045, doi:10.1007/JHEP01(2018)045, arXiv:1710.09355 [hep-ex]
- A.M. Sirunyan et al., Measurement of associated Z + charm production in proton-proton collisions at  $\sqrt{s}=8$  TeV, Eur. Phys. J. C. 78 (2018) 287, doi:10.1140/epjc/s10052-018-5752-x, arXiv:1711.02143 [hep-ex]
- A.M. Sirunyan et al., Search for R-parity violating supersymmetry in pp collisions at  $\sqrt{s} = 13$  TeV using b jets in a final state with a single lepton, many jets, and high sum of large-radius jet masses, Phys. Lett. B. 783 (2018) 114–139, doi:10.1016/j.physletb.2018.06.028, arXiv:1712.08920 [hep-ex]
- A.M. Sirunyan et al., Measurement of the cross section for top quark pair production in association with a W or Z boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 08 (2018) 011, doi:10.1007/JHEP08(2018)011, arXiv:1711.02547 [hep-ex]
- A.M. Sirunyan et al., Measurement of prompt and nonprompt charmonium suppression in PbPb collisions at 5.02 TeV, Eur. Phys. J. C. 78 (2018) 509, doi:10.1140/epjc/s10052-018-5950-6, arXiv:1712.08959 [nucl-ex]
- A.M. Sirunyan et al., Measurement of prompt  $D^0$  meson azimuthal anisotropy in Pb-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Rev. Lett. 120 (2018) 202301, doi:10.1103/PhysRevLett.120.202301, arXiv:1708.03497 [nucl-ex]
- A.M. Sirunyan et al., Search for single production of a vector-like T quark decaying to a Z boson and a top quark in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 781 (2018) 574–600, doi:10.1016/j.physletb.2018.04.036, arXiv:1708.01062 [hep-ex]
- A.M. Sirunyan et al., Measurement of the associated production of a single top quark and a Z boson in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 779 (2018) 358–384, doi:10.1016/j.physletb.2018.02.025, arXiv:1712.02825 [hep-ex]
- A.M. Sirunyan et al., **Identification of heavy-flavour jets with the CMS detector in pp collisions at 13 TeV**, *JINST*. 13 (2018) P05011, doi:10.1088/1748-0221/13/05/P05011, arXiv:1712.07158 [physics.ins-det]
- A.M. Sirunyan et al., Azimuthal anisotropy of charged particles with transverse momentum up to 100 GeV/c in PbPb collisions at  $\sqrt{s}_{NN}$ =5.02 TeV, Phys. Lett. B. 776 (2018) 195–216, doi:10.1016/j.physletb.2017.11.041, arXiv:1702.00630 [hep-ex]
- A.M. Sirunyan et al., Measurement of normalized differential  $t\bar{t}$  cross sections in the dilepton channel from pp collisions at  $\sqrt{s}=13$  TeV, JHEP.~04~(2018)~060,~doi:10.1007/JHEP04(2018)060,~arXiv:1708.07638~[hep-ex]

February 2, 2024 26 of 64

- A.M. Sirunyan et al., Pseudorapidity and transverse momentum dependence of flow harmonics in pPb and PbPb collisions, Phys. Rev. C. 98 (2018) 044902, doi:10.1103/PhysRevC.98.044902, arXiv:1710.07864 [nucl-ex]
- A.M. Sirunyan et al., Measurements of  $t\bar{t}$  cross sections in association with b jets and inclusive jets and their ratio using dilepton final states in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 776 (2018) 355–378, doi:10.1016/j.physletb.2017.11.043, arXiv:1705.10141 [hep-ex]
- A.M. Sirunyan et al., Suppression of Excited  $\Upsilon$  States Relative to the Ground State in Pb-Pb Collisions at  $\sqrt{s_{NN}}$ =5.02 TeV, Phys. Rev. Lett. 120 (2018) 142301, doi:10.1103/PhysRevLett.120.142301, arXiv:1706.05984 [hep-ex]
- A.M. Sirunyan et al., Measurement of b hadron lifetimes in pp collisions at  $\sqrt{s} = 8$  TeV, Eur. Phys. J. C. 78 (2018) 457, doi:10.1140/epjc/s10052-018-5929-3, arXiv:1710.08949 [hep-ex]
- A.M. Sirunyan et al., Search for pair production of vector-like quarks in the bW  $\bar{b}$ W channel from proton-proton collisions at  $\sqrt{s} = 13$  TeV, *Phys. Lett. B.* 779 (2018) 82–106, doi:10.1016/j.physletb.2018.01.077, arXiv:1710.01539 [hep-ex]
- A.M. Sirunyan et al., Search for heavy resonances decaying to a top quark and a bottom quark in the lepton+jets final state in protonproton collisions at 13 TeV, Phys. Lett. B. 777 (2018) 39–63, doi:10.1016/j.physletb.2017.12.006, arXiv:1708.08539 [hep-ex]
- A.M. Sirunyan et al., Measurement of the inclusive  $t\bar{t}$  cross section in pp collisions at  $\sqrt{s} = 5.02$  TeV using final states with at least one charged lepton, *JHEP*. 03 (2018) 115, doi:10.1007/JHEP03(2018)115, arXiv:1711.03143 [hep-ex]
- A.M. Sirunyan et al., Search for new physics in final states with an energetic jet or a hadronically decaying W or Z boson and transverse momentum imbalance at  $\sqrt{s} = 13 TeV$ , Phys. Rev.~D.~97~(2018)~092005, doi:10.1103/PhysRevD.97.092005, arXiv:1712.02345~[hep-ex]
- A.M. Sirunyan et al., Observation of the Higgs boson decay to a pair of  $\tau$  leptons with the CMS detector, *Phys. Lett. B.* 779 (2018) 283–316, doi:10.1016/j.physletb.2018.02.004, arXiv:1708.00373 [hep-ex]
- A.M. Sirunyan et al., Search for a heavy right-handed W boson and a heavy neutrino in events with two same-flavor leptons and two jets at  $\sqrt{s} = 13$  TeV, *JHEP*. 05 (2018) 148, doi:10.1007/JHEP05(2018)148, arXiv:1803.11116 [hep-ex]
- A.M. Sirunyan et al., Measurement of the production cross section for single top quarks in association with W bosons in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 10 (2018) 117, doi:10.1007/JHEP10(2018)117, arXiv:1805.07399 [hep-ex]
- A.M. Sirunyan et al., Search for a new scalar resonance decaying to a pair of Z bosons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2018) 127, doi:10.1007/JHEP06(2018)127, arXiv:1804.01939 [hep-ex]
- A.M. Sirunyan et al., Search for a heavy resonance decaying to a pair of vector bosons in the lepton plus merged jet final state at  $\sqrt{s} = 13$  TeV, JHEP. 05 (2018) 088, doi:10.1007/JHEP05(2018)088, arXiv:1802.09407 [hep-ex]
- A.M. Sirunyan et al., Comparing transverse momentum balance of b jet pairs in pp and PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, *JHEP*. 03 (2018) 181, doi:10.1007/JHEP03(2018)181, arXiv:1802.00707 [hep-ex]
- A.M. Sirunyan et al., Search for physics beyond the standard model in high-mass diphoton events from proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 98 (2018) 092001, doi:10.1103/PhysRevD.98.092001, arXiv:1809.00327 [hep-ex]
- A.M. Sirunyan et al., Search for a charged Higgs boson decaying to charm and bottom quarks in proton-proton collisions at  $\sqrt{s}=8$  TeV, JHEP. 11 (2018) 115, doi:10.1007/JHEP11(2018)115, arXiv:1808.06575 [hep-ex]
- A.M. Sirunyan et al., Evidence for associated production of a Higgs boson with a top quark pair in final states with electrons, muons, and hadronically decaying  $\tau$  leptons at  $\sqrt{s}=13$  TeV, JHEP. 08 (2018) 066, doi:10.1007/JHEP08(2018)066, arXiv:1803.05485 [hep-ex]
- A.M. Sirunyan et al., Measurement of the groomed jet mass in PbPb and pp collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, JHEP. 10 (2018) 161, doi:10.1007/JHEP10(2018)161, arXiv:1805.05145 [hep-ex]
- A.M. Sirunyan et al., Search for high-mass resonances in final states with a lepton and missing transverse momentum at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2018) 128, doi:10.1007/JHEP06(2018)128, arXiv:1803.11133 [hep-ex]
- A.M. Sirunyan et al., Evidence for the associated production of a single top quark and a photon in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 121 (2018) 221802, doi:10.1103/PhysRevLett.121.221802, arXiv:1808.02913 [hep-ex]

February 2, 2024 27 of 64

- A.M. Sirunyan et al., Search for beyond the standard model Higgs bosons decaying into a  $b\bar{b}$  pair in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 08 (2018) 113, doi:10.1007/JHEP08(2018)113, arXiv:1805.12191 [hep-ex]
- A.M. Sirunyan et al., Search for lepton-flavor violating decays of heavy resonances and quantum black holes to e $\mu$  final states in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 04 (2018) 073, doi:10.1007/JHEP04(2018)073, arXiv:1802.01122 [hep-ex]
- A.M. Sirunyan et al., Measurement of differential cross sections for the production of top quark pairs and of additional jets in lepton+jets events from pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 97 (2018) 112003, doi:10.1103/PhysRevD.97.112003, arXiv:1803.08856 [hep-ex]
- A.M. Sirunyan et al., Search for heavy neutral leptons in events with three charged leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 120 (2018) 221801, doi:10.1103/PhysRevLett.120.221801, arXiv:1802.02965 [hep-ex]
- A.M. Sirunyan et al., Search for high-mass resonances in dilepton final states in proton-proton collisions at  $\sqrt{s} =$  13 TeV, JHEP. 06 (2018) 120, doi:10.1007/JHEP06(2018)120, arXiv:1803.06292 [hep-ex]
- A.M. Sirunyan et al., Constraining gluon distributions in nuclei using dijets in proton-proton and proton-lead collisions at  $\sqrt{s_{_{NN}}}=$  5.02 TeV, Phys. Rev. Lett. 121 (2018) 062002, doi:10.1103/PhysRevLett.121.062002, arXiv:1805.04736 [hep-ex]
- A.M. Sirunyan et al., Performance of reconstruction and identification of  $\tau$  leptons decaying to hadrons and  $\nu_{\tau}$  in pp collisions at  $\sqrt{s} = 13$  TeV, JINST. 13 (2018) P10005, doi:10.1088/1748-0221/13/10/P10005, arXiv:1809.02816 [hep-ex]
- A.M. Sirunyan et al., Search for new physics in events with two soft oppositely charged leptons and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 782 (2018) 440–467, doi:10.1016/j.physletb.2018.05.062, arXiv:1801.01846 [hep-ex]
- A.M. Sirunyan et al., Search for narrow resonances in the b-tagged dijet mass spectrum in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. Lett. 120 (2018) 201801, doi:10.1103/PhysRevLett.120.201801, arXiv:1802.06149 [hep-ex]
- A.M. Sirunyan et al., Search for single production of vector-like quarks decaying to a b quark and a Higgs boson, *JHEP*. 06 (2018) 031, doi:10.1007/JHEP06(2018)031, arXiv:1802.01486 [hep-ex]
- A.M. Sirunyan et al., Measurement of the weak mixing angle using the forward-backward asymmetry of Drell-Yan events in pp collisions at 8 TeV, Eur. Phys. J. C. 78 (2018) 701, doi:10.1140/epjc/s10052-018-6148-7, arXiv:1806.00863 [hep-ex]
- A.M. Sirunyan et al., Search for resonances in the mass spectrum of muon pairs produced in association with b quark jets in proton-proton collisions at  $\sqrt{s} = 8$  and 13 TeV, JHEP. 11 (2018) 161, doi:10.1007/JHEP11(2018)161, arXiv:1808.01890 [hep-ex]
- A.M. Sirunyan et al., Search for heavy resonances decaying into a vector boson and a Higgs boson in final states with charged leptons, neutrinos and b quarks at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2018) 172, doi:10.1007/JHEP11(2018)172, arXiv:1807.02826 [hep-ex]
- A.M. Sirunyan et al., Measurement of the  $Z\gamma^* \to \tau\tau$  cross section in pp collisions at  $\sqrt{s} = 13$  TeV and validation of  $\tau$  lepton analysis techniques, Eur. Phys. J. C. 78 (2018) 708, doi:10.1140/epjc/s10052-018-6146-9, arXiv:1801.03535 [hep-ex]
- A.M. Sirunyan et al., Elliptic flow of charm and strange hadrons in high-multiplicity pPb collisions at  $\sqrt{s_{_{NN}}} = 8.16$  TeV, Phys. Rev. Lett. 121 (2018) 082301, doi:10.1103/PhysRevLett.121.082301, arXiv:1804.09767 [hep-ex]
- A.M. Sirunyan et al., Measurement of differential cross sections for **Z** boson production in association with jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 78 (2018) 965, doi:10.1140/epjc/s10052-018-6373-0, arXiv:1804.05252 [hep-ex]
- A.M. Sirunyan et al., Search for narrow and broad dijet resonances in proton-proton collisions at  $\sqrt{s} = 13$  TeV and constraints on dark matter mediators and other new particles, *JHEP*. 08 (2018) 130, doi:10.1007/JHEP08(2018)130, arXiv:1806.00843 [hep-ex]
- A.M. Sirunyan et al., Measurement of the inelastic proton-proton cross section at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2018) 161, doi:10.1007/JHEP07(2018)161, arXiv:1802.02613 [hep-ex]

February 2, 2024 28 of 64

- A.M. Sirunyan et al., Observation of Medium-Induced Modifications of Jet Fragmentation in Pb-Pb Collisions at  $\sqrt{s_{NN}} = 5.02$  TeV Using Isolated Photon-Tagged Jets, Phys. Rev. Lett. 121 (2018) 242301, doi:10.1103/PhysRevLett.121.242301, arXiv:1801.04895 [hep-ex]
- A.M. Sirunyan et al., Search for pair-produced resonances decaying to quark pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 98 (2018) 112014, doi:10.1103/PhysRevD.98.112014, arXiv:1808.03124 [hep-ex]
- A.M. Sirunyan et al., Search for the decay of a Higgs boson in the  $\ell\ell\gamma$  channel in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2018) 152, doi:10.1007/JHEP11(2018)152, arXiv:1806.05996 [hep-ex]
- A.M. Sirunyan et al., Search for natural and split supersymmetry in proton-proton collisions at  $\sqrt{s} = 13$  TeV in final states with jets and missing transverse momentum, *JHEP*. 05 (2018) 025, doi:10.1007/JHEP05(2018)025, arXiv:1802.02110 [hep-ex]
- A.M. Sirunyan et al., Measurement of charged particle spectra in minimum-bias events from protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 78 (2018) 697, doi:10.1140/epjc/s10052-018-6144-y, arXiv:1806.11245 [hep-ex]
- A.M. Sirunyan et al., Search for dark matter produced in association with a Higgs boson decaying to  $\gamma\gamma$  or  $\tau^+\tau^-$  at  $\sqrt{s} = 13$  TeV, JHEP. 09 (2018) 046, doi:10.1007/JHEP09(2018)046, arXiv:1806.04771 [hep-ex]
- A.M. Sirunyan et al., Observation of Higgs boson decay to bottom quarks, Phys. Rev. Lett. 121 (2018) 121801, doi:10.1103/PhysRevLett.121.121801, arXiv:1808.08242 [hep-ex]
- A.M. Sirunyan et al., Search for leptoquarks coupled to third-generation quarks in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 121 (2018) 241802, doi:10.1103/PhysRevLett.121.241802, arXiv:1809.05558 [hep-ex]
- A.M. Sirunyan et al., Search for black holes and sphalerons in high-multiplicity final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 11 (2018) 042, doi:10.1007/JHEP11(2018)042, arXiv:1805.06013 [hep-ex]
- A.M. Sirunyan et al., Search for pair-produced resonances each decaying into at least four quarks in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 121 (2018) 141802, doi:10.1103/PhysRevLett.121.141802, arXiv:1806.01058 [hep-ex]
- A.M. Sirunyan et al., Measurements of Higgs boson properties in the diphoton decay channel in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2018) 185, doi:10.1007/JHEP11(2018)185, arXiv:1804.02716 [hep-ex]
- A.M. Sirunyan et al., Angular analysis of the decay B  $^+$   $\rightarrow$  K  $^+\mu^+\mu^-$  in proton-proton collisions at  $\sqrt{s}=8$  TeV, Phys. Rev. D. 98 (2018) 112011, doi:10.1103/PhysRevD.98.112011, arXiv:1806.00636 [hep-ex]
- A.M. Sirunyan et al., Search for resonant pair production of Higgs bosons decaying to bottom quark-antiquark pairs in proton-proton collisions at 13 TeV, *JHEP*. 08 (2018) 152, doi:10.1007/JHEP08(2018)152, arXiv:1806.03548 [hep-ex]
- A.M. Sirunyan et al., Constraints on models of scalar and vector leptoquarks decaying to a quark and a neutrino at  $\sqrt{s} = 13$  TeV, *Phys. Rev. D.* 98 (2018) 032005, doi:10.1103/PhysRevD.98.032005, arXiv:1805.10228 [hep-ex]
- A.M. Sirunyan et al., Measurement of the top quark mass with lepton+jets final states using pp collisions at  $\sqrt{s} = 13TeV$ , Eur. Phys. J. C. 78 (2018) 891, doi:10.1140/epjc/s10052-018-6332-9, arXiv:1805.01428 [hep-ex]
- A.M. Sirunyan et al., Search for an exotic decay of the Higgs boson to a pair of light pseudoscalars in the final state of two muons and two  $\tau$  leptons in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 11 (2018) 018, doi:10.1007/JHEP11(2018)018, arXiv:1805.04865 [hep-ex]
- A.M. Sirunyan et al., Search for disappearing tracks as a signature of new long-lived particles in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 08 (2018) 016, doi:10.1007/JHEP08(2018)016, arXiv:1804.07321 [hep-ex]
- A.M. Sirunyan et al., Search for additional neutral MSSM Higgs bosons in the  $\tau\tau$  final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *JHEP*. 09 (2018) 007, doi:10.1007/JHEP09(2018)007, arXiv:1803.06553 [hep-ex]
- A.M. Sirunyan et al., Performance of the CMS muon detector and muon reconstruction with proton-proton collisions at  $\sqrt{s} = 13$  TeV, JINST. 13 (2018) P06015, doi:10.1088/1748-0221/13/06/P06015, arXiv:1804.04528 [physics.insdet]
- A.M. Sirunyan et al., Search for  $t\bar{t}H$  production in the all-jet final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 06 (2018) 101, doi:10.1007/JHEP06(2018)101, arXiv:1803.06986 [hep-ex]
- A.M. Sirunyan et al., Search for a heavy resonance decaying into a Z boson and a Z or W boson in 2\$ \$2q final states at  $\sqrt{s} = 13$  TeV, JHEP. 09 (2018) 101, doi:10.1007/JHEP09(2018)101, arXiv:1803.10093 [hep-ex]

February 2, 2024 29 of 64

- A.M. Sirunyan et al., Search for top squarks decaying via four-body or chargino-mediated modes in single-lepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 09 (2018) 065, doi:10.1007/JHEP09(2018)065, arXiv:1805.05784 [hep-ex]
- A.M. Sirunyan et al., Event shape variables measured using multijet final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 12 (2018) 117, doi:10.1007/JHEP12(2018)117, arXiv:1811.00588 [hep-ex]
- A.M. Sirunyan et al., Search for third-generation scalar leptoquarks decaying to a top quark and a  $\tau$  lepton at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 78 (2018) 707, doi:10.1140/epjc/s10052-018-6143-z, arXiv:1803.02864 [hep-ex]
- A.M. Sirunyan et al., Measurements of differential cross sections of top quark pair production as a function of kinematic event variables in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 06 (2018) 002, doi:10.1007/JHEP06(2018)002, arXiv:1803.03991 [hep-ex]
- A.M. Sirunyan et al., Search for long-lived particles with displaced vertices in multijet events in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 98 (2018) 092011, doi:10.1103/PhysRevD.98.092011, arXiv:1808.03078 [hep-ex]
- A.M. Sirunyan et al., Search for a singly produced third-generation scalar leptoquark decaying to a  $\tau$  lepton and a bottom quark in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2018) 115, doi:10.1007/JHEP07(2018)115, arXiv:1806.03472 [hep-ex]
- A.M. Sirunyan et al., Search for new physics in dijet angular distributions using protonproton collisions at  $\sqrt{s} =$  13 TeV and constraints on dark matter and other models, Eur. Phys. J. C. 78 (2018) 789, doi:10.1140/epjc/s10052-018-6242-x, arXiv:1803.08030 [hep-ex]
- A.M. Sirunyan et al., Observation of proton-tagged, central (semi)exclusive production of high-mass lepton pairs in pp collisions at 13 TeV with the CMS-TOTEM precision proton spectrometer, *JHEP*. 07 (2018) 153, doi:10.1007/JHEP07(2018)153, arXiv:1803.04496 [hep-ex]
- A.M. Sirunyan et al., **Observation of**  $t\bar{t}$ **H production**, *Phys. Rev. Lett.* 120 (2018) 231801, doi:10.1103/PhysRevLett.120.231801, arXiv:1804.02610 [hep-ex]
- A.M. Sirunyan et al., Observation of the  $\mathbb{Z} \to \psi \ell^+ \ell^-$  decay in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 121 (2018) 141801, doi:10.1103/PhysRevLett.121.141801, arXiv:1806.04213 [hep-ex]
- A.M. Sirunyan et al., Observation of the  $\chi_{b1}(3P)$  and  $\chi_{b2}(3P)$  and measurement of their masses, *Phys. Rev. Lett.* 121 (2018) 092002, doi:10.1103/PhysRevLett.121.092002, arXiv:1805.11192 [hep-ex]
- A.M. Sirunyan et al., Measurements of the differential jet cross section as a function of the jet mass in dijet events from proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2018) 113, doi:10.1007/JHEP11(2018)113, arXiv:1807.05974 [hep-ex]
- A.M. Sirunyan et al., Studies of  $B_{s2}^*(5840)^0$  and  $B_{s1}(5830)^0$  mesons including the observation of the  $B_{s2}^*(5840)^0 \rightarrow B^0K_S^0$  decay in proton-proton collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 78 (2018) 939, doi:10.1140/epjc/s10052-018-6390-z, arXiv:1809.03578 [hep-ex]
- A.M. Sirunyan et al., Measurement of the  $\Lambda_b$  polarization and angular parameters in  $\Lambda_b \to J/\psi \Lambda$  decays from pp collisions at  $\sqrt{s}=7$  and 8 TeV, Phys. Rev. D. 97 (2018) 072010, doi:10.1103/PhysRevD.97.072010, arXiv:1802.04867 [hep-ex]
- A.M. Sirunyan et al., Precision measurement of the structure of the CMS inner tracking system using nuclear interactions, JINST. 13 (2018) P10034, doi:10.1088/1748-0221/13/10/P10034, arXiv:1807.03289 [physics.ins-det]
- A.M. Sirunyan et al., Searches for pair production of charginos and top squarks in final states with two oppositely charged leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2018) 079, doi:10.1007/JHEP11(2018)079, arXiv:1807.07799 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in events with a  $\tau$  lepton pair and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2018) 151, doi:10.1007/JHEP11(2018)151, arXiv:1807.02048 [hep-ex]
- A.M. Sirunyan et al., Search for a heavy resonance decaying into a Z boson and a vector boson in the  $\nu \overline{\nu} q \overline{q}$  final state, JHEP. 07 (2018) 075, doi:10.1007/JHEP07(2018)075, arXiv:1803.03838 [hep-ex]
- A.M. Sirunyan et al., Measurement of jet substructure observables in  $t\bar{t}$  events from proton-proton collisions at  $\sqrt{s} = 13 \text{TeV}$ , Phys. Rev. D. 98 (2018) 092014, doi:10.1103/PhysRevD.98.092014, arXiv:1808.07340 [hep-ex]

February 2, 2024 30 of 64

- A.M. Sirunyan et al., Charged-particle nuclear modification factors in XeXe collisions at  $\sqrt{s_{NN}} = 5.44$  TeV, JHEP. 10 (2018) 138, doi:10.1007/JHEP10(2018)138, arXiv:1809.00201 [hep-ex]
- A.M. Sirunyan et al., Search for vector-like T and B quark pairs in final states with leptons at  $\sqrt{s} = 13$  TeV, JHEP. 08 (2018) 177, doi:10.1007/JHEP08(2018)177, arXiv:1805.04758 [hep-ex]
- A.M. Sirunyan et al., Search for an exotic decay of the Higgs boson to a pair of light pseudoscalars in the final state with two b quarks and two  $\tau$  leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 785 (2018) 462, doi:10.1016/j.physletb.2018.08.057, arXiv:1805.10191 [hep-ex]
- A.M. Sirunyan et al., **Jet properties in PbPb and pp collisions at**  $\sqrt{s_{NN}} = 5.02$  **TeV**, *JHEP*. 05 (2018) 006, doi:10.1007/JHEP05(2018)006, arXiv:1803.00042 [nucl-ex]
- V. Khachatryan et al., Search for narrow resonances in dilepton mass spectra in proton-proton collisions at  $\sqrt{s}$  = 13 TeV and combination with 8 TeV data, *Phys. Lett. B.* 768 (2017) 57–80, doi:10.1016/j.physletb.2017.02.010, arXiv:1609.05391 [hep-ex]
- V. Khachatryan et al., Measurements of the  $t\bar{t}$  production cross section in lepton+jets final states in pp collisions at 8 TeV and ratio of 8 to 7 TeV cross sections, Eur. Phys. J. C. 77 (2017) 15, doi:10.1140/epjc/s10052-016-4504-z, arXiv:1602.09024 [hep-ex]
- V. Khachatryan et al., Searches for invisible decays of the Higgs boson in pp collisions at  $\sqrt{s} = 7$ , 8, and 13 TeV, JHEP. 02 (2017) 135, doi:10.1007/JHEP02(2017)135, arXiv:1610.09218 [hep-ex]
- V. Khachatryan et al., Search for single production of a heavy vector-like T quark decaying to a Higgs boson and a top quark with a lepton and jets in the final state, *Phys. Lett. B.* 771 (2017) 80–105, doi:10.1016/j.physletb.2017.05.019, arXiv:1612.00999 [hep-ex]
- V. Khachatryan et al., A search for new phenomena in pp collisions at  $\sqrt{s} = 13 TeV$  in final states with missing transverse momentum and at least one jet using the  $\alpha_T$  variable, Eur. Phys. J. C. 77 (2017) 294, doi:10.1140/epjc/s10052-017-4787-8, arXiv:1611.00338 [hep-ex]
- V. Khachatryan et al., Measurement of the production cross section of a W boson in association with two b jets in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 77 (2017) 92, doi:10.1140/epjc/s10052-016-4573-z, arXiv:1608.07561 [hep-ex]
- V. Khachatryan et al., Pseudorapidity dependence of long-range two-particle correlations in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Rev. C. 96 (2017) 014915, doi:10.1103/PhysRevC.96.014915, arXiv:1604.05347 [nucl-ex]
- V. Khachatryan et al., Evidence for collectivity in pp collisions at the LHC, Phys. Lett. B. 765 (2017) 193–220, doi:10.1016/j.physletb.2016.12.009, arXiv:1606.06198 [nucl-ex]
- V. Khachatryan et al., Search for heavy resonances decaying into a vector boson and a Higgs boson in final states with charged leptons, neutrinos, and b quarks, *Phys. Lett. B.* 768 (2017) 137–162, doi:10.1016/j.physletb.2017.02.040, arXiv:1610.08066 [hep-ex]
- V. Khachatryan et al., Search for heavy neutrinos or third-generation leptoquarks in final states with two hadronically decaying  $\tau$  leptons and two jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP.~03~(2017)~077, doi:10.1007/JHEP03(2017)077, arXiv:1612.01190 [hep-ex]
- V. Khachatryan et al., Measurement of electroweak-induced production of W  $\gamma$  with two jets in pp collisions at  $\sqrt{s}=8$  TeV and constraints on anomalous quartic gauge couplings, *JHEP*. 06 (2017) 106, doi:10.1007/JHEP06(2017)106, arXiv:1612.09256 [hep-ex]
- V. Khachatryan et al., Search for electroweak production of charginos in final states with two  $\tau$  leptons in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 04 (2017) 018, doi:10.1007/JHEP04(2017)018, arXiv:1610.04870 [hep-ex]
- V. Khachatryan et al., Measurements of the associated production of a Z boson and b jets in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 77 (2017) 751, doi:10.1140/epjc/s10052-017-5140-y, arXiv:1611.06507 [hep-ex]
- A.M. Sirunyan et al., Search for dijet resonances in protonproton collisions at  $\sqrt{s} = 13$  TeV and constraints on dark matter and other models, *Phys. Lett. B.* 769 (2017) 520–542, doi:10.1016/j.physletb.2017.02.012, arXiv:1611.03568 [hep-ex]
- V. Khachatryan et al., Measurement of the  $t\bar{t}$  production cross section using events in the e  $\mu$  final state in pp collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 77 (2017) 172, doi:10.1140/epjc/s10052-017-4718-8, arXiv:1611.04040 [hep-ex]

February 2, 2024 31 of 64

- V. Khachatryan et al., Search for heavy gauge W' boson in events with an energetic lepton and large missing transverse momentum at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 770 (2017) 278–301, doi:10.1016/j.physletb.2017.04.043, arXiv:1612.09274 [hep-ex]
- V. Khachatryan et al., Inclusive search for supersymmetry using razor variables in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 95 (2017) 012003, doi:10.1103/PhysRevD.95.012003, arXiv:1609.07658 [hep-ex]
- V. Khachatryan et al., Measurement of the transverse momentum spectrum of the Higgs boson produced in pp collisions at  $\sqrt{s} = 8$  TeV using  $H \to WW$  decays, JHEP. 03 (2017) 032, doi:10.1007/JHEP03(2017)032, arXiv:1606.01522 [hep-ex]
- V. Khachatryan et al., Coherent  $J/\psi$  photoproduction in ultra-peripheral PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV with the CMS experiment, Phys. Lett. B. 772 (2017) 489–511, doi:10.1016/j.physletb.2017.07.001, arXiv:1605.06966 [nucl-ex]
- A.M. Sirunyan et al., Search for electroweak production of a vector-like quark decaying to a top quark and a Higgs boson using boosted topologies in fully hadronic final states, *JHEP*. 04 (2017) 136, doi:10.1007/JHEP04(2017)136, arXiv:1612.05336 [hep-ex]
- V. Khachatryan et al., Measurement of the WZ production cross section in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 766 (2017) 268–290, doi:10.1016/j.physletb.2017.01.011, arXiv:1607.06943 [hep-ex]
- V. Khachatryan et al., Search for high-mass diphoton resonances in protonproton collisions at 13 TeV and combination with 8 TeV search, *Phys. Lett. B.* 767 (2017) 147–170, doi:10.1016/j.physletb.2017.01.027, arXiv:1609.02507 [hep-ex]
- A.M. Sirunyan et al., Cross section measurement of t-channel single top quark production in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 772 (2017) 752–776, doi:10.1016/j.physletb.2017.07.047, arXiv:1610.00678 [hep-ex]
- S. Chatrchyan et al., Measurement of the mass difference between top quark and antiquark in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 770 (2017) 50–71, doi:10.1016/j.physletb.2017.04.028, arXiv:1610.09551 [hep-ex]
- V. Khachatryan et al., Observation of  $\Upsilon(1S)$  pair production in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 05 (2017) 013, doi:10.1007/JHEP05(2017)013, arXiv:1610.07095 [hep-ex]
- V. Khachatryan et al., **Jet energy scale and resolution in the CMS experiment in pp collisions at 8 TeV**, *JINST*. 12 (2017) P02014, doi:10.1088/1748-0221/12/02/P02014, arXiv:1607.03663 [hep-ex]
- V. Khachatryan et al., Measurement and QCD analysis of double-differential inclusive jet cross sections in pp collisions at  $\sqrt{s} = 8$  TeV and cross section ratios to 2.76 and 7 TeV, *JHEP*. 03 (2017) 156, doi:10.1007/JHEP03(2017)156, arXiv:1609.05331 [hep-ex]
- V. Khachatryan et al., Suppression and azimuthal anisotropy of prompt and nonprompt  $J/\psi$  production in PbPb collisions at  $\sqrt{s_{_{NN}}}=2.76 TeV$ , Eur. Phys. J. C. 77 (2017) 252, doi:10.1140/epjc/s10052-017-4781-1, arXiv:1610.00613 [nucl-ex]
- V. Khachatryan et al., Search for supersymmetry in events with photons and missing transverse energy in pp collisions at 13 TeV, Phys. Lett. B. 769 (2017) 391–412, doi:10.1016/j.physletb.2017.04.005, arXiv:1611.06604 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in events with one lepton and multiple jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 95 (2017) 012011, doi:10.1103/PhysRevD.95.012011, arXiv:1609.09386 [hep-ex]
- V. Khachatryan et al., Measurement of the transverse momentum spectra of weak vector bosons produced in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 02 (2017) 096, doi:10.1007/JHEP02(2017)096, arXiv:1606.05864 [hep-ex]
- V. Khachatryan et al., **The CMS trigger system**, JINST. 12 (2017) P01020, doi:10.1088/1748-0221/12/01/P01020, arXiv:1609.02366 [physics.ins-det]
- V. Khachatryan et al., Measurement of differential cross sections for top quark pair production using the lepton+jets final state in proton-proton collisions at 13 TeV, Phys. Rev. D. 95 (2017) 092001, doi:10.1103/PhysRevD.95.092001, arXiv:1610.04191 [hep-ex]
- V. Khachatryan et al., Search for top quark decays via Higgs-boson-mediated flavor-changing neutral currents in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 02 (2017) 079, doi:10.1007/JHEP02(2017)079, arXiv:1610.04857 [hep-ex]
- V. Khachatryan et al., Measurements of differential production cross sections for a Z boson in association with jets in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 04 (2017) 022, doi:10.1007/JHEP04(2017)022, arXiv:1611.03844 [hep-ex]

February 2, 2024 32 of 64

- V. Khachatryan et al., Measurement of the total and differential inclusive  $B^+$  hadron cross sections in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 771 (2017) 435–456, doi:10.1016/j.physletb.2017.05.074, arXiv:1609.00873 [hep-ex]
- V. Khachatryan et al., Measurement of the WZ production cross section in pp collisions at  $\sqrt{s} = 7$  and 8 TeV and search for anomalous triple gauge couplings at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 77 (2017) 236, doi:10.1140/epjc/s10052-017-4730-z, arXiv:1609.05721 [hep-ex]
- V. Khachatryan et al., Search for top squark pair production in compressed-mass-spectrum scenarios in proton-proton collisions at  $\sqrt{s}=8$  TeV using the  $\alpha_T$  variable, Phys. Lett. B. 767 (2017) 403–430, doi:10.1016/j.physletb.2017.02.007, arXiv:1605.08993 [hep-ex]
- V. Khachatryan et al., Suppression of  $\Upsilon(1S)$ ,  $\Upsilon(2S)$  and  $\Upsilon(3S)$  production in PbPb collisions at  $\sqrt{s_{\rm NN}} = 2.76$  TeV, Phys. Lett. B. 770 (2017) 357–379, doi:10.1016/j.physletb.2017.04.031, arXiv:1611.01510 [nucl-ex]
- A.M. Sirunyan et al., Search for massive resonances decaying into WW, WZ or ZZ bosons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2017) 162, doi:10.1007/JHEP03(2017)162, arXiv:1612.09159 [hep-ex]
- V. Khachatryan et al., Search for high-mass Z  $\gamma$  resonances in  $e^+e^-\gamma$  and  $\mu^+\mu^-\gamma$  final states in proton-proton collisions at  $\sqrt{s}=8$  and 13 TeV, *JHEP*. 01 (2017) 076, doi:10.1007/JHEP01(2017)076, arXiv:1610.02960 [hep-ex]
- V. Khachatryan et al., Measurements of differential cross sections for associated production of a W boson and jets in proton-proton collisions at  $\sqrt{s}=8$  TeV, Phys. Rev. D. 95 (2017) 052002, doi:10.1103/PhysRevD.95.052002, arXiv:1610.04222 [hep-ex]
- V. Khachatryan et al., Search for CP violation in  $t\bar{t}$  production and decay in proton-proton collisions at  $\sqrt{s}=8$  TeV, JHEP. 03 (2017) 101, doi:10.1007/JHEP03(2017)101, arXiv:1611.08931 [hep-ex]
- V. Khachatryan et al., Search for Dark Matter and Supersymmetry with a Compressed Mass Spectrum in the Vector Boson Fusion Topology in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. Lett. 118 (2017) 021802, doi:10.1103/PhysRevLett.118.021802, arXiv:1605.09305 [hep-ex]
- V. Khachatryan et al., Measurement of inclusive jet cross sections in pp and PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. C. 96 (2017) 015202, doi:10.1103/PhysRevC.96.015202, arXiv:1609.05383 [nucl-ex]
- V. Khachatryan et al., Search for anomalous Wtb couplings and flavour-changing neutral currents in t-channel single top quark production in pp collisions at  $\sqrt{s} = 7$  and 8 TeV, JHEP. 02 (2017) 028, doi:10.1007/JHEP02(2017)028, arXiv:1610.03545 [hep-ex]
- V. Khachatryan et al., Search for new phenomena in events with high jet multiplicity and low missing transverse momentum in protonproton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 770 (2017) 257–267, doi:10.1016/j.physletb.2017.01.073, arXiv:1608.01224 [hep-ex]
- V. Khachatryan et al., Search for R-parity violating supersymmetry with displaced vertices in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 95 (2017) 012009, doi:10.1103/PhysRevD.95.012009, arXiv:1610.05133 [hep-ex]
- V. Khachatryan et al., **Observation of the decay**  $B^+ \to \psi(2S)\phi(1020)K^+$  in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 764 (2017) 66–86, doi:10.1016/j.physletb.2016.11.001, arXiv:1607.02638 [hep-ex]
- V. Khachatryan et al., Observation of charge-dependent azimuthal correlations in p-Pb collisions and its implication for the search for the chiral magnetic effect, Phys. Rev. Lett. 118 (2017) 122301, doi:10.1103/PhysRevLett.118.122301, arXiv:1610.00263 [nucl-ex]
- A.M. Sirunyan et al., Relative Modification of Prompt  $\psi(2S)$  and J/ $\psi$  Yields from pp to PbPb Collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Rev. Lett. 118 (2017) 162301, doi:10.1103/PhysRevLett.118.162301, arXiv:1611.01438 [nucl-ex]
- A.M. Sirunyan et al., Search for high-mass  $Z\gamma$  resonances in proton-proton collisions at  $\sqrt{s}=8$  and 13 TeV using jet substructure techniques, *Phys. Lett. B.* 772 (2017) 363–387, doi:10.1016/j.physletb.2017.06.062, arXiv:1612.09516 [hep-ex]
- A.M. Sirunyan et al., Measurements of the charm jet cross section and nuclear modification factor in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 772 (2017) 306–329, doi:10.1016/j.physletb.2017.06.053, arXiv:1612.08972 [nucl-ex]
- V. Khachatryan et al., Search for heavy resonances decaying to tau lepton pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 02 (2017) 048, doi:10.1007/JHEP02(2017)048, arXiv:1611.06594 [hep-ex]

February 2, 2024 33 of 64

- V. Khachatryan et al., Charged-particle nuclear modification factors in PbPb and pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, JHEP. 04 (2017) 039, doi:10.1007/JHEP04(2017)039, arXiv:1611.01664 [nucl-ex]
- V. Khachatryan et al., Multiplicity and rapidity dependence of strange hadron production in pp, pPb, and PbPb collisions at the LHC, Phys. Lett. B. 768 (2017) 103–129, doi:10.1016/j.physletb.2017.01.075, arXiv:1605.06699 [nucl-ex]
- A.M. Sirunyan et al., Search for supersymmetry in multijet events with missing transverse momentum in proton-proton collisions at 13 TeV, Phys. Rev. D. 96 (2017) 032003, doi:10.1103/PhysRevD.96.032003, arXiv:1704.07781 [hep-ex]
- A.M. Sirunyan et al., Searches for W' bosons decaying to a top quark and a bottom quark in proton-proton collisions at 13 TeV, *JHEP*. 08 (2017) 029, doi:10.1007/JHEP08(2017)029, arXiv:1706.04260 [hep-ex]
- A.M. Sirunyan et al., Search for black holes in high-multiplicity final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 774 (2017) 279–307, doi:10.1016/j.physletb.2017.09.053, arXiv:1705.01403 [hep-ex]
- A.M. Sirunyan et al., Search for new physics with dijet angular distributions in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 07 (2017) 013, doi:10.1007/JHEP07(2017)013, arXiv:1703.09986 [hep-ex]
- A.M. Sirunyan et al., Mechanical stability of the CMS strip tracker measured with a laser alignment system, JINST. 12 (2017) P04023, doi:10.1088/1748-0221/12/04/P04023, arXiv:1701.02022 [physics.ins-det]
- A.M. Sirunyan et al., Search for dark matter produced in association with heavy-flavor quark pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C. 77 (2017) 845, doi:10.1140/epjc/s10052-017-5317-4, arXiv:1706.02581 [hep-ex]
- A.M. Sirunyan et al., Measurements of properties of the Higgs boson decaying into the four-lepton final state in pp collisions at  $\sqrt{s} = 13$  TeV, JHEP. 11 (2017) 047, doi:10.1007/JHEP11(2017)047, arXiv:1706.09936 [hep-ex]
- V. Khachatryan et al., Search for light bosons in decays of the 125 GeV Higgs boson in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 10 (2017) 076, doi:10.1007/JHEP10(2017)076, arXiv:1701.02032 [hep-ex]
- A.M. Sirunyan et al., Measurement of the inclusive energy spectrum in the very forward direction in protonproton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 08 (2017) 046, doi:10.1007/JHEP08(2017)046, arXiv:1701.08695 [hep-ex]
- A.M. Sirunyan et al., Combination of searches for heavy resonances decaying to WW, WZ, ZZ, WH, and ZH boson pairs in protonproton collisions at  $\sqrt{s} = 8$  and 13 TeV, Phys. Lett. B. 774 (2017) 533–558, doi:10.1016/j.physletb.2017.09.083, arXiv:1705.09171 [hep-ex]
- A.M. Sirunyan et al., Search for anomalous couplings in boosted  $WW/WZ \rightarrow \ell\nu q\bar{q}$  production in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 772 (2017) 21–42, doi:10.1016/j.physletb.2017.06.009, arXiv:1703.06095 [hep-ex]
- A.M. Sirunyan et al., Measurement of charged pion, kaon, and proton production in proton-proton collisions at  $\sqrt{s}=13$  TeV, Phys. Rev. D. 96 (2017) 112003, doi:10.1103/PhysRevD.96.112003, arXiv:1706.10194 [hep-ex]
- A.M. Sirunyan et al., Study of Jet Quenching with Z+jet Correlations in Pb-Pb and pp Collisions at  $\sqrt{s}_{NN}=5.02 TeV$ , Phys. Rev. Lett. 119 (2017) 082301, doi:10.1103/PhysRevLett.119.082301, arXiv:1702.01060 [nucl-ex]
- A.M. Sirunyan et al., Measurement of prompt and nonprompt  $J/\psi$  production in pp and pPb collisions at  $\sqrt{s_{NN}} = 5.02 TeV$ , Eur. Phys. J. C. 77 (2017) 269, doi:10.1140/epjc/s10052-017-4828-3, arXiv:1702.01462 [nucl-ex]
- A.M. Sirunyan et al., Search for Charged Higgs Bosons Produced via Vector Boson Fusion and Decaying into a Pair of W and Z Bosons Using pp Collisions at  $\sqrt{s} = 13 TeV$ , Phys. Rev. Lett. 119 (2017) 141802, doi:10.1103/PhysRevLett.119.141802, arXiv:1705.02942 [hep-ex]
- A.M. Sirunyan et al., Search for single production of vector-like quarks decaying into a b quark and a W boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 772 (2017) 634–656, doi:10.1016/j.physletb.2017.07.022, arXiv:1701.08328 [hep-ex]
- A.M. Sirunyan et al., Measurement of the differential cross sections for the associated production of a W boson and jets in proton-proton collisions at  $\sqrt{s}=13$  TeV, Phys.~Rev.~D.~96~(2017)~072005, doi:10.1103/PhysRevD.96.072005, arXiv:1707.05979 [hep-ex]
- A.M. Sirunyan et al., Search for single production of vector-like quarks decaying to a Z boson and a top or a bottom quark in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 05 (2017) 029, doi:10.1007/JHEP05(2017)029, arXiv:1701.07409 [hep-ex]

February 2, 2024 34 of 64

- A.M. Sirunyan et al., Observation of top quark production in proton-nucleus collisions, *Phys. Rev. Lett.* 119 (2017) 242001, doi:10.1103/PhysRevLett.119.242001, arXiv:1709.07411 [nucl-ex]
- A.M. Sirunyan et al., Search for a heavy resonance decaying to a top quark and a vector-like top quark at  $\sqrt{s} = 13$  TeV, JHEP. 09 (2017) 053, doi:10.1007/JHEP09(2017)053, arXiv:1703.06352 [hep-ex]
- V. Khachatryan et al., Search for new phenomena with multiple charged leptons in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 77 (2017) 635, doi:10.1140/epjc/s10052-017-5182-1, arXiv:1701.06940 [hep-ex]
- A.M. Sirunyan et al., Measurement of double-differential cross sections for top quark pair production in pp collisions at  $\sqrt{s} = 8TeV$  and impact on parton distribution functions, Eur. Phys. J. C. 77 (2017) 459, doi:10.1140/epjc/s10052-017-4984-5, arXiv:1703.01630 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in the all-hadronic final state using top quark tagging in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 96 (2017) 012004, doi:10.1103/PhysRevD.96.012004, arXiv:1701.01954 [hep-ex]
- A.M. Sirunyan et al., Search for dark matter produced with an energetic jet or a hadronically decaying W or **Z** boson at  $\sqrt{s} = 13$  TeV, *JHEP*. 07 (2017) 014, doi:10.1007/JHEP07(2017)014, arXiv:1703.01651 [hep-ex]
- A.M. Sirunyan et al., Measurement of the triple-differential dijet cross section in proton-proton collisions at  $\sqrt{s} = 8TeV$  and constraints on parton distribution functions, Eur. Phys. J. C. 77 (2017) 746, doi:10.1140/epjc/s10052-017-5286-7, arXiv:1705.02628 [hep-ex]
- A.M. Sirunyan et al., Search for pair production of vector-like T and B quarks in single-lepton final states using boosted jet substructure in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 11 (2017) 085, doi:10.1007/JHEP11(2017)085, arXiv:1706.03408 [hep-ex]
- A.M. Sirunyan et al., Constraints on anomalous Higgs boson couplings using production and decay information in the four-lepton final state, *Phys. Lett. B.* 775 (2017) 1–24, doi:10.1016/j.physletb.2017.10.021, arXiv:1707.00541 [hep-ex]
- A.M. Sirunyan et al., Search for direct production of supersymmetric partners of the top quark in the alljets final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 10 (2017) 005, doi:10.1007/JHEP10(2017)005, arXiv:1707.03316 [hep-ex]
- A.M. Sirunyan et al., Measurement of the top quark mass using single top quark events in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Eur. Phys. J. C. 77 (2017) 354, doi:10.1140/epjc/s10052-017-4912-8, arXiv:1703.02530 [hep-ex]
- A.M. Sirunyan et al., Search for top quark partners with charge 5/3 in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 08 (2017) 073, doi:10.1007/JHEP08(2017)073, arXiv:1705.10967 [hep-ex]
- A.M. Sirunyan et al., **Principal-component analysis of two-particle azimuthal correlations in PbPb and** pPb **collisions at CMS**, Phys. Rev. C. 96 (2017) 064902, doi:10.1103/PhysRevC.96.064902, arXiv:1708.07113 [nucl-ex]
- A.M. Sirunyan et al., Search for a light pseudoscalar Higgs boson produced in association with bottom quarks in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 11 (2017) 010, doi:10.1007/JHEP11(2017)010, arXiv:1707.07283 [hep-ex]
- A.M. Sirunyan et al., Search for standard model production of four top quarks in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 772 (2017) 336–358, doi:10.1016/j.physletb.2017.06.064, arXiv:1702.06164 [hep-ex]
- A.M. Sirunyan et al., Search for Low Mass Vector Resonances Decaying to Quark-Antiquark Pairs in Proton-Proton Collisions at  $\sqrt{s} = 13 TeV$ , Phys. Rev. Lett. 119 (2017) 111802, doi:10.1103/PhysRevLett.119.111802, arXiv:1705.10532 [hep-ex]
- A.M. Sirunyan et al., Measurement of the jet mass in highly boosted  $t\bar{t}$  events from pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 77 (2017) 467, doi:10.1140/epjc/s10052-017-5030-3, arXiv:1703.06330 [hep-ex]
- A.M. Sirunyan et al., Search for associated production of dark matter with a Higgs boson decaying to  $b\bar{b}$  or  $\gamma\gamma$  at  $\sqrt{s} = 13$  TeV, JHEP. 10 (2017) 180, doi:10.1007/JHEP10(2017)180, arXiv:1703.05236 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in events with at least one photon, missing transverse momentum, and large transverse event activity in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 12 (2017) 142, doi:10.1007/JHEP12(2017)142, arXiv:1707.06193 [hep-ex]
- A.M. Sirunyan et al., Search for new physics in the monophoton final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 10 (2017) 073, doi:10.1007/JHEP10(2017)073, arXiv:1706.03794 [hep-ex]

February 2, 2024 35 of 64

- A.M. Sirunyan et al., Search for dark matter and unparticles in events with a Z boson and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, JHEP. 03 (2017) 061, doi:10.1007/JHEP03(2017)061, arXiv:1701.02042 [hep-ex]
- V. Khachatryan et al., Measurement of the cross section for electroweak production of Z  $\gamma$  in association with two jets and constraints on anomalous quartic gauge couplings in protonproton collisions at  $\sqrt{s}=8$  TeV, *Phys. Lett. B.* 770 (2017) 380–402, doi:10.1016/j.physletb.2017.04.071, arXiv:1702.03025 [hep-ex]
- A.M. Sirunyan et al., Search for heavy resonances that decay into a vector boson and a Higgs boson in hadronic final states at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 77 (2017) 636, doi:10.1140/epjc/s10052-017-5192-z, arXiv:1707.01303 [hep-ex]
- A.M. Sirunyan et al., Search for a heavy composite Majorana neutrino in the final state with two leptons and two quarks at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 775 (2017) 315–337, doi:10.1016/j.physletb.2017.11.001, arXiv:1706.08578 [hep-ex]
- V. Khachatryan et al., Search for leptophobic Z' bosons decaying into four-lepton final states in protonproton collisions at  $\sqrt{s}$  =8TeV, Phys. Lett. B. 773 (2017) 563–584, doi:10.1016/j.physletb.2017.08.069, arXiv:1701.01345 [hep-ex]
- A.M. Sirunyan et al., Measurement of the semileptonic  $t\bar{t} + \gamma$  production cross section in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 10 (2017) 006, doi:10.1007/JHEP10(2017)006, arXiv:1706.08128 [hep-ex]
- A.M. Sirunyan et al., Measurements of the pp  $\to W\gamma\gamma$  and pp  $\to Z\gamma\gamma$  cross sections and limits on anomalous quartic gauge couplings at  $\sqrt{s}=8$  TeV, JHEP. 10 (2017) 072, doi:10.1007/JHEP10(2017)072, arXiv:1704.00366 [hep-ex]
- A.M. Sirunyan et al., Search for  $t\bar{t}$  resonances in highly boosted lepton+jets and fully hadronic final states in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 07 (2017) 001, doi:10.1007/JHEP07(2017)001, arXiv:1704.03366 [hep-ex]
- A.M. Sirunyan et al., Search for Supersymmetry in pp Collisions at  $\sqrt{s} = 13 TeV$  in the Single-Lepton Final State Using the Sum of Masses of Large-Radius Jets, Phys. Rev. Lett. 119 (2017) 151802, doi:10.1103/PhysRevLett.119.151802, arXiv:1705.04673 [hep-ex]
- A.M. Sirunyan et al., Measurement of the  $B^{\pm}$  Meson Nuclear Modification Factor in Pb-Pb Collisions at  $\sqrt{s_{NN}} = 5.02 TeV$ , Phys. Rev. Lett. 119 (2017) 152301, doi:10.1103/PhysRevLett.119.152301, arXiv:1705.04727 [hep-ex]
- A.M. Sirunyan et al., Search for associated production of a Z boson with a single top quark and for tZ flavour-changing interactions in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 07 (2017) 003, doi:10.1007/JHEP07(2017)003, arXiv:1702.01404 [hep-ex]
- A.M. Sirunyan et al., Search for third-generation scalar leptoquarks and heavy right-handed neutrinos in final states with two tau leptons and two jets in proton-proton collisions at  $\sqrt{s}=13$  TeV, JHEP. 07 (2017) 121, doi:10.1007/JHEP07(2017)121, arXiv:1703.03995 [hep-ex]
- A.M. Sirunyan et al., Measurement of the  $t\bar{t}$  production cross section using events with one lepton and at least one jet in pp collisions at  $\sqrt{s}=13$  TeV, JHEP. 09 (2017) 051, doi:10.1007/JHEP09(2017)051, arXiv:1701.06228 [hep-ex]
- A.M. Sirunyan et al., Search for Evidence of the Type-III Seesaw Mechanism in Multilepton Final States in Proton-Proton Collisions at  $\sqrt{s} = 13 TeV$ , Phys. Rev. Lett. 119 (2017) 221802, doi:10.1103/PhysRevLett.119.221802, arXiv:1708.07962 [hep-ex]
- A.M. Sirunyan et al., Measurements of jet charge with dijet events in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 10 (2017) 131, doi:10.1007/JHEP10(2017)131, arXiv:1706.05868 [hep-ex]
- A.M. Sirunyan et al., Particle-flow reconstruction and global event description with the CMS detector, JINST. 12 (2017) P10003, doi:10.1088/1748-0221/12/10/P10003, arXiv:1706.04965 [physics.ins-det]
- A.M. Sirunyan et al., Search for Higgs boson pair production in the  $bb\tau\tau$  final state in proton-proton collisions at  $\sqrt(s) = 8TeV$ , Phys. Rev. D. 96 (2017) 072004, doi:10.1103/PhysRevD.96.072004, arXiv:1707.00350 [hep-ex]
- A.M. Sirunyan et al., Measurement of vector boson scattering and constraints on anomalous quartic couplings from events with four leptons and two jets in protonproton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 774 (2017) 682–705, doi:10.1016/j.physletb.2017.10.020, arXiv:1708.02812 [hep-ex]
- A.M. Sirunyan et al., Measurement of the top quark mass in the dileptonic  $t\bar{t}$  decay channel using the mass observables  $M_{b\ell}$ ,  $M_{T2}$ , and  $M_{b\ell\nu}$  in pp collisions at  $\sqrt{s}=8$  TeV, Phys. Rev. D. 96 (2017) 032002, doi:10.1103/PhysRevD.96.032002, arXiv:1704.06142 [hep-ex]

February 2, 2024 36 of 64

- G. Aad et al., Measurements of the Higgs boson production and decay rates and constraints on its couplings from a combined ATLAS and CMS analysis of the LHC pp collision data at  $\sqrt{s} = 7$  and 8 TeV, *JHEP*. 08 (2016) 045, doi:10.1007/JHEP08(2016)045, arXiv:1606.02266 [hep-ex]
- V. Khachatryan et al., Search for new phenomena in monophoton final states in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 755 (2016) 102–124, doi:10.1016/j.physletb.2016.01.057, arXiv:1410.8812 [hep-ex]
- V. Khachatryan et al., Measurement of the CP-violating weak phase  $\phi_s$  and the decay width difference  $\Delta\Gamma_s$  using the B  $_s^0 \to J/\psi\phi$ (1020) decay channel in pp collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B. 757 (2016) 97–120, doi:10.1016/j.physletb.2016.03.046, arXiv:1507.07527 [hep-ex]
- V. Khachatryan et al., Measurement of the  $t\bar{t}$  production cross section in the all-jets final state in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 76 (2016) 128, doi:10.1140/epjc/s10052-016-3956-5, arXiv:1509.06076 [hep-ex]
- V. Khachatryan et al., **Angular analysis of the decay**  $B^0 \to K^{*0} \mu^+ \mu^-$  from pp collisions at  $\sqrt{s} = 8$  TeV, *Phys. Lett. B.* 753 (2016) 424–448, doi:10.1016/j.physletb.2015.12.020, arXiv:1507.08126 [hep-ex]
- V. Khachatryan et al., Measurement of Spin Correlations in  $t\bar{t}$  Production using the Matrix Element Method in the Muon+Jets Final State in pp Collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B. 758 (2016) 321–346, doi:10.1016/j.physletb.2016.05.005, arXiv:1511.06170 [hep-ex]
- V. Khachatryan et al., Measurement of Top Quark Polarisation in T-Channel Single Top Quark Production, *JHEP*. 04 (2016) 073, doi:10.1007/JHEP04(2016)073, arXiv:1511.02138 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in events with soft leptons, low jet multiplicity, and missing transverse energy in protonproton collisions at  $\sqrt{s}$ =8 TeV, Phys. Lett. B. 759 (2016) 9–35, doi:10.1016/j.physletb.2016.05.033, arXiv:1512.08002 [hep-ex]
- V. Khachatryan et al., Search for a massive resonance decaying into a Higgs boson and a W or Z boson in hadronic final states in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 02 (2016) 145, doi:10.1007/JHEP02(2016)145, arXiv:1506.01443 [hep-ex]
- V. Khachatryan et al., Measurement of long-range near-side two-particle angular correlations in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 116 (2016) 172302, doi:10.1103/PhysRevLett.116.172302, arXiv:1510.03068 [nucl-ex]
- V. Khachatryan et al., Search for resonant  $t\bar{t}$  production in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 93 (2016) 012001, doi:10.1103/PhysRevD.93.012001, arXiv:1506.03062 [hep-ex]
- V. Khachatryan et al., Measurement of the charge asymmetry in top quark pair production in pp collisions at  $\sqrt{s} = 8$  TeV using a template method, *Phys. Rev. D.* 93 (2016) 034014, doi:10.1103/PhysRevD.93.034014, arXiv:1508.03862 [hep-ex]
- V. Khachatryan et al., Transverse momentum spectra of inclusive b jets in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 754 (2016) 59, doi:10.1016/j.physletb.2016.01.010, arXiv:1510.03373 [nucl-ex]
- V. Khachatryan et al., Search for pair production of first and second generation leptoquarks in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 93 (2016) 032004, doi:10.1103/PhysRevD.93.032004, arXiv:1509.03744 [hep-ex]
- V. Khachatryan et al., Measurement of transverse momentum relative to dijet systems in PbPb and pp collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, JHEP. 01 (2016) 006, doi:10.1007/JHEP01(2016)006, arXiv:1509.09029 [nucl-ex]
- V. Khachatryan et al., Search for W' decaying to tau lepton and neutrino in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 755 (2016) 196–216, doi:10.1016/j.physletb.2016.02.002, arXiv:1508.04308 [hep-ex]
- V. Khachatryan et al., Search for pair-produced vectorlike B quarks in proton-proton collisions at  $\sqrt{s}$ =8 TeV, Phys. Rev. D. 93 (2016) 112009, doi:10.1103/PhysRevD.93.112009, arXiv:1507.07129 [hep-ex]
- V. Khachatryan et al., Search for exotic decays of a Higgs boson into undetectable particles and one or more photons, *Phys. Lett. B.* 753 (2016) 363–388, doi:10.1016/j.physletb.2015.12.017, arXiv:1507.00359 [hep-ex]
- V. Khachatryan et al., Measurement of  $t\bar{t}$  production with additional jet activity, including b quark jets, in the dilepton decay channel using pp collisions at  $\sqrt{s} = 8$  TeV, Eur. Phys. J. C. 76 (2016) 379, doi:10.1140/epjc/s10052-016-4105-x, arXiv:1510.03072 [hep-ex]
- V. Khachatryan et al., Measurement of the inclusive jet cross section in pp collisions at  $\sqrt{s} = 2.76 TeV$ , Eur. Phys. J. C. 76 (2016) 265, doi:10.1140/epjc/s10052-016-4083-z, arXiv:1512.06212 [hep-ex]

February 2, 2024 37 of 64

- V. Khachatryan et al., Search for the production of an excited bottom quark decaying to tW in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 01 (2016) 166, doi:10.1007/JHEP01(2016)166, arXiv:1509.08141 [hep-ex]
- V. Khachatryan et al., Search for Anomalous Single Top Quark Production in Association with a Photon in pp Collisions at  $\sqrt{s} = 8$  TeV, JHEP. 04 (2016) 035, doi:10.1007/JHEP04(2016)035, arXiv:1511.03951 [hep-ex]
- V. Khachatryan et al., Search for  $W' \to tb$  in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 02 (2016) 122, doi:10.1007/JHEP02(2016)122, arXiv:1509.06051 [hep-ex]
- V. Khachatryan et al., Measurement of the top quark mass using proton-proton data at  $\sqrt{(s)} = 7$  and 8 TeV, Phys. Rev. D. 93 (2016) 072004, doi:10.1103/PhysRevD.93.072004, arXiv:1509.04044 [hep-ex]
- V. Khachatryan et al., Search for Excited Leptons in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV, JHEP. 03 (2016) 125, doi:10.1007/JHEP03(2016)125, arXiv:1511.01407 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in events with a photon, a lepton, and missing transverse momentum in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 757 (2016) 6–31, doi:10.1016/j.physletb.2016.03.039, arXiv:1508.01218 [hep-ex]
- V. Khachatryan et al., Search for vector-like charge 2/3 T quarks in proton-proton collisions at sqrt(s) = 8 TeV, Phys. Rev. D. 93 (2016) 012003, doi:10.1103/PhysRevD.93.012003, arXiv:1509.04177 [hep-ex]
- V. Khachatryan et al., A search for pair production of new light bosons decaying into muons, *Phys. Lett. B.* 752 (2016) 146–168, doi:10.1016/j.physletb.2015.10.067, arXiv:1506.00424 [hep-ex]
- V. Khachatryan et al., Measurement of the inelastic cross section in protonlead collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 759 (2016) 641–662, doi:10.1016/j.physletb.2016.06.027, arXiv:1509.03893 [hep-ex]
- V. Khachatryan et al., Search for the associated production of a Higgs boson with a single top quark in protonproton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 06 (2016) 177, doi:10.1007/JHEP06(2016)177, arXiv:1509.08159 [hep-ex]
- V. Khachatryan et al., Search for neutral MSSM Higgs bosons decaying to  $\mu^+\mu^-$  in pp collisions at  $\sqrt{s}=7$  and 8 TeV, Phys. Lett. B. 752 (2016) 221–246, doi:10.1016/j.physletb.2015.11.042, arXiv:1508.01437 [hep-ex]
- V. Khachatryan et al., Reconstruction and identification of  $\tau$  lepton decays to hadrons and  $\nu_{\tau}$  at CMS, JINST. 11 (2016) P01019, doi:10.1088/1748-0221/11/01/P01019, arXiv:1510.07488 [physics.ins-det]
- V. Khachatryan et al., Inclusive and differential measurements of the  $t\bar{t}$  charge asymmetry in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 757 (2016) 154–179, doi:10.1016/j.physletb.2016.03.060, arXiv:1507.03119 [hep-ex]
- V. Khachatryan et al., Measurement of differential cross sections for Higgs boson production in the diphoton decay channel in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 76 (2016) 13, doi:10.1140/epjc/s10052-015-3853-3, arXiv:1508.07819 [hep-ex]
- V. Khachatryan et al., Search for a Low-Mass Pseudoscalar Higgs Boson Produced in Association with a  $b\bar{b}$  Pair in pp Collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 758 (2016) 296–320, doi:10.1016/j.physletb.2016.05.003, arXiv:1511.03610 [hep-ex]
- V. Khachatryan et al., Search for dark matter and unparticles produced in association with a Z boson in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 93 (2016) 052011, doi:10.1103/PhysRevD.93.052011, arXiv:1511.09375 [hep-ex]
- V. Khachatryan et al., Study of B Meson Production in p +Pb Collisions at  $\sqrt{s_{NN}} = 5.02$  TeV Using Exclusive Hadronic Decays, Phys. Rev. Lett. 116 (2016) 032301, doi:10.1103/PhysRevLett.116.032301, arXiv:1508.06678 [nucl-ex]
- V. Khachatryan et al., Search for a very light NMSSM Higgs boson produced in decays of the 125 GeV scalar boson and decaying into  $\tau$  leptons in pp collisions at  $\sqrt{s}=8$  TeV, JHEP.~01~(2016)~079,~doi:10.1007/JHEP01(2016)079,~arXiv:1510.06534~[hep-ex]
- V. Khachatryan et al., Search for a Higgs boson decaying into  $\gamma^*\gamma \to \ell\ell\gamma$  with low dilepton mass in pp collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B. 753 (2016) 341–362, doi:10.1016/j.physletb.2015.12.039, arXiv:1507.03031 [hep-ex]
- V. Khachatryan et al., Observation of top quark pairs produced in association with a vector boson in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 01 (2016) 096, doi:10.1007/JHEP01(2016)096, arXiv:1510.01131 [hep-ex]
- V. Khachatryan et al., Searches for a heavy scalar boson H decaying to a pair of 125 GeV Higgs bosons hh or for a heavy pseudoscalar boson A decaying to Zh, in the final states with  $h \to \tau\tau$ , Phys. Lett. B. 755 (2016) 217–244, doi:10.1016/j.physletb.2016.01.056, arXiv:1510.01181 [hep-ex]

February 2, 2024 38 of 64

- V. Khachatryan et al., Event generator tunes obtained from underlying event and multiparton scattering measurements, Eur. Phys. J. C. 76 (2016) 155, doi:10.1140/epjc/s10052-016-3988-x, arXiv:1512.00815 [hep-ex]
- V. Khachatryan et al., Search for narrow resonances decaying to dijets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 116 (2016) 071801, doi:10.1103/PhysRevLett.116.071801, arXiv:1512.01224 [hep-ex]
- V. Khachatryan et al., Search for single production of scalar leptoquarks in proton-proton collisions at  $\sqrt{s} = 8TeV$ , Phys. Rev. D. 93 (2016) 032005, doi:10.1103/PhysRevD.93.032005, arXiv:1509.03750 [hep-ex]
- V. Khachatryan et al., Measurement of the top quark pair production cross section in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. Lett. 116 (2016) 052002, doi:10.1103/PhysRevLett.116.052002, arXiv:1510.05302 [hep-ex]
- V. Khachatryan et al., Study of Z boson production in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 759 (2016) 36-57, doi:10.1016/j.physletb.2016.05.044, arXiv:1512.06461 [hep-ex]
- V. Khachatryan et al., Measurement of differential and integrated fiducial cross sections for Higgs boson production in the four-lepton decay channel in pp collisions at  $\sqrt{s}=7$  and 8 TeV, *JHEP*. 04 (2016) 005, doi:10.1007/JHEP04(2016)005, arXiv:1512.08377 [hep-ex]
- V. Khachatryan et al., **Measurement of the ratio**  $B(B_s^0 \to J/\psi f_0(980)) / B(B_s^0 \to J/\psi \phi(1020))$  in pp collisions at  $\sqrt{s}$  = 7 TeV, Phys. Lett. B. 756 (2016) 84–102, doi:10.1016/j.physletb.2016.02.047, arXiv:1501.06089 [hep-ex]
- V. Khachatryan et al., Measurement of dijet azimuthal decorrelation in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 76 (2016) 536, doi:10.1140/epjc/s10052-016-4346-8, arXiv:1602.04384 [hep-ex]
- V. Khachatryan et al., Search for heavy Majorana neutrinos in e  $\pm$ e  $\pm$ + jets and e  $\pm \mu^{\pm}$ + jets events in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 04 (2016) 169, doi:10.1007/JHEP04(2016)169, arXiv:1603.02248 [hep-ex]
- V. Khachatryan et al., Measurement of the W boson helicity fractions in the decays of top quark pairs to lepton + jets final states produced in pp collisions at  $\sqrt{s} = 8\text{TeV}$ , Phys. Lett. B. 762 (2016) 512–534, doi:10.1016/j.physletb.2016.10.007, arXiv:1605.09047 [hep-ex]
- V. Khachatryan et al., Search for lepton flavour violating decays of heavy resonances and quantum black holes to an e  $\mu$  pair in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Eur. Phys. J. C. 76 (2016) 317, doi:10.1140/epjc/s10052-016-4149-y, arXiv:1604.05239 [hep-ex]
- V. Khachatryan et al., Forwardbackward asymmetry of DrellYan lepton pairs in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 76 (2016) 325, doi:10.1140/epjc/s10052-016-4156-z, arXiv:1601.04768 [hep-ex]
- V. Khachatryan et al., Measurement of the  $Z\gamma \to \nu\bar{\nu}\gamma$  production cross section in pp collisions at  $\sqrt{s}=8$  TeV and limits on anomalous  $ZZ\gamma$  and  $Z\gamma\gamma$  trilinear gauge boson couplings, *Phys. Lett. B.* 760 (2016) 448–468, doi:10.1016/j.physletb.2016.06.080, arXiv:1602.07152 [hep-ex]
- V. Khachatryan et al., Search for two Higgs bosons in final states containing two photons and two bottom quarks in proton-proton collisions at 8 TeV, *Phys. Rev. D.* 94 (2016) 052012, doi:10.1103/PhysRevD.94.052012, arXiv:1603.06896 [hep-ex]
- V. Khachatryan et al., Search for lepton flavour violating decays of the Higgs boson to  $e\tau$  and  $e\mu$  in protonproton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 763 (2016) 472–500, doi:10.1016/j.physletb.2016.09.062, arXiv:1607.03561 [hep-ex]
- V. Khachatryan et al., Decomposing transverse momentum balance contributions for quenched jets in PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, JHEP. 11 (2016) 055, doi:10.1007/JHEP11(2016)055, arXiv:1609.02466 [nucl-ex]
- V. Khachatryan et al., Search for dark matter particles in proton-proton collisions at  $\sqrt{s} = 8$  TeV using the razor variables, JHEP. 12 (2016) 088, doi:10.1007/JHEP12(2016)088, arXiv:1603.08914 [hep-ex]
- V. Khachatryan et al., Search for massive WH resonances decaying into the  $\ell\nu b\bar{b}$  final state at  $\sqrt{s}=8~TeV$ , Eur. Phys. J. C. 76 (2016) 237, doi:10.1140/epjc/s10052-016-4067-z, arXiv:1601.06431 [hep-ex]
- V. Khachatryan et al., Measurement of the top quark mass using charged particles in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 93 (2016) 092006, doi:10.1103/PhysRevD.93.092006, arXiv:1603.06536 [hep-ex]
- V. Khachatryan et al., Measurement of the mass of the top quark in decays with a  $J/\psi$  meson in pp collisions at 8 TeV, JHEP. 12 (2016) 123, doi:10.1007/JHEP12(2016)123, arXiv:1608.03560 [hep-ex]
- V. Khachatryan et al., Measurement of the double-differential inclusive jet cross section in protonproton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C. 76 (2016) 451, doi:10.1140/epjc/s10052-016-4286-3, arXiv:1605.04436 [hep-ex]

February 2, 2024 39 of 64

- V. Khachatryan et al., Search for heavy resonances decaying to two Higgs bosons in final states containing four b quarks, Eur. Phys. J. C. 76 (2016) 371, doi:10.1140/epjc/s10052-016-4206-6, arXiv:1602.08762 [hep-ex]
- V. Khachatryan et al., Search for long-lived charged particles in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D. 94 (2016) 112004, doi:10.1103/PhysRevD.94.112004, arXiv:1609.08382 [hep-ex]
- V. Khachatryan et al., Studies of inclusive four-jet production with two b-tagged jets in proton-proton collisions at 7 TeV, Phys. Rev. D. 94 (2016) 112005, doi:10.1103/PhysRevD.94.112005, arXiv:1609.03489 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in pp collisions at  $\sqrt{s} = 13$  TeV in the single-lepton final state using the sum of masses of large-radius jets, *JHEP*. 08 (2016) 122, doi:10.1007/JHEP08(2016)122, arXiv:1605.04608 [hep-ex]
- V. Khachatryan et al., Phenomenological MSSM interpretation of CMS searches in pp collisions at sqrt(s) = 7 and 8 TeV, JHEP. 10 (2016) 129, doi:10.1007/JHEP10(2016)129, arXiv:1606.03577 [hep-ex]
- V. Khachatryan et al., Search for narrow resonances in dijet final states at  $\sqrt{s} = 8$  TeV with the novel CMS technique of data scouting, *Phys. Rev. Lett.* 117 (2016) 031802, doi:10.1103/PhysRevLett.117.031802, arXiv:1604.08907 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in pp collisions at sqrt(s) = 8 TeV in final states with boosted W bosons and b jets using razor variables, *Phys. Rev. D.* 93 (2016) 092009, doi:10.1103/PhysRevD.93.092009, arXiv:1602.02917 [hep-ex]
- V. Khachatryan et al., Measurement of electroweak production of a W boson and two forward jets in protonproton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 11 (2016) 147, doi:10.1007/JHEP11(2016)147, arXiv:1607.06975 [hep-ex]
- V. Khachatryan et al., Search for direct pair production of scalar top quarks in the single- and dilepton channels in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 07 (2016) 027, doi:10.1007/JHEP07(2016)027, arXiv:1602.03169 [hep-ex]
- V. Khachatryan et al., Measurement of the ZZ production cross section and  $Z \rightarrow \ell^+\ell^-\ell'^+\ell'^-$  branching fraction in pp collisions at  $\sqrt{s}$ =13 TeV, *Phys. Lett. B.* 763 (2016) 280–303, doi:10.1016/j.physletb.2016.10.054, arXiv:1607.08834 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in the multijet and missing transverse momentum final state in pp collisions at 13 TeV, Phys. Lett. B. 758 (2016) 152–180, doi:10.1016/j.physletb.2016.05.002, arXiv:1602.06581 [hep-ex]
- V. Khachatryan et al., Search for R-parity violating decays of a top squark in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 760 (2016) 178–201, doi:10.1016/j.physletb.2016.06.039, arXiv:1602.04334 [hep-ex]
- V. Khachatryan et al., Search for Higgs boson off-shell production in proton-proton collisions at 7 and 8 TeV and derivation of constraints on its total decay width, *JHEP*. 09 (2016) 051, doi:10.1007/JHEP09(2016)051, arXiv:1605.02329 [hep-ex]
- V. Khachatryan et al., Measurement of the integrated and differential  $t\bar{t}$  production cross sections for high $p_t$  top quarks in pp collisions at  $\sqrt{s}=8$  TeV, Phys. Rev. D. 94 (2016) 072002, doi:10.1103/PhysRevD.94.072002, arXiv:1605.00116 [hep-ex]
- V. Khachatryan et al., Azimuthal decorrelation of jets widely separated in rapidity in pp collisions at  $\sqrt{s} = 7$  TeV, JHEP. 08 (2016) 139, doi:10.1007/JHEP08(2016)139, arXiv:1601.06713 [hep-ex]
- V. Khachatryan et al., Correlations between jets and charged particles in PbPb and pp collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, JHEP. 02 (2016) 156, doi:10.1007/JHEP02(2016)156, arXiv:1601.00079 [nucl-ex]
- V. Khachatryan et al., Search for direct pair production of supersymmetric top quarks decaying to all-hadronic final states in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 76 (2016) 460, doi:10.1140/epjc/s10052-016-4292-5, arXiv:1603.00765 [hep-ex]
- V. Khachatryan et al., Measurement of the differential cross section and charge asymmetry for inclusive  $pp \rightarrow W^{\pm} + X$  production at  $\sqrt{s} = 8$  TeV, Eur. Phys. J. C. 76 (2016) 469, doi:10.1140/epjc/s10052-016-4293-4, arXiv:1603.01803 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in electroweak production with photons and large missing transverse energy in pp collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B. 759 (2016) 479–500, doi:10.1016/j.physletb.2016.05.088, arXiv:1602.08772 [hep-ex]

February 2, 2024 40 of 64

- V. Khachatryan et al., Evidence for exclusive  $\gamma\gamma \to W^+W^-$  production and constraints on anomalous quartic gauge couplings in pp collisions at  $\sqrt{s}=7$  and 8 TeV,  $\it JHEP.~08~(2016)~119,~doi:10.1007/JHEP08(2016)119,~arXiv:1604.04464~[hep-ex]$
- V. Khachatryan et al., Measurement of the differential cross sections for top quark pair production as a function of kinematic event variables in pp collisions at  $\sqrt{s}$ =7 and 8 TeV, Phys. Rev. D. 94 (2016) 052006, doi:10.1103/PhysRevD.94.052006, arXiv:1607.00837 [hep-ex]
- V. Khachatryan et al., Measurement of inclusive jet production and nuclear modifications in pPb collisions at  $\sqrt{s_{_{NN}}} = 5.02$  TeV, Eur. Phys. J. C. 76 (2016) 372, doi:10.1140/epjc/s10052-016-4205-7, arXiv:1601.02001 [nucl-ex]
- V. Khachatryan et al., Combined search for anomalous pseudoscalar HVV couplings in VH(H  $\rightarrow b\bar{b}$ ) production and H  $\rightarrow$  VV decay, Phys. Lett. B. 759 (2016) 672–696, doi:10.1016/j.physletb.2016.06.004, arXiv:1602.04305 [hep-ex]
- V. Khachatryan et al., Search for Resonant Production of High-Mass Photon Pairs in Proton-Proton Collisions at  $\sqrt{s}$  =8 and 13 TeV, Phys. Rev. Lett. 117 (2016) 051802, doi:10.1103/PhysRevLett.117.051802, arXiv:1606.04093 [hep-ex]
- V. Khachatryan et al., Search for neutral resonances decaying into a Z boson and a pair of b jets or  $\tau$  leptons, Phys. Lett. B. 759 (2016) 369–394, doi:10.1016/j.physletb.2016.05.087, arXiv:1603.02991 [hep-ex]
- V. Khachatryan et al., Search for s channel single top quark production in pp collisions at  $\sqrt{s} = 7$  and 8 TeV, JHEP. 09 (2016) 027, doi:10.1007/JHEP09(2016)027, arXiv:1603.02555 [hep-ex]
- V. Khachatryan et al.,  $\Upsilon(nS)$  polarizations versus particle multiplicity in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 761 (2016) 31–52, doi:10.1016/j.physletb.2016.07.065, arXiv:1603.02913 [hep-ex]
- V. Khachatryan et al., Search for dark matter in proton-proton collisions at 8 TeV with missing transverse momentum and vector boson tagged jets, *JHEP*. 12 (2016) 083, doi:10.1007/JHEP12(2016)083, arXiv:1607.05764 [hep-ex]
- V. Khachatryan et al., Measurement of the t-tbar production cross section in the e-mu channel in proton-proton collisions at sqrt(s) = 7 and 8 TeV, JHEP. 08 (2016) 029, doi:10.1007/JHEP08(2016)029, arXiv:1603.02303 [hep-ex]
- V. Khachatryan et al., Searches for R-parity-violating supersymmetry in ppcollisions at  $\sqrt{s} = 8$  TeV in final states with 0-4 leptons, Phys. Rev. D. 94 (2016) 112009, doi:10.1103/PhysRevD.94.112009, arXiv:1606.08076 [hep-ex]
- G. Aad et al., Combined Measurement of the Higgs Boson Mass in pp Collisions at  $\sqrt{s} = 7$  and 8 TeV with the ATLAS and CMS Experiments, Phys. Rev. Lett. 114 (2015) 191803, doi:10.1103/PhysRevLett.114.191803, arXiv:1503.07589 [hep-ex]
- V. Khachatryan et al., Measurements of jet multiplicity and differential production cross sections of Z+ jets events in proton-proton collisions at  $\sqrt{s}=7$  TeV, Phys. Rev. D. 91 (2015) 052008, doi:10.1103/PhysRevD.91.052008, arXiv:1408.3104 [hep-ex]
- V. Khachatryan et al., Measurement of the production cross section ratio  $\sigma(Xb2(1P))$  /  $\sigma(Xb1(1P))$  in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 743 (2015) 383–402, doi:10.1016/j.physletb.2015.02.048, arXiv:1409.5761 [hep-ex]
- V. Khachatryan et al., Searches for supersymmetry based on events with b jets and four W bosons in pp collisions at 8 TeV, Phys. Lett. B. 745 (2015) 5–28, doi:10.1016/j.physletb.2015.04.002, arXiv:1412.4109 [hep-ex]
- V. Khachatryan et al., Search for a standard model-like Higgs boson in the  $\mu^+\mu^-$  and  $e^+e^-$  decay channels at the LHC, Phys. Lett. B. 744 (2015) 184–207, doi:10.1016/j.physletb.2015.03.048, arXiv:1410.6679 [hep-ex]
- S. Chatrchyan et al., Study of Z production in PbPb and pp collisions at  $\sqrt{s_{NN}}=2.76$  TeV in the dimuon and dielectron decay channels, *JHEP*. 03 (2015) 022, doi:10.1007/JHEP03(2015)022, arXiv:1410.4825 [nucl-ex]
- V. Khachatryan et al., Search for quark contact interactions and extra spatial dimensions using dijet angular distributions in protonproton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 746 (2015) 79–99, doi:10.1016/j.physletb.2015.04.042, arXiv:1411.2646 [hep-ex]
- V. Khachatryan et al., Search for stealth supersymmetry in events with jets, either photons or leptons, and low missing transverse momentum in pp collisions at 8 TeV, Phys. Lett. B. 743 (2015) 503–525, doi:10.1016/j.physletb.2015.03.017, arXiv:1411.7255 [hep-ex]

February 2, 2024 41 of 64

- V. Khachatryan et al., Search for physics beyond the standard model in final states with a lepton and missing transverse energy in proton-proton collisions at sqrt(s) = 8 TeV, Phys. Rev. D. 91 (2015) 092005, doi:10.1103/PhysRevD.91.092005, arXiv:1408.2745 [hep-ex]
- V. Khachatryan et al., Precise determination of the mass of the Higgs boson and tests of compatibility of its couplings with the standard model predictions using proton collisions at 7 and 8 TeV, Eur. Phys. J. C. 75 (2015) 212, doi:10.1140/epjc/s10052-015-3351-7, arXiv:1412.8662 [hep-ex]
- V. Khachatryan et al., Search for disappearing tracks in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 01 (2015) 096, doi:10.1007/JHEP01(2015)096, arXiv:1411.6006 [hep-ex]
- V. Khachatryan et al., Search for long-lived particles that decay into final states containing two electrons or two muons in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 91 (2015) 052012, doi:10.1103/PhysRevD.91.052012, arXiv:1411.6977 [hep-ex]
- V. Khachatryan et al., Measurements of differential and double-differential Drell-Yan cross sections in proton-proton collisions at 8 TeV, Eur. Phys. J. C. 75 (2015) 147, doi:10.1140/epjc/s10052-015-3364-2, arXiv:1412.1115 [hep-ex]
- V. Khachatryan et al., Search for New Resonances Decaying via WZ to Leptons in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 740 (2015) 83–104, doi:10.1016/j.physletb.2014.11.026, arXiv:1407.3476 [hep-ex]
- V. Khachatryan et al., Search for dark matter, extra dimensions, and unparticles in monojet events in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Eur. Phys. J. C. 75 (2015) 235, doi:10.1140/epjc/s10052-015-3451-4, arXiv:1408.3583 [hep-ex]
- S. Chatrchyan et al., Measurement of jet multiplicity distributions in  $t\bar{t}$  production in pp collisions at  $\sqrt{s} = 7TeV$ , Eur. Phys. J. C. 74 (2015) 3014, doi:10.1140/epjc/s10052-014-3014-0, arXiv:1404.3171 [hep-ex]
- V. Khachatryan et al., Search for physics beyond the standard model in dilepton mass spectra in proton-proton collisions at  $\sqrt{s}=8$  TeV, JHEP.~04~(2015)~025,~doi:10.1007/JHEP04(2015)025,~arXiv:1412.6302~[hep-ex]
- V. Khachatryan et al., Measurement of the inclusive 3-jet production differential cross section in protonproton collisions at 7 TeV and determination of the strong coupling constant in the TeV range, Eur. Phys. J. C. 75 (2015) 186, doi:10.1140/epjc/s10052-015-3376-y, arXiv:1412.1633 [hep-ex]
- V. Khachatryan et al., Constraints on the spin-parity and anomalous HVV couplings of the Higgs boson in proton collisions at 7 and 8 TeV, Phys. Rev. D. 92 (2015) 012004, doi:10.1103/PhysRevD.92.012004, arXiv:1411.3441 [hep-ex]
- V. Khachatryan et al., Search for Monotop Signatures in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. Lett. 114 (2015) 101801, doi:10.1103/PhysRevLett.114.101801, arXiv:1410.1149 [hep-ex]
- V. Khachatryan et al., Differential Cross Section Measurements for the Production of a W Boson in Association with Jets in ProtonProton Collisions at  $\sqrt{s}=7$  TeV, Phys. Lett. B. 741 (2015) 12–37, doi:10.1016/j.physletb.2014.12.003, arXiv:1406.7533 [hep-ex]
- V. Khachatryan et al., Measurement of the ratio of the production cross sections times branching fractions of  $B_c^\pm \to J/\psi \pi^\pm$  and  $B^\pm \to J/\psi K^\pm$  and  $\mathcal{B}(B_c^\pm \to J/\psi \pi^\pm \pi^\mp)/\mathcal{B}(B_c^\pm \to J/\psi \pi^\pm)$  in pp collisions at  $\sqrt{s}=7$  TeV, JHEP. 01 (2015) 063, doi:10.1007/JHEP01(2015)063, arXiv:1410.5729 [hep-ex]
- V. Khachatryan et al., Constraints on parton distribution functions and extraction of the strong coupling constant from the inclusive jet cross section in pp collisions at  $\sqrt{s} = 7 TeV$ , Eur. Phys. J. C. 75 (2015) 288, doi:10.1140/epjc/s10052-015-3499-1, arXiv:1410.6765 [hep-ex]
- V. Khachatryan et al., Measurement of electroweak production of two jets in association with a Z boson in proton-proton collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 75 (2015) 66, doi:10.1140/epjc/s10052-014-3232-5, arXiv:1410.3153 [hep-ex]
- V. Khachatryan et al., Search for pair-produced resonances decaying to jet pairs in protonproton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 747 (2015) 98–119, doi:10.1016/j.physletb.2015.04.045, arXiv:1412.7706 [hep-ex]
- V. Khachatryan et al., Long-range two-particle correlations of strange hadrons with charged particles in pPb and PbPb collisions at LHC energies, *Phys. Lett. B.* 742 (2015) 200–224, doi:10.1016/j.physletb.2015.01.034, arXiv:1409.3392 [nucl-ex]
- V. Khachatryan et al., Measurement of the W boson helicity in events with a single reconstructed top quark in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 01 (2015) 053, doi:10.1007/JHEP01(2015)053, arXiv:1410.1154 [hep-ex]

February 2, 2024 42 of 64

- V. Khachatryan et al., Search for Long-Lived Neutral Particles Decaying to Quark-Antiquark Pairs in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 91 (2015) 012007, doi:10.1103/PhysRevD.91.012007, arXiv:1411.6530 [hep-ex]
- V. Khachatryan et al., Measurement of the  $pp \to ZZ$  Production Cross Section and Constraints on Anomalous Triple Gauge Couplings in Four-Lepton Final States at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 740 (2015) 250–272, doi:10.1016/j.physletb.2016.04.010, arXiv:1406.0113 [hep-ex]
- V. Khachatryan et al., Search for Displaced Supersymmetry in events with an electron and a muon with large impact parameters, Phys. Rev. Lett. 114 (2015) 061801, doi:10.1103/PhysRevLett.114.061801, arXiv:1409.4789 [hep-ex]
- V. Khachatryan et al., Performance of the CMS missing transverse momentum reconstruction in pp data at  $\sqrt{s}$  = 8 TeV, JINST. 10 (2015) P02006, doi:10.1088/1748-0221/10/02/P02006, arXiv:1411.0511 [physics.ins-det]
- V. Khachatryan et al., Measurement of the cross section ratio  $\sigma_{t\bar{t}b\bar{b}}/\sigma_{t\bar{t}jj}$  in pp collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B. 746 (2015) 132–153, doi:10.1016/j.physletb.2015.04.060, arXiv:1411.5621 [hep-ex]
- V. Khachatryan et al., Search for Supersymmetry Using Razor Variables in Events with b-Tagged Jets in pp Collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 91 (2015) 052018, doi:10.1103/PhysRevD.91.052018, arXiv:1502.00300 [hep-ex]
- V. Khachatryan et al., Production of leading charged particles and leading charged-particle jets at small transverse momenta in pp collisions at sqrt(s) = 8 TeV, Phys. Rev. D. 92 (2015) 112001, doi:10.1103/PhysRevD.92.112001, arXiv:1507.00233 [hep-ex]
- V. Khachatryan et al., Searches for third-generation squark production in fully hadronic final states in protonproton collisions at  $\sqrt{s} = 8$  TeV, JHEP.~06~(2015)~116, doi:10.1007/JHEP06(2015)116, arXiv:1503.08037 [hep-ex]
- V. Khachatryan et al., Limits on the Higgs boson lifetime and width from its decay to four charged leptons, *Phys. Rev. D.* 92 (2015) 072010, doi:10.1103/PhysRevD.92.072010, arXiv:1507.06656 [hep-ex]
- V. Khachatryan et al., Angular coefficients of Z bosons produced in pp collisions at  $\sqrt{s} = 8$  TeV and decaying to  $\mu^+\mu^-$  as a function of transverse momentum and rapidity, *Phys. Lett. B.* 750 (2015) 154–175, doi:10.1016/j.physletb.2015.08.061, arXiv:1504.03512 [hep-ex]
- V. Khachatryan et al., Search for the standard model Higgs boson produced through vector boson fusion and decaying to  $b\bar{b}$ , Phys. Rev. D. 92 (2015) 032008, doi:10.1103/PhysRevD.92.032008, arXiv:1506.01010 [hep-ex]
- V. Khachatryan et al., Study of W boson production in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B. 750 (2015) 565–586, doi:10.1016/j.physletb.2015.09.057, arXiv:1503.05825 [nucl-ex]
- V. Khachatryan et al., Search for a Standard Model Higgs Boson Produced in Association with a Top-Quark Pair and Decaying to Bottom Quarks Using a Matrix Element Method, Eur. Phys. J. C. 75 (2015) 251, doi:10.1140/epjc/s10052-015-3454-1, arXiv:1502.02485 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry with photons in pp collisions at  $\sqrt{s}$ =8 TeV, Phys. Rev. D. 92 (2015) 072006, doi:10.1103/PhysRevD.92.072006, arXiv:1507.02898 [hep-ex]
- V. Khachatryan et al., Search for Narrow High-Mass Resonances in ProtonProton Collisions at  $\sqrt{s}=8$  TeV Decaying to a Z and a Higgs Boson, Phys. Lett. B. 748 (2015) 255–277, doi:10.1016/j.physletb.2015.07.011, arXiv:1502.04994 [hep-ex]
- V. Khachatryan et al., Searches for Supersymmetry using the M  $_{T2}$  Variable in Hadronic Events Produced in pp Collisions at 8 TeV, JHEP.~05~(2015)~078,~doi:10.1007/JHEP05(2015)078,~arXiv:1502.04358~[hep-ex]
- V. Khachatryan et al., Search for a pseudoscalar boson decaying into a Z boson and the 125 GeV Higgs boson in  $\ell^+\ell^-b\bar{b}$  final states, *Phys. Lett. B.* 748 (2015) 221–243, doi:10.1016/j.physletb.2015.07.010, arXiv:1504.04710 [hep-ex]
- V. Khachatryan et al., Search for neutral color-octet weak-triplet scalar particles in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 09 (2015) 201, doi:10.1007/JHEP09(2015)201, arXiv:1505.08118 [hep-ex]
- V. Khachatryan et al., Search for neutral MSSM Higgs bosons decaying into a pair of bottom quarks, JHEP. 11 (2015) 071, doi:10.1007/JHEP11(2015)071, arXiv:1506.08329 [hep-ex]
- V. Khachatryan et al., Search for a Higgs boson in the mass range from 145 to 1000 GeV decaying to a pair of W or Z bosons, JHEP. 10 (2015) 144, doi:10.1007/JHEP10(2015)144, arXiv:1504.00936 [hep-ex]

February 2, 2024 43 of 64

- V. Khachatryan et al., Measurement of the Z boson differential cross section in transverse momentum and rapidity in protonproton collisions at 8 TeV, Phys. Lett. B. 749 (2015) 187–209, doi:10.1016/j.physletb.2015.07.065, arXiv:1504.03511 [hep-ex]
- V. Khachatryan et al., Measurement of diffraction dissociation cross sections in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 92 (2015) 012003, doi:10.1103/PhysRevD.92.012003, arXiv:1503.08689 [hep-ex]
- V. Khachatryan et al., Search for resonant pair production of Higgs bosons decaying to two bottom quarkantiquark pairs in protonproton collisions at 8 TeV, *Phys. Lett. B.* 749 (2015) 560–582, doi:10.1016/j.physletb.2015.08.047, arXiv:1503.04114 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in the vector-boson fusion topology in proton-proton collisions at  $\sqrt{s} = 8$  TeV, JHEP. 11 (2015) 189, doi:10.1007/JHEP11(2015)189, arXiv:1508.07628 [hep-ex]
- V. Khachatryan et al., Search for vector-like T quarks decaying to top quarks and Higgs bosons in the all-hadronic channel using jet substructure, *JHEP*. 06 (2015) 080, doi:10.1007/JHEP06(2015)080, arXiv:1503.01952 [hep-ex]
- V. Khachatryan et al., Search for diphoton resonances in the mass range from 150 to 850 GeV in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 750 (2015) 494–519, doi:10.1016/j.physletb.2015.09.062, arXiv:1506.02301 [hep-ex]
- V. Khachatryan et al., Measurement of J/ $\psi$  and  $\psi$ (2S) Prompt Double-Differential Cross Sections in pp Collisions at  $\sqrt{s}$ =7 TeV, Phys. Rev. Lett. 114 (2015) 191802, doi:10.1103/PhysRevLett.114.191802, arXiv:1502.04155 [hep-ex]
- V. Khachatryan et al., Search for a charged Higgs boson in pp collisions at  $\sqrt{s}=8$  TeV, JHEP. 11 (2015) 018, doi:10.1007/JHEP11(2015)018, arXiv:1508.07774 [hep-ex]
- V. Khachatryan et al., Constraints on the pMSSM, AMSB model and on other models from the search for long-lived charged particles in proton-proton collisions at sqrt(s) = 8 TeV, Eur. Phys. J. C. 75 (2015) 325, doi:10.1140/epjc/s10052-015-3533-3, arXiv:1502.02522 [hep-ex]
- V. Khachatryan et al., Distributions of Topological Observables in Inclusive Three- and Four-Jet Events in pp Collisions at sqrt(s) = 7 TeV, Eur. Phys. J. C. 75 (2015) 302, doi:10.1140/epjc/s10052-015-3491-9, arXiv:1502.04785 [hep-ex]
- V. Khachatryan et al., Search for Decays of Stopped Long-Lived Particles Produced in ProtonProton Collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 75 (2015) 151, doi:10.1140/epjc/s10052-015-3367-z, arXiv:1501.05603 [hep-ex]
- V. Khachatryan et al., Performance of Photon Reconstruction and Identification with the CMS Detector in Proton-Proton Collisions at sqrt(s) = 8 TeV, JINST. 10 (2015) P08010, doi:10.1088/1748-0221/10/08/P08010, arXiv:1502.02702 [physics.ins-det]
- V. Khachatryan et al., Search for Third-Generation Scalar Leptoquarks in the t  $\tau$  Channel in Proton-Proton Collisions at  $\sqrt{s}=8$  TeV, JHEP. 07 (2015) 042, doi:10.1007/JHEP11(2016)056, arXiv:1503.09049 [hep-ex]
- V. Khachatryan et al., Comparison of the Z/  $\gamma^*$  + jets to  $\gamma$  + jets cross sections in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 10 (2015) 128, doi:10.1007/JHEP04(2016)010, arXiv:1505.06520 [hep-ex]
- V. Khachatryan et al., Search for Lepton-Flavour-Violating Decays of the Higgs Boson, Phys. Lett. B. 749 (2015) 337–362, doi:10.1016/j.physletb.2015.07.053, arXiv:1502.07400 [hep-ex]
- V. Khachatryan et al., Measurements of the ZZ production cross sections in the  $2l2\nu$  channel in protonproton collisions at  $\sqrt{s}=7$  and 8 TeV and combined constraints on triple gauge couplings, Eur. Phys. J. C. 75 (2015) 511, doi:10.1140/epjc/s10052-015-3706-0, arXiv:1503.05467 [hep-ex]
- V. Khachatryan et al., Search for heavy Majorana neutrinos in  $\mu^{\pm}\mu^{\pm}$ + jets events in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 748 (2015) 144–166, doi:10.1016/j.physletb.2015.06.070, arXiv:1501.05566 [hep-ex]
- V. Khachatryan et al., Search for resonances and quantum black holes using dijet mass spectra in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 91 (2015) 052009, doi:10.1103/PhysRevD.91.052009, arXiv:1501.04198 [hep-ex]
- V. Khachatryan et al., Measurement of the differential cross section for top quark pair production in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 75 (2015) 542, doi:10.1140/epjc/s10052-015-3709-x, arXiv:1505.04480 [hep-ex]
- V. Khachatryan et al., Study of Final-State Radiation in Decays of Z Bosons Produced in pp Collisions at 7 TeV, Phys. Rev. D. 91 (2015) 092012, doi:10.1103/PhysRevD.91.092012, arXiv:1502.07940 [hep-ex]

February 2, 2024 44 of 64

- V. Khachatryan et al., Nuclear Effects on the Transverse Momentum Spectra of Charged Particles in pPb Collisions at  $\sqrt{s_{_{NN}}} = 5.02$  TeV, Eur. Phys. J. C. 75 (2015) 237, doi:10.1140/epjc/s10052-015-3435-4, arXiv:1502.05387 [nucl-ex]
- V. Khachatryan et al., Measurement of the  $\mathbb{Z}\gamma$  Production Cross Section in pp Collisions at 8 TeV and Search for Anomalous Triple Gauge Boson Couplings, *JHEP*. 04 (2015) 164, doi:10.1007/JHEP04(2015)164, arXiv:1502.05664 [hep-ex]
- V. Khachatryan et al., Performance of Electron Reconstruction and Selection with the CMS Detector in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV, JINST. 10 (2015) P06005, doi:10.1088/1748-0221/10/06/P06005, arXiv:1502.02701 [physics.ins-det]
- V. Khachatryan et al., Evidence for transverse momentum and pseudorapidity dependent event plane fluctuations in PbPb and pPb collisions, *Phys. Rev. C.* 92 (2015) 034911, doi:10.1103/PhysRevC.92.034911, arXiv:1503.01692 [nucl-ex]
- V. Khachatryan et al., Measurements of the  $\Upsilon(1S)$ ,  $\Upsilon(2S)$ , and  $\Upsilon(3S)$  differential cross sections in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 749 (2015) 14–34, doi:10.1016/j.physletb.2015.07.037, arXiv:1501.07750 [hep-ex]
- V. Khachatryan et al., Measurement of the underlying event activity using charged-particle jets in proton-proton collisions at sqrt(s) = 2.76 TeV, JHEP. 09 (2015) 137, doi:10.1007/JHEP09(2015)137, arXiv:1507.07229 [hep-ex]
- V. Khachatryan et al., Evidence for Collective Multiparticle Correlations in p-Pb Collisions, Phys. Rev. Lett. 115 (2015) 012301, doi:10.1103/PhysRevLett.115.012301, arXiv:1502.05382 [nucl-ex]
- V. Khachatryan et al., Search for a light charged Higgs boson decaying to  $c\overline{s}$  in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 12 (2015) 178, doi:10.1007/JHEP12(2015)178, arXiv:1510.04252 [hep-ex]
- V. Khachatryan et al., Pseudorapidity distribution of charged hadrons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B. 751 (2015) 143–163, doi:10.1016/j.physletb.2015.10.004, arXiv:1507.05915 [hep-ex]
- V. Khachatryan et al., Search for the production of dark matter in association with top-quark pairs in the single-lepton final state in proton-proton collisions at sqrt(s) = 8 TeV,  $JHEP.\ 06\ (2015)\ 121$ , doi:10.1007/JHEP06(2015)121,  $arXiv:1504.03198\ [hep-ex]$
- S. Chatrchyan et al., Studies of Azimuthal Dihadron Correlations in Ultra-Central PbPb Collisions at  $\sqrt{s_{NN}} =$  2.76 TeV, JHEP. 02 (2014) 088, doi:10.1007/JHEP02(2014)088, arXiv:1312.1845 [nucl-ex]
- S. Chatrchyan et al., Probing Color Coherence Effects in pp Collisions at  $\sqrt{s} = 7TeV$ , Eur. Phys. J. C. 74 (2014) 2901, doi:10.1140/epjc/s10052-014-2901-8, arXiv:1311.5815 [hep-ex]
- S. Chatrchyan et al., Measurement of the Properties of a Higgs Boson in the Four-Lepton Final State, Phys. Rev. D. 89 (2014) 092007, doi:10.1103/PhysRevD.89.092007, arXiv:1312.5353 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $t\bar{t}$  production cross section in the dilepton channel in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 02 (2014) 024, doi:10.1007/JHEP02(2014)024, arXiv:1312.7582 [hep-ex]
- S. Chatrchyan et al., Study of Double Parton Scattering Using W + 2-Jet Events in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 03 (2014) 032, doi:10.1007/JHEP03(2014)032, arXiv:1312.5729 [hep-ex]
- S. Chatrchyan et al., Inclusive Search for a Vector-Like T Quark with Charge  $\frac{2}{3}$  in pp Collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 729 (2014) 149–171, doi:10.1016/j.physletb.2014.01.006, arXiv:1311.7667 [hep-ex]
- S. Chatrchyan et al., Observation of a Peaking Structure in the  $J/\psi\phi$  Mass Spectrum from  $B^{\pm} \to J/\psi\phi K^{\pm}$  Decays, Phys. Lett. B. 734 (2014) 261–281, doi:10.1016/j.physletb.2014.05.055, arXiv:1309.6920 [hep-ex]
- S. Chatrchyan et al., Event Activity Dependence of Y(nS) Production in  $\sqrt{s_{NN}}$ =5.02 TeV pPb and  $\sqrt{s}$ =2.76 TeV pp Collisions, JHEP. 04 (2014) 103, doi:10.1007/JHEP04(2014)103, arXiv:1312.6300 [nucl-ex]
- S. Chatrchyan et al., Search for Flavor-Changing Neutral Currents in Top-Quark Decays  $t \to Zq$  in pp Collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. Lett. 112 (2014) 171802, doi:10.1103/PhysRevLett.112.171802, arXiv:1312.4194 [hep-ex]
- S. Chatrchyan et al., Modification of Jet Shapes in PbPb Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Lett. B. 730 (2014) 243–263, doi:10.1016/j.physletb.2014.01.042, arXiv:1310.0878 [nucl-ex]
- S. Chatrchyan et al., Measurement of the Top-Quark Mass in All-Jets  $t\bar{t}$  Events in pp Collisions at  $\sqrt{s}$ =7 TeV, Eur. Phys. J. C. 74 (2014) 2758, doi:10.1140/epjc/s10052-014-2758-x, arXiv:1307.4617 [hep-ex]

February 2, 2024 45 of 64

- S. Chatrchyan et al., Search for Top Squark and Higgsino Production using Diphoton Higgs Boson Decays, *Phys. Rev. Lett.* 112 (2014) 161802, doi:10.1103/PhysRevLett.112.161802, arXiv:1312.3310 [hep-ex]
- S. Chatrchyan et al., Measurement of the Triple-Differential Cross Section for Photon+Jets Production in Proton-Proton Collisions at  $\sqrt{s}$ =7 TeV, JHEP. 06 (2014) 009, doi:10.1007/JHEP06(2014)009, arXiv:1311.6141 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in pp Collisions at  $\sqrt{s}$ =8 TeV in Events with a Single Lepton, Large Jet Multiplicity, and Multiple b Jets, *Phys. Lett. B.* 733 (2014) 328–353, doi:10.1016/j.physletb.2014.04.023, arXiv:1311.4937 [hep-ex]
- S. Chatrchyan et al., Study of the Production of Charged Pions, Kaons, and Protons in pPb Collisions at  $\sqrt{s_{NN}} = 5.02~TeV$ , Eur. Phys. J. C. 74 (2014) 2847, doi:10.1140/epjc/s10052-014-2847-x, arXiv:1307.3442 [hep-ex]
- S. Chatrchyan et al., Search for the Standard Model Higgs Boson Produced in Association with a W or a Z Boson and Decaying to Bottom Quarks, *Phys. Rev. D.* 89 (2014) 012003, doi:10.1103/PhysRevD.89.012003, arXiv:1310.3687 [hep-ex]
- S. Chatrchyan et al., Measurement of the Muon Charge Asymmetry in Inclusive  $pp \to W + X$  Production at  $\sqrt{s} = 7$  TeV and an Improved Determination of Light Parton Distribution Functions, Phys. Rev. D. 90 (2014) 032004, doi:10.1103/PhysRevD.90.032004, arXiv:1312.6283 [hep-ex]
- S. Chatrchyan et al., Evidence of b-Jet Quenching in PbPb Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. Lett. 113 (2014) 132301, doi:10.1103/PhysRevLett.113.132301, arXiv:1312.4198 [nucl-ex]
- S. Chatrchyan et al., Measurement of the  $W\gamma$  and  $Z\gamma$  Inclusive Cross Sections in pp Collisions at  $\sqrt{s}=7$  TeV and Limits on Anomalous Triple Gauge Boson Couplings, Phys. Rev. D. 89 (2014) 092005, doi:10.1103/PhysRevD.89.092005, arXiv:1308.6832 [hep-ex]
- S. Chatrchyan et al., Measurement of Four-Jet Production in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 89 (2014) 092010, doi:10.1103/PhysRevD.89.092010, arXiv:1312.6440 [hep-ex]
- S. Chatrchyan et al., Search for Pair Production of Excited Top Quarks in the Lepton + Jets Final State, JHEP. 06 (2014) 125, doi:10.1007/JHEP06(2014)125, arXiv:1311.5357 [hep-ex]
- S. Chatrchyan et al., Measurement of Higher-Order Harmonic Azimuthal Anisotropy in PbPb Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. C. 89 (2014) 044906, doi:10.1103/PhysRevC.89.044906, arXiv:1310.8651 [nucl-ex]
- S. Chatrchyan et al., Search for Top-Quark Partners with Charge 5/3 in the Same-Sign Dilepton Final State, Phys. Rev. Lett. 112 (2014) 171801, doi:10.1103/PhysRevLett.112.171801, arXiv:1312.2391 [hep-ex]
- S. Chatrchyan et al., Measurement of Associated W + Charm Production in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 02 (2014) 013, doi:10.1007/JHEP02(2014)013, arXiv:1310.1138 [hep-ex]
- S. Chatrchyan et al., Measurement of the Production Cross Section for a W Boson and Two b Jets in pp Collisions at  $\sqrt{s}$ =7 TeV, Phys. Lett. B. 735 (2014) 204–225, doi:10.1016/j.physletb.2014.06.041, arXiv:1312.6608 [hep-ex]
- S. Chatrchyan et al., Searches for Light- and Heavy-Flavour Three-Jet Resonances in pp Collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 730 (2014) 193–214, doi:10.1016/j.physletb.2014.01.049, arXiv:1311.1799 [hep-ex]
- S. Chatrchyan et al., Search for Baryon Number Violation in Top-Quark Decays, Phys. Lett. B. 731 (2014) 173–196, doi:10.1016/j.physletb.2014.02.033, arXiv:1310.1618 [hep-ex]
- V. Khachatryan et al., Observation of the Diphoton Decay of the Higgs Boson and Measurement of Its Properties, Eur. Phys. J. C. 74 (2014) 3076, doi:10.1140/epjc/s10052-014-3076-z, arXiv:1407.0558 [hep-ex]
- S. Chatrchyan et al., Search for W'  $\rightarrow$  tb decays in the lepton + jets final state in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 05 (2014) 108, doi:10.1007/JHEP05(2014)108, arXiv:1402.2176 [hep-ex]
- V. Khachatryan et al., Measurement of the  $t\bar{t}$  Production Cross Section in pp Collisions at  $\sqrt{s}=8$  TeV in Dilepton Final States Containing One  $\tau$  Lepton, Phys. Lett. B. 739 (2014) 23–43, doi:10.1016/j.physletb.2014.10.032, arXiv:1407.6643 [hep-ex]
- V. Khachatryan et al., Search for neutral MSSM Higgs bosons decaying to a pair of tau leptons in pp collisions, *JHEP*. 10 (2014) 160, doi:10.1007/JHEP10(2014)160, arXiv:1408.3316 [hep-ex]
- S. Chatrchyan et al., Search for  $WW\gamma$  and  $WZ\gamma$  production and constraints on anomalous quartic gauge couplings in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 90 (2014) 032008, doi:10.1103/PhysRevD.90.032008, arXiv:1404.4619 [hep-ex]

February 2, 2024 46 of 64

- V. Khachatryan et al., Measurement of Prompt  $J/\psi$  Pair Production in pp Collisions at  $\sqrt{s} = 7$  Tev, JHEP. 09 (2014) 094, doi:10.1007/JHEP09(2014)094, arXiv:1406.0484 [hep-ex]
- V. Khachatryan et al., Search for Excited Quarks in the  $\gamma+$  Jet Final State in ProtonProton Collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B. 738 (2014) 274–293, doi:10.1016/j.physletb.2014.09.048, arXiv:1406.5171 [hep-ex]
- S. Chatrchyan et al., **Alignment of the CMS tracker with LHC and cosmic ray data**, *JINST*. 9 (2014) P06009, doi:10.1088/1748-0221/9/06/P06009, arXiv:1403.2286 [physics.ins-det]
- S. Chatrchyan et al., Observation of the associated production of a single top quark and a W boson in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. Lett. 112 (2014) 231802, doi:10.1103/PhysRevLett.112.231802, arXiv:1401.2942 [hep-ex]
- S. Chatrchyan et al., Search for invisible decays of Higgs bosons in the vector boson fusion and associated ZH production modes, Eur. Phys. J. C. 74 (2014) 2980, doi:10.1140/epjc/s10052-014-2980-6, arXiv:1404.1344 [hep-ex]
- V. Khachatryan et al., Search for massive resonances in dijet systems containing jets tagged as W or Z boson decays in pp collisions at  $\sqrt{s} = 8$  TeV, JHEP. 08 (2014) 173, doi:10.1007/JHEP08(2014)173, arXiv:1405.1994 [hep-ex]
- S. Chatrchyan et al., Measurement of Jet Fragmentation in PbPb and pp Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. C. 90 (2014) 024908, doi:10.1103/PhysRevC.90.024908, arXiv:1406.0932 [nucl-ex]
- V. Khachatryan et al., Searches for heavy Higgs bosons in two-Higgs-doublet models and for  $t \to ch$  decay using multilepton and diphoton final states in pp collisions at 8 TeV, Phys. Rev. D. 90 (2014) 112013, doi:10.1103/PhysRevD.90.112013, arXiv:1410.2751 [hep-ex]
- S. Chatrchyan et al., Measurement of the production cross sections for a Z boson and one or more b jets in pp collisions at sqrt(s) = 7 TeV, JHEP. 06 (2014) 120, doi:10.1007/JHEP06(2014)120, arXiv:1402.1521 [hep-ex]
- S. Chatrchyan et al., Measurement of pseudorapidity distributions of charged particles in proton-proton collisions at  $\sqrt{s} = 8$  TeV by the CMS and TOTEM experiments, Eur. Phys. J. C. 74 (2014) 3053, doi:10.1140/epjc/s10052-014-3053-6, arXiv:1405.0722 [hep-ex]
- V. Khachatryan et al., Search for jet extinction in the inclusive jet-  $p_t$  spectrum from proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 90 (2014) 032005, doi:10.1103/PhysRevD.90.032005, arXiv:1405.7653 [hep-ex]
- V. Khachatryan et al., Measurement of the t-channel single-top-quark production cross section and of the  $\mid V_{tb} \mid$  CKM matrix element in pp collisions at  $\sqrt{s}$ = 8 TeV, JHEP. 06 (2014) 090, doi:10.1007/JHEP06(2014)090, arXiv:1403.7366 [hep-ex]
- S. Chatrchyan et al., Measurement of differential cross sections for the production of a pair of isolated photons in pp collisions at  $\sqrt{s} = 7TeV$ , Eur. Phys. J. C. 74 (2014) 3129, doi:10.1140/epjc/s10052-014-3129-3, arXiv:1405.7225 [hep-ex]
- V. Khachatryan et al., Search for massive resonances decaying into pairs of boosted bosons in semi-leptonic final states at  $\sqrt{s} = 8$  TeV, JHEP. 08 (2014) 174, doi:10.1007/JHEP08(2014)174, arXiv:1405.3447 [hep-ex]
- V. Khachatryan et al., Measurement of the ratio  $\mathcal{B}(t \to Wb)/\mathcal{B}(t \to Wq)$  in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 736 (2014) 33–57, doi:10.1016/j.physletb.2014.06.076, arXiv:1404.2292 [hep-ex]
- V. Khachatryan et al., Search for Heavy Neutrinos and W Bosons with Right-Handed Couplings in Proton-Proton Collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C. 74 (2014) 3149, doi:10.1140/epjc/s10052-014-3149-z, arXiv:1407.3683 [hep-ex]
- S. Chatrchyan et al., Measurement of the Ratio of Inclusive Jet Cross Sections using the Anti-  $k_T$  Algorithm with Radius Parameters R=0.5 and 0.7 in pp Collisions at  $\sqrt{s}=7$  TeV, Phys. Rev. D. 90 (2014) 072006, doi:10.1103/PhysRevD.90.072006, arXiv:1406.0324 [hep-ex]
- S. Chatrchyan et al., Description and performance of track and primary-vertex reconstruction with the CMS tracker, JINST. 9 (2014) P10009, doi:10.1088/1748-0221/9/10/P10009, arXiv:1405.6569 [physics.ins-det]
- S. Chatrchyan et al., Measurement of inclusive W and Z boson production cross sections in pp collisions at  $\sqrt{s}$  = 8 TeV, Phys. Rev. Lett. 112 (2014) 191802, doi:10.1103/PhysRevLett.112.191802, arXiv:1402.0923 [hep-ex]
- V. Khachatryan et al., Constraints on the Higgs boson width from off-shell production and decay to Z-boson pairs, *Phys. Lett. B.* 736 (2014) 64–85, doi:10.1016/j.physletb.2014.06.077, arXiv:1405.3455 [hep-ex]

February 2, 2024 47 of 64

- S. Chatrchyan et al., Studies of dijet transverse momentum balance and pseudorapidity distributions in pPb collisions at  $\sqrt{s_{NN}} = 5.02 TeV$ , Eur. Phys. J. C. 74 (2014) 2951, doi:10.1140/epjc/s10052-014-2951-y, arXiv:1401.4433 [nucl-ex]
- S. Chatrchyan et al., Search for supersymmetry with razor variables in pp collisions at  $\sqrt{s}$ =7 TeV, Phys. Rev. D. 90 (2014) 112001, doi:10.1103/PhysRevD.90.112001, arXiv:1405.3961 [hep-ex]
- S. Chatrchyan et al., Determination of the Top-Quark Pole Mass and Strong Coupling Constant from the  $t\bar{t}$  Production Cross Section in pp Collisions at  $\sqrt{s}=7$  TeV, Phys. Lett. B. 728 (2014) 496–517, doi:10.1016/j.physletb.2013.12.009, arXiv:1307.1907 [hep-ex]
- V. Khachatryan et al., **Identification techniques for highly boosted W bosons that decay into hadrons**, *JHEP*. 12 (2014) 017, doi:10.1007/JHEP12(2014)017, arXiv:1410.4227 [hep-ex]
- S. Chatrchyan et al., Evidence for the direct decay of the 125 GeV Higgs boson to fermions, Nature Phys. 10 (2014) 557–560, doi:10.1038/nphys3005, arXiv:1401.6527 [hep-ex]
- V. Khachatryan et al., Study of Hadronic Event-Shape Variables in Multijet Final States in pp Collisions at  $\sqrt{s}$  = 7 TeV, JHEP. 10 (2014) 087, doi:10.1007/JHEP10(2014)087, arXiv:1407.2856 [hep-ex]
- V. Khachatryan et al., Search for the associated production of the Higgs boson with a top-quark pair, *JHEP*. 09 (2014) 087, doi:10.1007/JHEP09(2014)087, arXiv:1408.1682 [hep-ex]
- S. Chatrchyan et al., Search for new physics in the multijet and missing transverse momentum final state in proton-proton collisions at  $\sqrt{s}$ = 8 TeV, *JHEP*. 06 (2014) 055, doi:10.1007/JHEP06(2014)055, arXiv:1402.4770 [hep-ex]
- V. Khachatryan et al., Measurement of Prompt  $\psi(2S) \to J/\psi$  Yield Ratios in Pb-Pb and p-p Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. Lett. 113 (2014) 262301, doi:10.1103/PhysRevLett.113.262301, arXiv:1410.1804 [nucl-ex]
- S. Chatrchyan et al., Evidence for the 125 GeV Higgs boson decaying to a pair of  $\tau$  leptons, JHEP. 05 (2014) 104, doi:10.1007/JHEP05(2014)104, arXiv:1401.5041 [hep-ex]
- V. Khachatryan et al., Search for top-squark pairs decaying into Higgs or Z bosons in pp collisions at  $\sqrt{s}$ =8 TeV, Phys. Lett. B. 736 (2014) 371–397, doi:10.1016/j.physletb.2014.07.053, arXiv:1405.3886 [hep-ex]
- V. Khachatryan et al., Search for pair production of third-generation scalar leptoquarks and top squarks in protonproton collisions at  $\sqrt{s}$ =8 TeV, Phys. Lett. B. 739 (2014) 229–249, doi:10.1016/j.physletb.2014.10.063, arXiv:1408.0806 [hep-ex]
- S. Chatrchyan et al., Search for anomalous production of events with three or more leptons in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D. 90 (2014) 032006, doi:10.1103/PhysRevD.90.032006, arXiv:1404.5801 [hep-ex]
- V. Khachatryan et al., Search for Standard Model Production of Four Top Quarks in the Lepton + Jets Channel in pp Collisions at  $\sqrt{s} = 8$  TeV, JHEP. 11 (2014) 154, doi:10.1007/JHEP11(2014)154, arXiv:1409.7339 [hep-ex]
- S. Chatrchyan et al., Measurement of WZ and ZZ production in pp collisions at  $\sqrt{s} = 8TeV$  in final states with b-tagged jets, Eur. Phys. J. C. 74 (2014) 2973, doi:10.1140/epjc/s10052-014-2973-5, arXiv:1403.3047 [hep-ex]
- S. Chatrchyan et al., Search for excited leptons in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 720 (2013) 309–329, doi:10.1016/j.physletb.2013.02.031, arXiv:1210.2422 [hep-ex]
- S. Chatrchyan et al., Search in Leptonic Channels for Heavy Resonances Decaying to Long-Lived Neutral Particles, *JHEP*. 02 (2013) 085, doi:10.1007/JHEP02(2013)085, arXiv:1211.2472 [hep-ex]
- S. Chatrchyan et al., Search for Long-Lived Particles Decaying to Photons and Missing Energy in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 722 (2013) 273–294, doi:10.1016/j.physletb.2013.04.027, arXiv:1212.1838 [hep-ex]
- S. Chatrchyan et al., Search for Pair Production of Third-Generation Leptoquarks and Top Squarks in pp Collisions at  $\sqrt{s}=7$  TeV, Phys. Rev. Lett. 110 (2013) 081801, doi:10.1103/PhysRevLett.110.081801, arXiv:1210.5629 [hep-ex]
- S. Chatrchyan et al., Measurement of the Y(1S), Y(2S) and Y(3S) Polarizations in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 110 (2013) 081802, doi:10.1103/PhysRevLett.110.081802, arXiv:1209.2922 [hep-ex]
- S. Chatrchyan et al., Search for Heavy Resonances in the W/Z-Tagged Dijet Mass Spectrum in pp Collisions at 7 TeV, Phys. Lett. B. 723 (2013) 280–301, doi:10.1016/j.physletb.2013.05.040, arXiv:1212.1910 [hep-ex]

February 2, 2024 48 of 64

- S. Chatrchyan et al., Measurement of the ZZ Production Cross Section and Search for Anomalous Couplings in 2 l2l 'Final States in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 01 (2013) 063, doi:10.1007/JHEP01(2013)063, arXiv:1211.4890 [hep-ex]
- S. Chatrchyan et al., **Identification of b-Quark Jets with the CMS Experiment**, *JINST*. 8 (2013) P04013, doi:10.1088/1748-0221/8/04/P04013, arXiv:1211.4462 [hep-ex]
- S. Chatrchyan et al., Measurements of Differential Jet Cross Sections in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV with the CMS Detector, Phys. Rev. D. 87 (2013) 112002, doi:10.1103/PhysRevD.87.112002, arXiv:1212.6660 [hep-ex]
- S. Chatrchyan et al., Measurement of the Inelastic Proton-Proton Cross Section at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 722 (2013) 5–27, doi:10.1016/j.physletb.2013.03.024, arXiv:1210.6718 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $t\bar{t}$  Production Cross Section in pp Collisions at  $\sqrt{s}=7$  TeV with Lepton + Jets Final States,  $Phys.\ Lett.\ B.\ 720\ (2013)\ 83-104,\ doi:10.1016/j.physletb.2013.02.021,\ arXiv:1212.6682\ [hep-ex]$
- S. Chatrchyan et al., Measurement of Differential Top-Quark Pair Production Cross Sections in pp collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C. 73 (2013) 2339, doi:10.1140/epjc/s10052-013-2339-4, arXiv:1211.2220 [hep-ex]
- S. Chatrchyan et al., Measurement of the Azimuthal Anisotropy of Neutral Pions in PbPb cCllisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. Lett. 110 (2013) 042301, doi:10.1103/PhysRevLett.110.042301, arXiv:1208.2470 [nucl-ex]
- S. Chatrchyan et al., Search for Exotic Resonances Decaying into WZ/ZZ in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 02 (2013) 036, doi:10.1007/JHEP02(2013)036, arXiv:1211.5779 [hep-ex]
- S. Chatrchyan et al., Search for a narrow spin-2 resonance decaying to a pair of Z vector bosons in the semileptonic final state, *Phys. Lett. B.* 718 (2013) 1208–1228, doi:10.1016/j.physletb.2012.11.063, arXiv:1209.3807 [hep-ex]
- S. Chatrchyan et al., Search for Heavy Quarks Decaying into a Top Quark and a W or Z Boson using Lepton + Jets Events in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 01 (2013) 154, doi:10.1007/JHEP01(2013)154, arXiv:1210.7471 [hep-ex]
- S. Chatrchyan et al., Search for a W 'Boson Decaying to a Bottom Quark and a Top Quark in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 718 (2013) 1229–1251, doi:10.1016/j.physletb.2012.12.008, arXiv:1208.0956 [hep-ex]
- S. Chatrchyan et al., Observation of a Diffractive Contribution to Dijet Production in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 87 (2013) 012006, doi:10.1103/PhysRevD.87.012006, arXiv:1209.1805 [hep-ex]
- S. Chatrchyan et al., Search for Contact Interactions in  $\mu^+\mu^-$  Events in pp Collisions at  $\sqrt{s}=7$  TeV, Phys. Rev. D. 87 (2013) 032001, doi:10.1103/PhysRevD.87.032001, arXiv:1212.4563 [hep-ex]
- S. Chatrchyan et al., Evidence for Associated Production of a Single Top Quark and W Boson in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 110 (2013) 022003, doi:10.1103/PhysRevLett.110.022003, arXiv:1209.3489 [hep-ex]
- S. Chatrchyan et al., Observation of Long-Range Near-Side Angular Correlations in Proton-Lead Collisions at the LHC, Phys. Lett. B. 718 (2013) 795–814, doi:10.1016/j.physletb.2012.11.025, arXiv:1210.5482 [nucl-ex]
- S. Chatrchyan et al., Search for a Non-Standard-Model Higgs Boson Decaying to a Pair of New Light Bosons in Four-Muon Final States, *Phys. Lett. B.* 726 (2013) 564–586, doi:10.1016/j.physletb.2013.09.009, arXiv:1210.7619 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in Final States with Missing Transverse Energy and 0, 1, 2, or at Least 3 b-Quark Jets in 7 TeV pp Collisions using the Variable  $\alpha_T$ , JHEP. 01 (2013) 077, doi:10.1007/JHEP01(2013)077, arXiv:1210.8115 [hep-ex]
- S. Chatrchyan et al., Search for Anomalous Production of Highly Boosted Z Bosons Decaying to  $\mu^+\mu^-$  in Proton-Proton Collisions at  $\sqrt{s}=7$  TeV, Phys. Lett. B. 722 (2013) 28–47, doi:10.1016/j.physletb.2013.03.037, arXiv:1210.0867 [hep-ex]
- S. Chatrchyan et al., Search for Heavy Narrow Dilepton Resonances in pp Collisions at  $\sqrt{s} = 7$  TeV and  $\sqrt{s} = 8$  TeV, Phys. Lett. B. 720 (2013) 63–82, doi:10.1016/j.physletb.2013.02.003, arXiv:1212.6175 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in Events with Photons and Low Missing Transverse Energy in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 719 (2013) 42–61, doi:10.1016/j.physletb.2012.12.055, arXiv:1210.2052 [hep-ex]
- S. Chatrchyan et al., Study of the Mass and Spin-Parity of the Higgs Boson Candidate Via Its Decays to Z Boson Pairs, Phys. Rev. Lett. 110 (2013) 081803, doi:10.1103/PhysRevLett.110.081803, arXiv:1212.6639 [hep-ex]

February 2, 2024 49 of 64

- S. Chatrchyan et al., Search for Supersymmetry in pp Collisions at  $\sqrt{s} = 7$  TeV in Events with a Single Lepton, Jets, and Missing Transverse Momentum, Eur. Phys. J. C. 73 (2013) 2404, doi:10.1140/epjc/s10052-013-2404-z, arXiv:1212.6428 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in Final States with a Single Lepton, b-Quark Jets, and Missing Transverse Energy in Proton-Proton Collisions at  $\sqrt{s}=7$  TeV, Phys. Rev. D. 87 (2013) 052006, doi:10.1103/PhysRevD.87.052006, arXiv:1211.3143 [hep-ex]
- S. Chatrchyan et al., Search for Flavor Changing Neutral Currents in Top Quark Decays in pp Collisions at 7 TeV, Phys. Lett. B. 718 (2013) 1252–1272, doi:10.1016/j.physletb.2012.12.045, arXiv:1208.0957 [hep-ex]
- S. Chatrchyan et al., Measurement of the Sum of WW and WZ Production with W+Dijet Events in pp Collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C. 73 (2013) 2283, doi:10.1140/epjc/s10052-013-2283-3, arXiv:1210.7544 [hep-ex]
- S. Chatrchyan et al., Search for New Physics in Events with Photons, Jets, and Missing Transverse Energy in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 03 (2013) 111, doi:10.1007/JHEP03(2013)111, arXiv:1211.4784 [hep-ex]
- S. Chatrchyan et al., Search for Fractionally Charged Particles in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 87 (2013) 092008, doi:10.1103/PhysRevD.87.092008, arXiv:1210.2311 [hep-ex]
- S. Chatrchyan et al., Search for Narrow Resonances and Quantum Black Holes in Inclusive and b-Tagged Dijet Mass Spectra from pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 01 (2013) 013, doi:10.1007/JHEP01(2013)013, arXiv:1210.2387 [hep-ex]
- S. Chatrchyan et al., Inclusive Search for Supersymmetry Using the Razor Variables in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 111 (2013) 081802, doi:10.1103/PhysRevLett.111.081802, arXiv:1212.6961 [hep-ex]
- S. Chatrchyan et al., Studies of Jet Quenching using Isolated-Photon + Jet Correlations in PbPb and pp Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Lett. B. 718 (2013) 773–794, doi:10.1016/j.physletb.2012.11.003, arXiv:1205.0206 [nucl-ex]
- S. Chatrchyan et al., Measurement of the Elliptic Anisotropy of Charged Particles Produced in PbPb Collisions at  $\sqrt{s_{NN}}$ =2.76 TeV, Phys. Rev. C. 87 (2013) 014902, doi:10.1103/PhysRevC.87.014902, arXiv:1204.1409 [nucl-ex]
- S. Chatrchyan et al., Forward-Backward Asymmetry of Drell-Yan Lepton Pairs in pp Collisions at  $\sqrt{s} = 7$  TeV,  $Phys. \ Lett. \ B. 718 (2013) 752–772, doi:10.1016/j.physletb.2012.10.082, arXiv:1207.3973 [hep-ex]$
- S. Chatrchyan et al., Search for Z 'Resonances Decaying to  $t\bar{t}$  in Dilepton + Jets Final States in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 87 (2013) 072002, doi:10.1103/PhysRevD.87.072002, arXiv:1211.3338 [hep-ex]
- S. Chatrchyan et al., Search for a Higgs Boson Decaying into a b-Quark Pair and Produced in Association with b Quarks in ProtonProton Collisions at 7 TeV, Phys. Lett. B. 722 (2013) 207–232, doi:10.1016/j.physletb.2013.04.017, arXiv:1302.2892 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $\Lambda_b^0$  Lifetime in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 07 (2013) 163, doi:10.1007/JHEP07(2013)163, arXiv:1304.7495 [hep-ex]
- S. Chatrchyan et al., Observation of a New Boson with Mass Near 125 GeV in pp Collisions at  $\sqrt{s} = 7$  and 8 TeV, JHEP. 06 (2013) 081, doi:10.1007/JHEP06(2013)081, arXiv:1303.4571 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in Hadronic Final States with Missing Transverse Energy Using the Variables  $\alpha_T$  and b-Quark Multiplicity in pp collisions at  $\sqrt{s}=8$  TeV, Eur. Phys. J. C. 73 (2013) 2568, doi:10.1140/epjc/s10052-013-2568-6, arXiv:1303.2985 [hep-ex]
- S. Chatrchyan et al., Searches for Long-Lived Charged Particles in pp Collisions at  $\sqrt{s}$ =7 and 8 TeV, JHEP. 07 (2013) 122, doi:10.1007/JHEP07(2013)122, arXiv:1305.0491 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $B_s^0 \to \mu^+\mu^-$  Branching Fraction and Search for  $B^0 \to \mu^+\mu^-$  with the CMS Experiment, Phys. Rev. Lett. 111 (2013) 101804, doi:10.1103/PhysRevLett.111.101804, arXiv:1307.5025 [hep-ex]
- S. Chatrchyan et al., Search for Narrow Resonances Using the Dijet Mass Spectrum in pp Collisions at  $\sqrt{s}$ =8 TeV, Phys. Rev. D. 87 (2013) 114015, doi:10.1103/PhysRevD.87.114015, arXiv:1302.4794 [hep-ex]
- S. Chatrchyan et al., Measurement of the X(3872) Production Cross Section Via Decays to  $J/\psi\pi^+\pi^-$  in pp collisions at  $\sqrt{s}=7$  TeV, JHEP.~04~(2013)~154, doi:10.1007/JHEP04(2013)154, arXiv:1302.3968 [hep-ex]

February 2, 2024 50 of 64

- S. Chatrchyan et al., Measurement of the Hadronic Activity in Events with a Z and Two Jets and Extraction of the Cross Section for the Electroweak Production of a Z with Two Jets in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 10 (2013) 062, doi:10.1007/JHEP10(2013)062, arXiv:1305.7389 [hep-ex]
- S. Chatrchyan et al., Measurement of the Prompt  $J/\psi$  and  $\psi(2S)$  Polarizations in pp Collisions at  $\sqrt{s}=7$  TeV,  $Phys.\ Lett.\ B.\ 727\ (2013)\ 381-402,\ doi:10.1016/j.physletb.2013.10.055,\ arXiv:1307.6070\ [hep-ex]$
- S. Chatrchyan et al., Study of Exclusive Two-Photon Production of  $W^+W^-$  in pp Collisions at  $\sqrt{s}=7$  TeV and Constraints on Anomalous Quartic Gauge Couplings, JHEP. 07 (2013) 116, doi:10.1007/JHEP07(2013)116, arXiv:1305.5596 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in Events with Opposite-Sign Dileptons and Missing Transverse Energy Using an Artificial Neural Network, *Phys. Rev. D.* 87 (2013) 072001, doi:10.1103/PhysRevD.87.072001, arXiv:1301.0916 [hep-ex]
- S. Chatrchyan et al., Search for Pair-Produced Dijet Resonances in Four-Jet Final States in pp Collisions at  $\sqrt{s}$ =7 TeV, Phys. Rev. Lett. 110 (2013) 141802, doi:10.1103/PhysRevLett.110.141802, arXiv:1302.0531 [hep-ex]
- S. Chatrchyan et al., Multiplicity and Transverse Momentum Dependence of Two- and Four-Particle Correlations in pPb and PbPb Collisions, *Phys. Lett. B.* 724 (2013) 213–240, doi:10.1016/j.physletb.2013.06.028, arXiv:1305.0609 [nucl-ex]
- S. Chatrchyan et al., Rapidity Distributions in Exclusive Z + Jet and  $\gamma$  + Jet Events in pp Collisions at  $\sqrt{s}$  = 7 TeV, Phys. Rev. D. 88 (2013) 112009, doi:10.1103/PhysRevD.88.112009, arXiv:1310.3082 [hep-ex]
- S. Chatrchyan et al., Studies of Jet Mass in Dijet and W/Z + Jet Events, JHEP. 05 (2013) 090, doi:10.1007/JHEP05(2013)090, arXiv:1303.4811 [hep-ex]
- S. Chatrchyan et al., Search for New Physics in Final States with a Lepton and Missing Transverse Energy in pp Collisions at the LHC, Phys. Rev. D. 87 (2013) 072005, doi:10.1103/PhysRevD.87.072005, arXiv:1302.2812 [hep-ex]
- S. Chatrchyan et al., Event Shapes and Azimuthal Correlations in Z + Jets Events in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 722 (2013) 238–261, doi:10.1016/j.physletb.2013.04.025, arXiv:1301.1646 [hep-ex]
- S. Chatrchyan et al., Energy Calibration and Resolution of the CMS Electromagnetic Calorimeter in pp Collisions at  $\sqrt{s} = 7$  TeV, JINST. 8 (2013) P09009, doi:10.1088/1748-0221/8/09/P09009, arXiv:1306.2016 [hep-ex]
- S. Chatrchyan et al., Angular Analysis and Branching Fraction Measurement of the Decay  $B^0 \to K^{*0}\mu^+\mu^-$ , Phys. Lett. B. 727 (2013) 77–100, doi:10.1016/j.physletb.2013.10.017, arXiv:1308.3409 [hep-ex]
- S. Chatrchyan et al., Search for Microscopic Black Holes in pp Collisions at  $\sqrt{s}=8$  TeV, JHEP.~07~(2013)~178, doi:10.1007/JHEP07(2013)178, arXiv:1303.5338 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $t\bar{t}$  Production Cross Section in the  $\tau$  +Jets Channel in pp Collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C. 73 (2013) 2386, doi:10.1140/epjc/s10052-013-2386-x, arXiv:1301.5755 [hep-ex]
- S. Chatrchyan et al., Search for Gluino Mediated Bottom- and Top-Squark Production in Multijet Final States in pp Collisions at 8 TeV, Phys. Lett. B. 725 (2013) 243–270, doi:10.1016/j.physletb.2013.06.058, arXiv:1305.2390 [hep-ex]
- S. Chatrchyan et al., Searches for New Physics using the  $t\bar{t}$  Invariant Mass Distribution in pp Collisions at  $\sqrt{s}$ =8 TeV, Phys. Rev. Lett. 111 (2013) 211804, doi:10.1103/PhysRevLett.111.211804, arXiv:1309.2030 [hep-ex]
- S. Chatrchyan et al., Search for Physics Beyond the Standard Model in Events with  $\tau$  Leptons, Jets, and Large Transverse Momentum Imbalance in pp Collisions at  $\sqrt{s}=7$  TeV, Eur. Phys. J. C. 73 (2013) 2493, doi:10.1140/epjc/s10052-013-2493-8, arXiv:1301.3792 [hep-ex]
- S. Chatrchyan et al., Search for Top Squarks in R-Parity-Violating Supersymmetry using Three or More Leptons and B-Tagged Jets, Phys. Rev. Lett. 111 (2013) 221801, doi:10.1103/PhysRevLett.111.221801, arXiv:1306.6643 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $\Upsilon(1S), \Upsilon(2S)$ , and  $\Upsilon(3S)$  Cross Sections in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 727 (2013) 101–125, doi:10.1016/j.physletb.2013.10.033, arXiv:1303.5900 [hep-ex]
- S. Chatrchyan et al., Search for a Higgs Boson Decaying into a Z and a Photon in pp Collisions at  $\sqrt{s} = 7$  and 8 TeV, Phys. Lett. B. 726 (2013) 587–609, doi:10.1016/j.physletb.2013.09.057, arXiv:1307.5515 [hep-ex]
- S. Chatrchyan et al., Search for Contact Interactions Using the Inclusive Jet  $p_T$  Spectrum in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 87 (2013) 052017, doi:10.1103/PhysRevD.87.052017, arXiv:1301.5023 [hep-ex]

February 2, 2024 51 of 64

- S. Chatrchyan et al., Search for the Standard Model Higgs Boson Produced in Association with a Top-Quark Pair in pp Collisions at the LHC, JHEP. 05 (2013) 145, doi:10.1007/JHEP05(2013)145, arXiv:1303.0763 [hep-ex]
- S. Chatrchyan et al., Measurement of the Ratio of the Inclusive 3-Jet Cross Section to the Inclusive 2-Jet Cross Section in pp Collisions at  $\sqrt{s} = 7$  TeV and First Determination of the Strong Coupling Constant in the TeV Range, Eur. Phys. J. C. 73 (2013) 2604, doi:10.1140/epjc/s10052-013-2604-6, arXiv:1304.7498 [hep-ex]
- S. Chatrchyan et al., Measurement of associated production of vector bosons and top quark-antiquark pairs at sqrt(s) = 7 TeV, Phys. Rev. Lett. 110 (2013) 172002, doi:10.1103/PhysRevLett.110.172002, arXiv:1303.3239 [hep-ex]
- S. Chatrchyan et al., Search for a Standard-Model-Like Higgs Boson with a Mass in the Range 145 to 1000 GeV at the LHC, Eur. Phys. J. C. 73 (2013) 2469, doi:10.1140/epjc/s10052-013-2469-8, arXiv:1304.0213 [hep-ex]
- S. Chatrchyan et al., The Performance of the CMS Muon Detector in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV at the LHC, JINST. 8 (2013) P11002, doi:10.1088/1748-0221/8/11/P11002, arXiv:1306.6905 [physics.ins-det]
- S. Chatrchyan et al., Measurement of Masses in the  $t\bar{t}$  System by Kinematic Endpoints in pp Collisions at  $\sqrt{s}$  = 7 TeV, Eur. Phys. J. C. 73 (2013) 2494, doi:10.1140/epjc/s10052-013-2494-7, arXiv:1304.5783 [hep-ex]
- S. Chatrchyan et al., Interpretation of Searches for Supersymmetry with Simplified Models, Phys. Rev. D. 88 (2013) 052017, doi:10.1103/PhysRevD.88.052017, arXiv:1301.2175 [hep-ex]
- S. Chatrchyan et al., Measurement of the Cross Section and Angular Correlations for Associated Production of a Z Boson with b Hadrons in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 12 (2013) 039, doi:10.1007/JHEP12(2013)039, arXiv:1310.1349 [hep-ex]
- S. Chatrchyan et al., Measurement of the W-Boson Helicity in Top-Quark decays from  $t\bar{t}$  Production in Lepton + Jets Events in pp Collisions at  $\sqrt{s} = 7$  TeV, *JHEP*. 10 (2013) 167, doi:10.1007/JHEP10(2013)167, arXiv:1308.3879 [hep-ex]
- S. Chatrchyan et al., Jet and Underlying Event Properties as a Function of Charged-Particle Multiplicity in ProtonProton Collisions at  $\sqrt{s}=7$  TeV, Eur. Phys. J. C. 73 (2013) 2674, doi:10.1140/epjc/s10052-013-2674-5, arXiv:1310.4554 [hep-ex]
- S. Chatrchyan et al., Search for a New Bottomonium State Decaying to  $\Upsilon(1S)\pi^+\pi^-$  in pp Collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B. 727 (2013) 57–76, doi:10.1016/j.physletb.2013.10.016, arXiv:1309.0250 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $t\bar{t}$  Production Cross Section in the All-Jet Final State in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 05 (2013) 065, doi:10.1007/JHEP05(2013)065, arXiv:1302.0508 [hep-ex]
- S. Chatrchyan et al., Study of the Underlying Event at Forward Rapidity in pp Collisions at  $\sqrt{s} = 0.9$ , 2.76, and 7 TeV, JHEP. 04 (2013) 072, doi:10.1007/JHEP04(2013)072, arXiv:1302.2394 [hep-ex]
- S. Chatrchyan et al., Measurement of the Production Cross Section for  $Z\gamma \to \nu\bar{\nu}\gamma$  in pp Collisions at  $\sqrt{s}=7$  TeV and Limits on  $ZZ\gamma$  and  $Z\gamma\gamma$  Triple Gauge Boson Couplings, *JHEP*. 10 (2013) 164, doi:10.1007/JHEP10(2013)164, arXiv:1309.1117 [hep-ex]
- S. Chatrchyan et al., Measurement of the Differential and Double-Differential Drell-Yan Cross Sections in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 12 (2013) 030, doi:10.1007/JHEP12(2013)030, arXiv:1310.7291 [hep-ex]
- S. Chatrchyan et al., Measurement of Neutral Strange Particle Production in the Underlying Event in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 88 (2013) 052001, doi:10.1103/PhysRevD.88.052001, arXiv:1305.6016 [hep-ex]
- S. Chatrchyan et al., Searches for Higgs Bosons in pp Collisions at  $\sqrt{s} = 7$  and 8 TeV in the Context of Four-Generation and Fermiophobic Models, *Phys. Lett. B.* 725 (2013) 36–59, doi:10.1016/j.physletb.2013.06.043, arXiv:1302.1764 [hep-ex]
- S. Chatrchyan et al., Search for signatures of extra dimensions in the diphoton mass spectrum at the Large Hadron Collider, *Phys. Rev. Lett.* 108 (2012) 111801, doi:10.1103/PhysRevLett.108.111801, arXiv:1112.0688 [hep-ex]
- S. Chatrchyan et al., Performance of tau-lepton reconstruction and identification in CMS, JINST. 7 (2012) P01001, doi:10.1088/1748-0221/7/01/P01001, arXiv:1109.6034 [physics.ins-det]
- S. Chatrchyan et al., Jet Production Rates in Association with W and Z Bosons in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 01 (2012) 010, doi:10.1007/JHEP01(2012)010, arXiv:1110.3226 [hep-ex]

February 2, 2024 52 of 64

- S. Chatrchyan et al., Measurement of the charge asymmetry in top-quark pair production in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 709 (2012) 28–49, doi:10.1016/j.physletb.2012.01.078, arXiv:1112.5100 [hep-ex]
- S. Chatrchyan et al.,  $J/\psi$  and  $\psi_{2S}$  production in pp collisions at  $\sqrt{s}=7$  TeV, JHEP.~02~(2012)~011, doi:10.1007/JHEP02(2012)011, arXiv:1111.1557 [hep-ex]
- S. Chatrchyan et al., Exclusive photon-photon production of muon pairs in proton-proton collisions at  $\sqrt{s} = 7$  TeV, JHEP. 01 (2012) 052, doi:10.1007/JHEP01(2012)052, arXiv:1111.5536 [hep-ex]
- S. Chatrchyan et al., Forward Energy Flow, Central Charged-Particle Multiplicities, and Pseudorapidity Gaps in W and Z Boson Events from pp Collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C. 72 (2012) 1839, doi:10.1140/epjc/s10052-011-1839-3, arXiv:1110.0181 [hep-ex]
- S. Chatrchyan et al., Measurement of the Rapidity and Transverse Momentum Distributions of Z Bosons in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 85 (2012) 032002, doi:10.1103/PhysRevD.85.032002, arXiv:1110.4973 [hep-ex]
- S. Chatrchyan et al., Inclusive search for squarks and gluinos in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 85 (2012) 012004, doi:10.1103/PhysRevD.85.012004, arXiv:1107.1279 [hep-ex]
- S. Chatrchyan et al., Measurement of the Production Cross Section for Pairs of Isolated Photons in pp collisions at  $\sqrt{s} = 7$  TeV, JHEP. 01 (2012) 133, doi:10.1007/JHEP01(2012)133, arXiv:1110.6461 [hep-ex]
- S. Chatrchyan et al., Study of High-pT Charged Particle Suppression in PbPb Compared to pp Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Eur. Phys. J. C. 72 (2012) 1945, doi:10.1140/epjc/s10052-012-1945-x, arXiv:1202.2554 [nucl-ex]
- S. Chatrchyan et al., Measurement of the Top Quark Pair Production Cross Section in pp Collisions at  $\sqrt{s}=7$  TeV in Dilepton Final States Containing a  $\tau$ , Phys. Rev. D. 85 (2012) 112007, doi:10.1103/PhysRevD.85.112007, arXiv:1203.6810 [hep-ex]
- S. Chatrchyan et al., Search for the Standard Model Higgs Boson Produced in Association with W and Z Bosons in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 11 (2012) 088, doi:10.1007/JHEP11(2012)088, arXiv:1209.3937 [hep-ex]
- S. Chatrchyan et al., Study of the Dijet Mass Spectrum in  $pp \rightarrow W+$  Jets Events at  $\sqrt{s}=7$  TeV, Phys. Rev. Lett. 109 (2012) 251801, doi:10.1103/PhysRevLett.109.251801, arXiv:1208.3477 [hep-ex]
- S. Chatrchyan et al., Search for Neutral Higgs Bosons Decaying to Tau Pairs in pp Collisions at  $\sqrt{s} = 7$  TeV,  $Phys.\ Lett.\ B.\ 713\ (2012)\ 68-90,\ doi:10.1016/j.physletb.2012.05.028,\ arXiv:1202.4083\ [hep-ex]$
- S. Chatrchyan et al., Suppression of Non-Prompt  $J/\psi$ , Prompt  $J/\psi$ , and Y(1S) in PbPb Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, JHEP. 05 (2012) 063, doi:10.1007/JHEP05(2012)063, arXiv:1201.5069 [nucl-ex]
- S. Chatrchyan et al., Search for Anomalous  $t\bar{t}$  Production in the Highly-Boosted All-Hadronic Final State, *JHEP*. 09 (2012) 029, doi:10.1007/JHEP09(2012)029, arXiv:1204.2488 [hep-ex]
- S. Chatrchyan et al., Observation of Z Decays to Four Leptons with the CMS Detector at the LHC, JHEP. 12 (2012) 034, doi:10.1007/JHEP12(2012)034, arXiv:1210.3844 [hep-ex]
- S. Chatrchyan et al., Search for Narrow Resonances in Dilepton Mass Spectra in pp Collisions at  $\sqrt{s} = 7$  TeV,  $Phys.\ Lett.\ B.\ 714\ (2012)\ 158-179,\ doi:10.1016/j.physletb.2012.06.051,\ arXiv:1206.1849\ [hep-ex]$
- S. Chatrchyan et al., Search for Exclusive or Semi-Exclusive Photon Pair Production and Observation of Exclusive and Semi-Exclusive Electron Pair Production in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 11 (2012) 080, doi:10.1007/JHEP11(2012)080, arXiv:1209.1666 [hep-ex]
- S. Chatrchyan et al., Search for Third-Generation Leptoquarks and Scalar Bottom Quarks in pp Collisions at  $\sqrt{s}=7$  TeV, JHEP. 12 (2012) 055, doi:10.1007/JHEP12(2012)055, arXiv:1210.5627 [hep-ex]
- S. Chatrchyan et al., A Search for a Doubly-Charged Higgs Boson in pp Collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C. 72 (2012) 2189, doi:10.1140/epjc/s10052-012-2189-5, arXiv:1207.2666 [hep-ex]
- S. Chatrchyan et al., Measurement of the Z/  $\gamma$ \*+b-jet Cross Section in pp Collisions at  $\sqrt{s} = 7TeV$ , JHEP. 06 (2012) 126, doi:10.1007/JHEP06(2012)126, arXiv:1204.1643 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $t\bar{t}$  Production Cross Section in the Dilepton Channel in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 11 (2012) 067, doi:10.1007/JHEP11(2012)067, arXiv:1208.2671 [hep-ex]
- S. Chatrchyan et al., Search for a Light Pseudoscalar Higgs Boson in the Dimuon Decay Channel in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 109 (2012) 121801, doi:10.1103/PhysRevLett.109.121801, arXiv:1206.6326 [hep-ex]

February 2, 2024 53 of 64

- S. Chatrchyan et al., Study of W Boson Production in PbPb and pp Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Lett. B. 715 (2012) 66–87, doi:10.1016/j.physletb.2012.07.025, arXiv:1205.6334 [nucl-ex]
- S. Chatrchyan et al., Search for a Light Charged Higgs Boson in Top Quark Decays in pp Collisions at  $\sqrt{s}=7$  TeV, JHEP. 07 (2012) 143, doi:10.1007/JHEP07(2012)143, arXiv:1205.5736 [hep-ex]
- S. Chatrchyan et al., Search for a W' or  $\rho_{TC}$  Decaying into WZ in pp Collisions at  $\sqrt{s}=7$  TeV, Phys. Rev. Lett. 109 (2012) 141801, doi:10.1103/PhysRevLett.109.141801, arXiv:1206.0433 [hep-ex]
- S. Chatrchyan et al., **Observation of a new**  $\Xi_b$  **Baryon**, *Phys. Rev. Lett.* 108 (2012) 252002, doi:10.1103/PhysRevLett.108.252002, arXiv:1204.5955 [hep-ex]
- S. Chatrchyan et al., **Search for**  $B_s^0 \to \mu^+\mu^-$  **and**  $B^0 \to \mu^+\mu^-$  **decays**, *JHEP*. 04 (2012) 033, doi:10.1007/JHEP04(2012)033, arXiv:1203.3976 [hep-ex]
- S. Chatrchyan et al., Search for Charge-Asymmetric Production of W ' Bosons in  $t\bar{t}+$  Jet Events from pp Collisions at  $\sqrt{s}=$  7 TeV, Phys. Lett. B. 717 (2012) 351–370, doi:10.1016/j.physletb.2012.09.048, arXiv:1206.3921 [hep-ex]
- S. Chatrchyan et al., Search for Microscopic Black Holes in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 04 (2012) 061, doi:10.1007/JHEP04(2012)061, arXiv:1202.6396 [hep-ex]
- S. Chatrchyan et al., Observation of Sequential Upsilon Suppression in PbPb Collisions, Phys. Rev. Lett. 109 (2012) 222301, doi:10.1103/PhysRevLett.109.222301, arXiv:1208.2826 [nucl-ex]
- S. Chatrchyan et al., Search for the Standard Model Higgs Boson Decaying into Two Photons in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 710 (2012) 403–425, doi:10.1016/j.physletb.2012.03.003, arXiv:1202.1487 [hep-ex]
- S. Chatrchyan et al., Measurement of the Mass Difference between Top and Antitop Quarks, JHEP. 06 (2012) 109, doi:10.1007/JHEP06(2012)109, arXiv:1204.2807 [hep-ex]
- S. Chatrchyan et al., Search for New Physics with Long-Lived Particles Decaying to Photons and Missing Energy in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 11 (2012) 172, doi:10.1007/JHEP11(2012)172, arXiv:1207.0627 [hep-ex]
- S. Chatrchyan et al., Search for Pair Production of First- and Second-Generation Scalar Leptoquarks in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 86 (2012) 052013, doi:10.1103/PhysRevD.86.052013, arXiv:1207.5406 [hep-ex]
- S. Chatrchyan et al., Measurement of the Electron Charge Asymmetry in Inclusive W Production in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 109 (2012) 111806, doi:10.1103/PhysRevLett.109.111806, arXiv:1206.2598 [hep-ex]
- S. Chatrchyan et al., Search for Resonant  $t\bar{t}$  Production in Lepton+Jets Events in pp Collisions at  $\sqrt{s}=7$  TeV, JHEP.~12~(2012)~015,~doi:10.1007/JHEP12(2012)015,~arXiv:1209.4397~[hep-ex]
- S. Chatrchyan et al., Search for Heavy Bottom-like Quarks in 4.9  $fb^{-1}$  of pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 05 (2012) 123, doi:10.1007/JHEP05(2012)123, arXiv:1204.1088 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in Hadronic Final States using MT2 in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 10 (2012) 018, doi:10.1007/JHEP10(2012)018, arXiv:1207.1798 [hep-ex]
- S. Chatrchyan et al., Measurement of the Pseudorapidity and Centrality Dependence of the Transverse Energy Density in PbPb Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. Lett. 109 (2012) 152303, doi:10.1103/PhysRevLett.109.152303, arXiv:1205.2488 [nucl-ex]
- S. Chatrchyan et al., Search for High-Mass Resonances Decaying into  $\tau$ -Lepton Pairs in pp Collisions at  $\sqrt{s}=7$  TeV, Phys. Lett. B. 716 (2012) 82–102, doi:10.1016/j.physletb.2012.07.062, arXiv:1206.1725 [hep-ex]
- S. Chatrchyan et al., Search for Dark Matter and Large Extra Dimensions in pp Collisions Yielding a Photon and Missing Transverse Energy, Phys. Rev. Lett. 108 (2012) 261803, doi:10.1103/PhysRevLett.108.261803, arXiv:1204.0821 [hep-ex]
- S. Chatrchyan et al., Search for Pair Produced Fourth-Generation Up-Type Quarks in pp Collisions at  $\sqrt{s} = 7$  TeV with a Lepton in the Final State, Phys. Lett. B. 718 (2012) 307–328, doi:10.1016/j.physletb.2012.10.038, arXiv:1209.0471 [hep-ex]
- S. Chatrchyan et al., Search for Leptonic Decays of W' Bosons in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 08 (2012) 023, doi:10.1007/JHEP08(2012)023, arXiv:1204.4764 [hep-ex]
- S. Chatrchyan et al., A New Boson with a Mass of 125 GeV Observed with the CMS Experiment at the Large Hadron Collider, *Science*. 338 (2012) 1569–1575, doi:10.1126/science.1230816

February 2, 2024 54 of 64

- S. Chatrchyan et al., Measurement of Jet Fragmentation into Charged Particles in pp and PbPb Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, JHEP.~10~(2012)~087,~doi:10.1007/JHEP10(2012)087,~arXiv:1205.5872~[nucl-ex]
- S. Chatrchyan et al., **Performance of CMS Muon Reconstruction in** pp **Collision Events at**  $\sqrt{s} = 7$  **TeV**, JINST. 7 (2012) P10002, doi:10.1088/1748-0221/7/10/P10002, arXiv:1206.4071 [physics.ins-det]
- S. Chatrchyan et al., Search for the Standard Model Higgs Boson in the  $H \to ZZ \to \ell^+\ell^-\tau^+\tau^-$  Decay Channel in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 03 (2012) 081, doi:10.1007/JHEP03(2012)081, arXiv:1202.3617 [hep-ex]
- S. Chatrchyan et al., Inclusive and Differential Measurements of the  $t\bar{t}$  Charge Asymmetry in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 717 (2012) 129–150, doi:10.1016/j.physletb.2012.09.028, arXiv:1207.0065 [hep-ex]
- S. Chatrchyan et al., Measurement of Isolated Photon Production in pp and PbPb Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Lett. B. 710 (2012) 256–277, doi:10.1016/j.physletb.2012.02.077, arXiv:1201.3093 [nucl-ex]
- S. Chatrchyan et al., Measurement of the Underlying Event in the Drell-Yan Process in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C. 72 (2012) 2080, doi:10.1140/epjc/s10052-012-2080-4, arXiv:1204.1411 [hep-ex]
- S. Chatrchyan et al., Shape, Transverse Size, and Charged Hadron Multiplicity of Jets in pp Collisions at 7 TeV, JHEP. 06 (2012) 160, doi:10.1007/JHEP06(2012)160, arXiv:1204.3170 [hep-ex]
- S. Chatrchyan et al., Inclusive b-Jet Production in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 04 (2012) 084, doi:10.1007/JHEP04(2012)084, arXiv:1202.4617 [hep-ex]
- S. Chatrchyan et al., Measurement of the Relative Prompt Production Rate of  $\chi_{c2}$  and  $\chi_{c1}$  in pp Collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C. 72 (2012) 2251, doi:10.1140/epjc/s10052-012-2251-3, arXiv:1210.0875 [hep-ex]
- S. Chatrchyan et al., Search for Heavy Lepton Partners of Neutrinos in Proton-Proton Collisions in the Context of the Type III Seesaw Mechanism, *Phys. Lett. B.* 718 (2012) 348–368, doi:10.1016/j.physletb.2012.10.070, arXiv:1210.1797 [hep-ex]
- S. Chatrchyan et al., Search for Anomalous Production of Multilepton Events in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP.~06~(2012)~169,~doi:10.1007/JHEP06(2012)169,~arXiv:1204.5341~[hep-ex]
- S. Chatrchyan et al., Measurement of the Inclusive Production Cross Sections for Forward Jets and for Dijet Events with One Forward and One Central Jet in pp Collisions at  $\sqrt{s}=7$  TeV, JHEP. 06 (2012) 036, doi:10.1007/JHEP06(2012)036, arXiv:1202.0704 [hep-ex]
- S. Chatrchyan et al., Measurement of the Underlying Event Activity in pp Collisions at  $\sqrt{s} = 0.9$  and 7 TeV with the Novel Jet-Area/Median Approach, JHEP. 08 (2012) 130, doi:10.1007/JHEP08(2012)130, arXiv:1207.2392 [hep-ex]
- S. Chatrchyan et al., Search for a Higgs Boson in the Decay Channel  $H \to ZZ^* \to q\bar{q}\ell^-\ell^+$  in pp Collisions at  $\sqrt{s}=7$  TeV, JHEP.~04~(2012)~036,~doi:10.1007/JHEP04(2012)036,~arXiv:1202.1416~[hep-ex]
- S. Chatrchyan et al., Search for Quark Compositeness in Dijet Angular Distributions from pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 05 (2012) 055, doi:10.1007/JHEP05(2012)055, arXiv:1202.5535 [hep-ex]
- S. Chatrchyan et al., Measurement of the Top-Quark Mass in  $t\bar{t}$  Events with Lepton+Jets Final States in pp Collisions at  $\sqrt{s}=7$  TeV, JHEP.~12~(2012)~105,~doi:10.1007/JHEP12(2012)105,~arXiv:1209.2319~[hep-ex]
- S. Chatrchyan et al., Search for Stopped Long-Lived Particles Produced in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 08 (2012) 026, doi:10.1007/JHEP08(2012)026, arXiv:1207.0106 [hep-ex]
- S. Chatrchyan et al., Measurement of the Top-Quark Mass in  $t\bar{t}$  Events with Dilepton Final States in pp Collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C. 72 (2012) 2202, doi:10.1140/epjc/s10052-012-2202-z, arXiv:1209.2393 [hep-ex]
- S. Chatrchyan et al., Azimuthal Anisotropy of Charged Particles at High Transverse Momenta in PbPb Collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. Lett. 109 (2012) 022301, doi:10.1103/PhysRevLett.109.022301, arXiv:1204.1850 [nucl-ex]
- S. Chatrchyan et al., Search for Dark Matter and Large Extra Dimensions in Monojet Events in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 09 (2012) 094, doi:10.1007/JHEP09(2012)094, arXiv:1206.5663 [hep-ex]
- S. Chatrchyan et al., **Jet Momentum Dependence of Jet Quenching in PbPb Collisions at**  $\sqrt{s_{NN}} = 2.76$  **TeV**, *Phys. Lett. B.* 712 (2012) 176–197, doi:10.1016/j.physletb.2012.04.058, arXiv:1202.5022 [nucl-ex]
- S. Chatrchyan et al., Search for the Standard Model Higgs Boson in the Decay Channel H to ZZ to 4 Leptons in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 108 (2012) 111804, doi:10.1103/PhysRevLett.108.111804, arXiv:1202.1997 [hep-ex]

February 2, 2024 55 of 64

- S. Chatrchyan et al., Search for the Standard Model Higgs Boson Decaying to Bottom Quarks in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 710 (2012) 284–306, doi:10.1016/j.physletb.2012.02.085, arXiv:1202.4195 [hep-ex]
- S. Chatrchyan et al., Search for Large Extra Dimensions in Dimuon and Dielectron Events in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 711 (2012) 15–34, doi:10.1016/j.physletb.2012.03.029, arXiv:1202.3827 [hep-ex]
- S. Chatrchyan et al., Search for Heavy Long-Lived Charged Particles in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 713 (2012) 408–433, doi:10.1016/j.physletb.2012.06.023, arXiv:1205.0272 [hep-ex]
- S. Chatrchyan et al., Combined Search for the Quarks of a Sequential Fourth Generation, Phys. Rev. D. 86 (2012) 112003, doi:10.1103/PhysRevD.86.112003, arXiv:1209.1062 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $\Lambda_b$  Cross Section and the  $\bar{\Lambda}_b$  to  $\Lambda_b$  Ratio with  $J/\Psi\Lambda$  Decays in pp Collisions at  $\sqrt{s} = 7$  TeV,  $Phys.\ Lett.\ B.\ 714\ (2012)\ 136-157$ , doi:10.1016/j.physletb.2012.05.063, arXiv:1205.0594 [hep-ex]
- S. Chatrchyan et al., Search for heavy Majorana Neutrinos in  $\mu^{\pm}\mu^{\pm}+$  Jets and  $e^{\pm}e^{\pm}+$  Jets Events in pp Collisions at  $\sqrt{s}=$  7 TeV, Phys. Lett. B. 717 (2012) 109–128, doi:10.1016/j.physletb.2012.09.012, arXiv:1207.6079 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in Events with b-Quark Jets and Missing Transverse Energy in pp Collisions at 7 TeV, Phys. Rev. D. 86 (2012) 072010, doi:10.1103/PhysRevD.86.072010, arXiv:1208.4859 [hep-ex]
- S. Chatrchyan et al., Ratios of Dijet Production Cross Sections as a Function of the Absolute Difference in Rapidity between Jets in Proton-Proton Collisions at  $\sqrt{s}=7$  TeV, Eur. Phys. J. C. 72 (2012) 2216, doi:10.1140/epjc/s10052-012-2216-6, arXiv:1204.0696 [hep-ex]
- S. Chatrchyan et al., Measurement of the Single-Top-Quark t-Channel Cross Section in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 12 (2012) 035, doi:10.1007/JHEP12(2012)035, arXiv:1209.4533 [hep-ex]
- S. Chatrchyan et al., Search for a Fermiophobic Higgs Boson in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 09 (2012) 111, doi:10.1007/JHEP09(2012)111, arXiv:1207.1130 [hep-ex]
- S. Chatrchyan et al., Measurement of the Inclusive Cross Section  $\sigma(pp \to b\bar{b}X \to \mu\mu X')$  at  $\sqrt{s} = 7$  TeV, JHEP. 06 (2012) 110, doi:10.1007/JHEP06(2012)110, arXiv:1203.3458 [hep-ex]
- S. Chatrchyan et al., Centrality Dependence of Dihadron Correlations and Azimuthal anisotropy Harmonics in PbPb Collisions at  $\sqrt{s_{NN}}=2.76$  TeV, Eur. Phys. J. C. 72 (2012) 2012, doi:10.1140/epjc/s10052-012-2012-3, arXiv:1201.3158 [nucl-ex]
- S. Chatrchyan et al., Study of the Inclusive Production of Charged Pions, Kaons, and Protons in pp Collisions at  $\sqrt{s} = 0.9$ , 2.76, and 7 TeV, Eur. Phys. J. C. 72 (2012) 2164, doi:10.1140/epjc/s10052-012-2164-1, arXiv:1207.4724 [hep-ex]
- S. Chatrchyan et al., Search for New Physics in the Multijet and Missing Transverse Momentum Final State in Proton-Proton Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 109 (2012) 171803, doi:10.1103/PhysRevLett.109.171803, arXiv:1207.1898 [hep-ex]
- S. Chatrchyan et al., Combined Results of Searches for the Standard Model Higgs Boson in pp Collisions at  $\sqrt{s} = 7$  TeV,  $Phys. \ Lett. \ B. 710 (2012) 26-48$ , doi:10.1016/j.physletb.2012.02.064, arXiv:1202.1488 [hep-ex]
- S. Chatrchyan et al., Search for Three-Jet Resonances in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 718 (2012) 329–347, doi:10.1016/j.physletb.2012.10.048, arXiv:1208.2931 [hep-ex]
- S. Chatrchyan et al., Search for Heavy Neutrinos and  $W_R$  Bosons with Right-Handed Couplings in a Left-Right Symmetric Model in pp Collisions at  $\sqrt{s}=7$  TeV, Phys. Rev. Lett. 109 (2012) 261802, doi:10.1103/PhysRevLett.109.261802, arXiv:1210.2402 [hep-ex]
- V. Khachatryan et al., Search for Pair Production of First-Generation Scalar Leptoquarks in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 106 (2011) 201802, doi:10.1103/PhysRevLett.106.201802, arXiv:1012.4031 [hep-ex]
- V. Khachatryan et al., Search for Stopped Gluinos in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 106 (2011) 011801, doi:10.1103/PhysRevLett.106.011801, arXiv:1011.5861 [hep-ex]
- V. Khachatryan et al., Search for a Heavy Gauge Boson W 'in the Final State with an Electron and Large Missing Transverse Energy in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 698 (2011) 21–39, doi:10.1016/j.physletb.2011.02.048, arXiv:1012.5945 [hep-ex]
- V. Khachatryan et al., Prompt and Non-Prompt  $J/\psi$  Production in pp Collisions at  $\sqrt{s}=7$  TeV, Eur. Phys. J. C. 71 (2011) 1575, doi:10.1140/epjc/s10052-011-1575-8, arXiv:1011.4193 [hep-ex]

February 2, 2024 56 of 64

- V. Khachatryan et al., Search for Microscopic Black Hole Signatures at the Large Hadron Collider, *Phys. Lett. B.* 697 (2011) 434–453, doi:10.1016/j.physletb.2011.02.032, arXiv:1012.3375 [hep-ex]
- V. Khachatryan et al., Charged Particle Multiplicities in pp Interactions at  $\sqrt{s} = 0.9$ , 2.36, and 7 TeV, JHEP. 01 (2011) 079, doi:10.1007/JHEP01(2011)079, arXiv:1011.5531 [hep-ex]
- V. Khachatryan et al., Search for Pair Production of Second-Generation Scalar Leptoquarks in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 106 (2011) 201803, doi:10.1103/PhysRevLett.106.201803, arXiv:1012.4033 [hep-ex]
- V. Khachatryan et al., Measurement of the Isolated Prompt Photon Production Cross Section in pp Collisions at  $\sqrt{s} = 7 \sim \text{TeV}$ , Phys. Rev. Lett. 106 (2011) 082001, doi:10.1103/PhysRevLett.106.082001, arXiv:1012.0799 [hep-ex]
- V. Khachatryan et al., Measurements of Inclusive W and Z Cross Sections in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 01 (2011) 080, doi:10.1007/JHEP01(2011)080, arXiv:1012.2466 [hep-ex]
- V. Khachatryan et al., Upsilon Production Cross-Section in pp Collisions at  $\sqrt{s}$ =7 TeV, Phys. Rev. D. 83 (2011) 112004, doi:10.1103/PhysRevD.83.112004, arXiv:1012.5545 [hep-ex]
- S. Chatrchyan et al., Measurement of the Inclusive W and Z Production Cross Sections in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 10 (2011) 132, doi:10.1007/JHEP10(2011)132, arXiv:1107.4789 [hep-ex]
- S. Chatrchyan et al., Measurement of the Inclusive Jet Cross Section in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 107 (2011) 132001, doi:10.1103/PhysRevLett.107.132001, arXiv:1106.0208 [hep-ex]
- S. Chatrchyan et al., Search for supersymmetry in pp collisions at  $\sqrt{s} = 7$  TeV in events with a single lepton, jets, and missing transverse momentum, JHEP. 08 (2011) 156, doi:10.1007/JHEP08(2011)156, arXiv:1107.1870 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in pp Collisions at  $\sqrt{s} = 7$  TeV in Events with Two Photons and Missing Transverse Energy, Phys. Rev. Lett. 106 (2011) 211802, doi:10.1103/PhysRevLett.106.211802, arXiv:1103.0953 [hep-ex]
- S. Chatrchyan et al., Indications of suppression of excited  $\Upsilon$  states in PbPb collisions at  $\sqrt{S_{NN}} = 2.76$  TeV, Phys. Rev. Lett. 107 (2011) 052302, doi:10.1103/PhysRevLett.107.052302, arXiv:1105.4894 [nucl-ex]
- S. Chatrchyan et al., Dependence on pseudorapidity and centrality of charged hadron production in PbPb collisions at a nucleon-nucleon centre-of-mass energy of 2.76 TeV, *JHEP*. 08 (2011) 141, doi:10.1007/JHEP08(2011)141, arXiv:1107.4800 [nucl-ex]
- V. Khachatryan et al., Search for Heavy Stable Charged Particles in pp collisions at  $\sqrt{s} = 7$  TeV, JHEP. 03 (2011) 024, doi:10.1007/JHEP03(2011)024, arXiv:1101.1645 [hep-ex]
- S. Chatrchyan et al., Measurement of the lepton charge asymmetry in inclusive W production in pp collisions at  $\sqrt{s} = 7$  TeV, JHEP. 04 (2011) 050, doi:10.1007/JHEP04(2011)050, arXiv:1103.3470 [hep-ex]
- S. Chatrchyan et al., Missing transverse energy performance of the CMS detector, JINST. 6 (2011) P09001, doi:10.1088/1748-0221/6/09/P09001, arXiv:1106.5048 [physics.ins-det]
- S. Chatrchyan et al., Search for Supersymmetry at the LHC in Events with Jets and Missing Transverse Energy, *Phys. Rev. Lett.* 107 (2011) 221804, doi:10.1103/PhysRevLett.107.221804, arXiv:1109.2352 [hep-ex]
- S. Chatrchyan et al., Search for Resonances in the Dijet Mass Spectrum from 7 TeV pp Collisions at CMS, Phys. Lett. B. 704 (2011) 123–142, doi:10.1016/j.physletb.2011.09.015, arXiv:1107.4771 [hep-ex]
- S. Chatrchyan et al., Long-range and short-range dihadron angular correlations in central PbPb collisions at a nucleon-nucleon center of mass energy of 2.76 TeV, *JHEP*. 07 (2011) 076, doi:10.1007/JHEP07(2011)076, arXiv:1105.2438 [nucl-ex]
- S. Chatrchyan et al., Measurement of the Top-antitop Production Cross Section in pp Collisions at  $\sqrt{s}=7$  TeV using the Kinematic Properties of Events with Leptons and Jets, Eur. Phys. J. C. 71 (2011) 1721, doi:10.1140/epjc/s10052-011-1721-3, arXiv:1106.0902 [hep-ex]
- S. Chatrchyan et al., Measurement of  $W^+W^-$  production and search for the Higgs boson in pp collisions at  $\sqrt{s}=7$  TeV, Phys. Lett. B. 699 (2011) 25–47, doi:10.1016/j.physletb.2011.03.056, arXiv:1102.5429 [hep-ex]
- S. Chatrchyan et al., Search for New Physics with a Mono-Jet and Missing Transverse Energy in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 107 (2011) 201804, doi:10.1103/PhysRevLett.107.201804, arXiv:1106.4775 [hep-ex]
- S. Chatrchyan et al., A search for excited leptons in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 704 (2011) 143–162, doi:10.1016/j.physletb.2011.09.021, arXiv:1107.1773 [hep-ex]

February 2, 2024 57 of 64

- S. Chatrchyan et al., Search for physics beyond the standard model using multilepton signatures in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 704 (2011) 411-433, doi:10.1016/j.physletb.2011.09.047, arXiv:1106.0933 [hep-ex]
- V. Khachatryan et al., Measurement of Dijet Angular Distributions and Search for Quark Compositeness in pp Collisions at sqrts = 7 TeV, Phys. Rev. Lett. 106 (2011) 201804, doi:10.1103/PhysRevLett.106.201804, arXiv:1102.2020 [hep-ex]
- S. Chatrchyan et al., Measurement of the Drell-Yan Cross Section in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 10 (2011) 007, doi:10.1007/JHEP10(2011)007, arXiv:1108.0566 [hep-ex]
- V. Khachatryan et al., **Dijet Azimuthal Decorrelations in** pp **Collisions at**  $\sqrt{s} = 7 \sim \text{TeV}$ , Phys. Rev. Lett. 106 (2011) 122003, doi:10.1103/PhysRevLett.106.122003, arXiv:1101.5029 [hep-ex]
- S. Chatrchyan et al., Observation and studies of jet quenching in PbPb collisions at nucleon-nucleon center-of-mass energy = 2.76 TeV, Phys. Rev. C. 84 (2011) 024906, doi:10.1103/PhysRevC.84.024906, arXiv:1102.1957 [nucl-ex]
- V. Khachatryan et al., Strange Particle Production in pp Collisions at  $\sqrt{s} = 0.9$  and 7 TeV, JHEP. 05 (2011) 064, doi:10.1007/JHEP05(2011)064, arXiv:1102.4282 [hep-ex]
- S. Chatrchyan et al., Measurement of the Polarization of W Bosons with Large Transverse Momenta in W+Jets Events at the LHC, Phys. Rev. Lett. 107 (2011) 021802, doi:10.1103/PhysRevLett.107.021802, arXiv:1104.3829 [hep-ex]
- S. Chatrchyan et al., Measurement of the Strange B Meson Production Cross Section with J/Psi  $\phi$  Decays in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D. 84 (2011) 052008, doi:10.1103/PhysRevD.84.052008, arXiv:1106.4048 [hep-ex]
- S. Chatrchyan et al., Search for a Vector-like Quark with Charge 2/3 in t+Z Events from pp Collisions at  $\sqrt{s}=7$  TeV, Phys. Rev. Lett. 107 (2011) 271802, doi:10.1103/PhysRevLett.107.271802, arXiv:1109.4985 [hep-ex]
- S. Chatrchyan et al., Search for a W' boson decaying to a muon and a neutrino in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 701 (2011) 160–179, doi:10.1016/j.physletb.2011.05.048, arXiv:1103.0030 [hep-ex]
- S. Chatrchyan et al., Measurement of the Inclusive Z Cross Section via Decays to Tau Pairs in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP. 08 (2011) 117, doi:10.1007/JHEP08(2011)117, arXiv:1104.1617 [hep-ex]
- S. Chatrchyan et al., Search for a Heavy Bottom-like Quark in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 701 (2011) 204–223, doi:10.1016/j.physletb.2011.05.074, arXiv:1102.4746 [hep-ex]
- S. Chatrchyan et al., Search for Neutral MSSM Higgs Bosons Decaying to Tau Pairs in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 106 (2011) 231801, doi:10.1103/PhysRevLett.106.231801, arXiv:1104.1619 [hep-ex]
- S. Chatrchyan et al., Measurement of the ratio of the 3-jet to 2-jet cross sections in pp collisions at  $\sqrt{s} = 7$  TeV,  $Phys.\ Lett.\ B.\ 702\ (2011)\ 336-354,\ doi:10.1016/j.physletb.2011.07.067,\ arXiv:1106.0647\ [hep-ex]$
- S. Chatrchyan et al., Charged particle transverse momentum spectra in pp collisions at  $\sqrt{s}=0.9$  and 7 TeV, JHEP.~08~(2011)~086,~doi:10.1007/JHEP08(2011)086,~arXiv:1104.3547~[hep-ex]
- S. Chatrchyan et al., Measurement of  $W\gamma$  and  $Z\gamma$  production in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 701 (2011) 535–555, doi:10.1016/j.physletb.2011.06.034, arXiv:1105.2758 [hep-ex]
- S. Chatrchyan et al., Measurement of the Differential Cross Section for Isolated Prompt Photon Production in pp Collisions at 7 TeV, Phys. Rev. D. 84 (2011) 052011, doi:10.1103/PhysRevD.84.052011, arXiv:1108.2044 [hep-ex]
- V. Khachatryan et al., Measurement of Bose-Einstein Correlations in pp Collisions at  $\sqrt{s} = 0.9$  and 7 TeV, JHEP. 05 (2011) 029, doi:10.1007/JHEP05(2011)029, arXiv:1101.3518 [hep-ex]
- S. Chatrchyan et al., Measurement of the differential dijet production cross section in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 700 (2011) 187–206, doi:10.1016/j.physletb.2011.05.027, arXiv:1104.1693 [hep-ex]
- S. Chatrchyan et al., Measurement of the t-channel single top quark production cross section in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 107 (2011) 091802, doi:10.1103/PhysRevLett.107.091802, arXiv:1106.3052 [hep-ex]
- V. Khachatryan et al., Measurement of the  $B^+$  Production Cross Section in pp Collisions at  $\sqrt{s} = 7 \sim \text{TeV}$ , Phys. Rev. Lett. 106 (2011) 112001, doi:10.1103/PhysRevLett.106.112001, arXiv:1101.0131 [hep-ex]
- S. Chatrchyan et al., Search for Three-Jet Resonances in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 107 (2011) 101801, doi:10.1103/PhysRevLett.107.101801, arXiv:1107.3084 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $B^0$  production cross section in pp Collisions at  $\sqrt{s}=7$  TeV, Phys. Rev. Lett. 106 (2011) 252001, doi:10.1103/PhysRevLett.106.252001, arXiv:1104.2892 [hep-ex]

February 2, 2024 58 of 64

- S. Chatrchyan et al., Measurement of the Underlying Event Activity at the LHC with  $\sqrt{s} = 7$  TeV and Comparison with  $\sqrt{s} = 0.9$  TeV, JHEP. 09 (2011) 109, doi:10.1007/JHEP09(2011)109, arXiv:1107.0330 [hep-ex]
- S. Chatrchyan et al., **Determination of Jet Energy Calibration and Transverse Momentum Resolution in CMS**, JINST. 6 (2011) P11002, doi:10.1088/1748-0221/6/11/P11002, arXiv:1107.4277 [physics.ins-det]
- S. Chatrchyan et al., Search for B(s) and B to dimuon decays in pp collisions at 7 TeV, Phys. Rev. Lett. 107 (2011) 191802, doi:10.1103/PhysRevLett.107.191802, arXiv:1107.5834 [hep-ex]
- V. Khachatryan et al., First Measurement of Hadronic Event Shapes in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 699 (2011) 48–67, doi:10.1016/j.physletb.2011.03.060, arXiv:1102.0068 [hep-ex]
- S. Chatrchyan et al., Measurement of the weak mixing angle with the Drell-Yan process in proton-proton collisions at the LHC, Phys. Rev. D. 84 (2011) 112002, doi:10.1103/PhysRevD.84.112002, arXiv:1110.2682 [hep-ex]
- S. Chatrchyan et al., Search for Large Extra Dimensions in the Diphoton Final State at the Large Hadron Collider, *JHEP*. 05 (2011) 085, doi:10.1007/JHEP05(2011)085, arXiv:1103.4279 [hep-ex]
- S. Chatrchyan et al., Measurement of the  $t\bar{t}$  Production Cross Section in pp Collisions at 7 TeV in Lepton + Jets Events Using b-quark Jet Identification, Phys. Rev. D. 84 (2011) 092004, doi:10.1103/PhysRevD.84.092004, arXiv:1108.3773 [hep-ex]
- V. Khachatryan et al., Search for Supersymmetry in pp Collisions at 7 TeV in Events with Jets and Missing Transverse Energy, Phys. Lett. B. 698 (2011) 196–218, doi:10.1016/j.physletb.2011.03.021, arXiv:1101.1628 [hep-ex]
- V. Khachatryan et al., Inclusive b-Hadron Production Cross Section with Muons in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP.~03~(2011)~090,~doi:10.1007/JHEP03(2011)090,~arXiv:1101.3512~[hep-ex]
- S. Chatrchyan et al., Measurement of energy flow at large pseudorapidities in pp collisions at  $\sqrt{s} = 0.9$  and 7 TeV, JHEP. 11 (2011) 148, doi:10.1007/JHEP11(2011)148, arXiv:1110.0211 [hep-ex]
- S. Chatrchyan et al., Search for Supersymmetry in Events with b Jets and Missing Transverse Momentum at the LHC, *JHEP*. 07 (2011) 113, doi:10.1007/JHEP07(2011)113, arXiv:1106.3272 [hep-ex]
- S. Chatrchyan et al., Search for Light Resonances Decaying into Pairs of Muons as a Signal of New Physics, *JHEP*. 07 (2011) 098, doi:10.1007/JHEP07(2011)098, arXiv:1106.2375 [hep-ex]
- S. Chatrchyan et al., Search for Resonances in the Dilepton Mass Distribution in pp Collisions at  $\sqrt{s} = 7$  TeV, JHEP.~05~(2011)~093,~doi:10.1007/JHEP05(2011)093,~arXiv:1103.0981~[hep-ex]
- S. Chatrchyan et al., Search for New Physics with Jets and Missing Transverse Momentum in pp collisions at  $\sqrt{s} = 7$  TeV, JHEP. 08 (2011) 155, doi:10.1007/JHEP08(2011)155, arXiv:1106.4503 [hep-ex]
- V. Khachatryan et al., Measurement of BB Angular Correlations based on Secondary Vertex Reconstruction at  $\sqrt{s} = 7$  TeV, JHEP. 03 (2011) 136, doi:10.1007/JHEP03(2011)136, arXiv:1102.3194 [hep-ex]
- S. Chatrchyan et al., Search for supersymmetry in events with a lepton, a photon, and large missing transverse energy in pp collisions at  $\sqrt{s} = 7$  TeV, JHEP.~06~(2011)~093, doi:10.1007/JHEP06(2011)093, arXiv:1105.3152 [hep-ex]
- S. Chatrchyan et al., Search for First Generation Scalar Leptoquarks in the e  $\nu$ jj channel in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B. 703 (2011) 246-266, doi:10.1016/j.physletb.2011.07.089, arXiv:1105.5237 [hep-ex]
- S. Chatrchyan et al., Study of Z boson production in PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. Lett. 106 (2011) 212301, doi:10.1103/PhysRevLett.106.212301, arXiv:1102.5435 [nucl-ex]
- S. Chatrchyan et al., **Performance of the CMS Cathode Strip Chambers with Cosmic Rays**, JINST. 5 (2010) T03018, doi:10.1088/1748-0221/5/03/T03018, arXiv:0911.4992 [physics.ins-det]
- S. Chatrchyan et al., Commissioning and Performance of the CMS Pixel Tracker with Cosmic Ray Muons, JINST. 5 (2010) T03007, doi:10.1088/1748-0221/5/03/T03007, arXiv:0911.5434 [physics.ins-det]
- S. Chatrchyan et al., **Performance and Operation of the CMS Electromagnetic Calorimeter**, JINST. 5 (2010) T03010, doi:10.1088/1748-0221/5/03/T03010, arXiv:0910.3423 [physics.ins-det]
- S. Chatrchyan et al., Alignment of the CMS Silicon Tracker during Commissioning with Cosmic Rays, JINST. 5 (2010) T03009, doi:10.1088/1748-0221/5/03/T03009, arXiv:0910.2505 [physics.ins-det]
- S. Chatrchyan et al., **Performance of CMS Muon Reconstruction in Cosmic-Ray Events**, *JINST*. 5 (2010) T03022, doi:10.1088/1748-0221/5/03/T03022, arXiv:0911.4994 [physics.ins-det]

February 2, 2024 59 of 64

- S. Chatrchyan et al., Aligning the CMS Muon Chambers with the Muon Alignment System during an Extended Cosmic Ray Run, JINST. 5 (2010) T03019, doi:10.1088/1748-0221/5/03/T03019, arXiv:0911.4770 [physics.ins-det]
- S. Chatrchyan et al., Performance of the CMS Hadron Calorimeter with Cosmic Ray Muons and LHC Beam Data, JINST. 5 (2010) T03012, doi:10.1088/1748-0221/5/03/T03012, arXiv:0911.4991 [physics.ins-det]
- S. Chatrchyan et al., Commissioning of the CMS High-Level Trigger with Cosmic Rays, *JINST*. 5 (2010) T03005, doi:10.1088/1748-0221/5/03/T03005, arXiv:0911.4889 [physics.ins-det]
- S. Chatrchyan et al., **Performance of the CMS Drift-Tube Local Trigger with Cosmic Rays**, JINST. 5 (2010) T03003, doi:10.1088/1748-0221/5/03/T03003, arXiv:0911.4893 [physics.ins-det]
- S. Chatrchyan et al., Commissioning of the CMS Experiment and the Cosmic Run at Four Tesla, JINST. 5 (2010) T03001, doi:10.1088/1748-0221/5/03/T03001, arXiv:0911.4845 [physics.ins-det]
- S. Chatrchyan et al., Performance of the CMS Drift Tube Chambers with Cosmic Rays, JINST. 5 (2010) T03015, doi:10.1088/1748-0221/5/03/T03015, arXiv:0911.4855 [physics.ins-det]
- S. Chatrchyan et al., Alignment of the CMS Muon System with Cosmic-Ray and Beam-Halo Muons, JINST. 5 (2010) T03020, doi:10.1088/1748-0221/5/03/T03020, arXiv:0911.4022 [physics.ins-det]
- S. Chatrchyan et al., Precise Mapping of the Magnetic Field in the CMS Barrel Yoke using Cosmic Rays, JINST. 5 (2010) T03021, doi:10.1088/1748-0221/5/03/T03021, arXiv:0910.5530 [physics.ins-det]
- S. Chatrchyan et al., Identification and Filtering of Uncharacteristic Noise in the CMS Hadron Calorimeter,  $JINST.\ 5\ (2010)\ T03014$ , doi:10.1088/1748-0221/5/03/T03014, arXiv:0911.4881 [physics.ins-det]
- S. Chatrchyan et al., Commissioning and Performance of the CMS Silicon Strip Tracker with Cosmic Ray Muons, JINST. 5 (2010) T03008, doi:10.1088/1748-0221/5/03/T03008, arXiv:0911.4996 [physics.ins-det]
- S. Chatrchyan et al., Performance of CMS Hadron Calorimeter Timing and Synchronization using Test Beam, Cosmic Ray, and LHC Beam Data, JINST. 5 (2010) T03013, doi:10.1088/1748-0221/5/03/T03013, arXiv:0911.4877 [physics.ins-det]
- S. Chatrchyan et al., **Time Reconstruction and Performance of the CMS Electromagnetic Calorimeter**, *JINST*. 5 (2010) T03011, doi:10.1088/1748-0221/5/03/T03011, arXiv:0911.4044 [physics.ins-det]
- S. Chatrchyan et al., Performance Study of the CMS Barrel Resistive Plate Chambers with Cosmic Rays, JINST. 5 (2010) T03017, doi:10.1088/1748-0221/5/03/T03017, arXiv:0911.4045 [physics.ins-det]
- S. Chatrchyan et al., Fine Synchronization of the CMS Muon Drift-Tube Local Trigger using Cosmic Rays, JINST. 5 (2010) T03004, doi:10.1088/1748-0221/5/03/T03004, arXiv:0911.4904 [physics.ins-det]
- S. Chatrchyan et al., Calibration of the CMS Drift Tube Chambers and Measurement of the Drift Velocity with Cosmic Rays, JINST. 5 (2010) T03016, doi:10.1088/1748-0221/5/03/T03016, arXiv:0911.4895 [physics.ins-det]
- S. Chatrchyan et al., Measurement of the Muon Stopping Power in Lead Tungstate, JINST. 5 (2010) P03007, doi:10.1088/1748-0221/5/03/P03007, arXiv:0911.5397 [physics.ins-det]
- S. Chatrchyan et al., Performance of the CMS Level-1 Trigger during Commissioning with Cosmic Ray Muons, JINST. 5 (2010) T03002, doi:10.1088/1748-0221/5/03/T03002, arXiv:0911.5422 [physics.ins-det]
- S. Chatrchyan et al., CMS Data Processing Workflows during an Extended Cosmic Ray Run, JINST. 5 (2010) T03006, doi:10.1088/1748-0221/5/03/T03006, arXiv:0911.4842 [physics.ins-det]
- V. Khachatryan et al., Search for Quark Compositeness with the Dijet Centrality Ratio in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 105 (2010) 262001, doi:10.1103/PhysRevLett.105.262001, arXiv:1010.4439 [hep-ex]
- V. Khachatryan et al., Observation of Long-Range Near-Side Angular Correlations in Proton-Proton Collisions at the LHC, *JHEP*. 09 (2010) 091, doi:10.1007/JHEP09(2010)091, arXiv:1009.4122 [hep-ex]
- V. Khachatryan et al., First Measurement of Bose-Einstein Correlations in Proton-Proton Collisions at  $\sqrt{s} = 0.9$  and 2.36 TeV at the LHC, Phys. Rev. Lett. 105 (2010) 032001, doi:10.1103/PhysRevLett.105.032001, arXiv:1005.3294 [hep-ex]
- V. Khachatryan et al., Search for Dijet Resonances in 7 TeV pp Collisions at CMS, Phys. Rev. Lett. 105 (2010) 211801, doi:10.1103/PhysRevLett.105.211801, arXiv:1010.0203 [hep-ex]

February 2, 2024 60 of 64

- V. Khachatryan et al., First Measurement of the Underlying Event Activity at the LHC with  $\sqrt{s} = 0.9$  TeV, Eur. Phys. J. C. 70 (2010) 555–572, doi:10.1140/epjc/s10052-010-1453-9, arXiv:1006.2083 [hep-ex]
- V. Khachatryan et al., Transverse-momentum and pseudorapidity distributions of charged hadrons in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 105 (2010) 022002, doi:10.1103/PhysRevLett.105.022002, arXiv:1005.3299 [hep-ex]
- V. Khachatryan et al., CMS Tracking Performance Results from Early LHC Operation, Eur. Phys. J. C. 70 (2010) 1165–1192, doi:10.1140/epjc/s10052-010-1491-3, arXiv:1007.1988 [physics.ins-det]
- V. Khachatryan et al., Transverse Momentum and Pseudorapidity Distributions of Charged Hadrons in pp Collisions at  $\sqrt{s} = 0.9$  and 2.36 TeV, *JHEP*. 02 (2010) 041, doi:10.1007/JHEP02(2010)041, arXiv:1002.0621 [hep-ex]
- V. Khachatryan et al., Measurement of the Charge Ratio of Atmospheric Muons with the CMS Detector, *Phys. Lett. B.* 692 (2010) 83–104, doi:10.1016/j.physletb.2010.07.033, arXiv:1005.5332 [hep-ex]
- W. Adam et al., Alignment of the CMS Silicon Strip Tracker during stand-alone Commissioning, JINST. 4 (2009) T07001, doi:10.1088/1748-0221/4/07/T07001, arXiv:0904.1220 [physics.ins-det]
- W. Adam et al., Performance studies of the CMS Strip Tracker before installation, JINST.~4~(2009)~P06009, doi:10.1088/1748-0221/4/06/P06009, arXiv:0901.4316 [physics.ins-det]
- W. Adam et al., The CMS tracker operation and performance at the Magnet Test and Cosmic Challenge, JINST. 3 (2008) P07006, doi:10.1088/1748-0221/3/07/P07006
- S. Chatrchyan et al., The CMS Experiment at the CERN LHC, JINST. 3 (2008) S08004, doi:10.1088/1748-0221/3/08/S08004
- G.L. Bayatian et al., CMS physics technical design report: Addendum on high density QCD with heavy ions,  $J.\ Phys.\ G.\ 34\ (2007)\ 2307-2455,\ doi:10.1088/0954-3899/34/11/008$
- G.L. Bayatian et al., CMS technical design report, volume II: Physics performance, J. Phys. G. 34 (2007) 995–1579, doi:10.1088/0954-3899/34/6/S01
- S. Chekanov et al., Measurement of neutral current cross sections at high Bjorken-x with the ZEUS detector at HERA, Eur. Phys. J. C. 49 (2007) 523–544, doi:10.1140/epjc/s10052-006-0164-8, arXiv:hep-ex/0608014 [hep-ex]
- S. Chekanov et al., Measurement of azimuthal asymmetries in neutral current deep inelastic scattering at HERA, Eur. Phys. J. C. 51 (2007) 289–299, doi:10.1140/epjc/s10052-007-0310-y, arXiv:hep-ex/0608053 [hep-ex]
- S. Chekanov et al., Measurement of prompt photons with associated jets in photoproduction at HERA, Eur. Phys. J. C. 49 (2007) 511–522, doi:10.1140/epjc/s10052-006-0134-1, arXiv:hep-ex/0608028 [hep-ex]
- S. Chekanov et al., Event shapes in deep inelastic scattering at HERA, Nucl. Phys. B. 767 (2007) 1–28, doi:10.1016/j.nuclphysb.2006.05.016, arXiv:hep-ex/0604032 [hep-ex]
- S. Chekanov et al., Inclusive-jet and dijet cross-sections in deep inelastic scattering at HERA, Nucl. Phys. B. 765 (2007) 1–30, doi:10.1016/j.nuclphysb.2006.09.018, arXiv:hep-ex/0608048 [hep-ex]
- G.L. Bayatian et al., CMS Physics: Technical Design Report Volume 1: Detector Performance and Software, (2006)
- S. Chekanov et al., Forward jet production in deep inelastic ep scattering and low-x parton dynamics at HERA, *Phys. Lett. B.* 632 (2006) 13–26, doi:10.1016/j.physletb.2005.09.066, arXiv:hep-ex/0502029 [hep-ex]
- S. Chekanov et al., Measurement of high-Q\*\*2 deep inelastic scattering cross sections with a longitudinally polarised positron beam at HERA, Phys. Lett. B. 637 (2006) 210–222, doi:10.1016/j.physletb.2006.04.047, arXiv:hep-ex/0602026 [hep-ex]
- S. Chekanov et al., Study of the pion trajectory in the photoproduction of leading neutrons at HERA, Phys. Lett. B. 610 (2005) 199–211, doi:10.1016/j.physletb.2005.01.101, arXiv:hep-ex/0404002 [hep-ex]
- S. Chekanov et al., Exclusive electroproduction of phi mesons at HERA, Nucl. Phys. B. 718 (2005) 3–31, doi:10.1016/j.nuclphysb.2005.04.009, arXiv:hep-ex/0504010 [hep-ex]
- S. Chekanov et al., Measurement of inelastic  $J/\psi$  production in deep inelastic scattering at HERA, Eur. Phys. J. C. 44 (2005) 13–25, doi:10.1140/epjc/s2005-02346-2, arXiv:hep-ex/0505008 [hep-ex]
- S. Chekanov et al., An NLO QCD analysis of inclusive cross-section and jet-production data from the zeus experiment, Eur. Phys. J. C. 42 (2005) 1–16, doi:10.1140/epjc/s2005-02293-x, arXiv:hep-ph/0503274 [hep-ex]

February 2, 2024 61 of 64

- S. Chekanov et al., **Search for lepton-flavor violation at HERA**, *Eur. Phys. J. C.* 44 (2005) 463–479, doi:10.1140/epjc/s2005-02399-1, arXiv:hep-ex/0501070 [hep-ex]
- S. Chekanov et al., Measurement of charm fragmentation ratios and fractions in photoproduction at HERA, Eur. Phys. J. C. 44 (2005) 351–366, doi:10.1140/epjc/s2005-02397-3, arXiv:hep-ex/0508019 [hep-ex]
- S. Chekanov et al., Inclusive jet cross sections and dijet correlations in D\*+- photoproduction at HERA, Nucl. Phys. B. 729 (2005) 492–525, doi:10.1016/j.nuclphysb.2005.09.021, arXiv:hep-ex/0507089 [hep-ex]
- S. Chekanov et al., Search for pentaquarks decaying to Xi-pi in deep inelastic scattering at HERA, Phys. Lett. B. 610 (2005) 212–224, doi:10.1016/j.physletb.2005.02.016, arXiv:hep-ex/0501069 [hep-ex]
- S. Chekanov et al., Multijet production in neutral current deep inelastic scattering at HERA and determination of alpha(s), Eur. Phys. J. C. 44 (2005) 183–193, doi:10.1140/epjc/s2005-02347-1, arXiv:hep-ex/0502007 [hep-ex]
- S. Chekanov et al., Study of deep inelastic inclusive and diffractive scattering with the ZEUS forward plug calorimeter, Nucl. Phys. B. 713 (2005) 3–80, doi:10.1016/j.nuclphysb.2005.02.001, arXiv:hep-ex/0501060 [hep-ex]
- S. Chekanov et al., Bose-Einstein correlations in one and two-dimensions in deep inelastic scattering, *Phys. Lett. B.* 583 (2004) 231–246, doi:10.1016/j.physletb.2003.12.068, arXiv:hep-ex/0311030 [hep-ex]
- S. Chekanov et al., Search for contact interactions, large extra dimensions and finite quark radius in e p collisions at HERA, *Phys. Lett. B.* 591 (2004) 23–41, doi:10.1016/j.physletb.2004.03.081, arXiv:hep-ex/0401009 [hep-ex]
- S. Chekanov et al., Isolated tau leptons in events with large missing transverse momentum at HERA, *Phys. Lett. B.* 583 (2004) 41–58, doi:10.1016/j.physletb.2003.12.054, arXiv:hep-ex/0311028 [hep-ex]
- S. Chekanov et al., Search for QCD instanton induced events in deep inelastic ep scattering at HERA, Eur. Phys. J. C. 34 (2004) 255–265, doi:10.1140/epjc/s2004-01735-3, arXiv:hep-ex/0312048 [hep-ex]
- S. Chekanov et al., High Q\*\*2 neutral current cross-sections in e+ p deep inelastic scattering at  $s^{**}(1/2) = 318$ -GeV, Phys. Rev. D. 70 (2004) 052001, doi:10.1103/PhysRevD.70.052001, arXiv:hep-ex/0401003 [hep-ex]
- S. Chekanov et al., Beauty photoproduction measured using decays into muons in dijet events in e p collisions at  $s^{**}(1/2) = 318$ -GeV, Phys. Rev. D. 70 (2004) 012008, doi:10.1103/PhysRevD.70.012008, arXiv:hep-ex/0312057 [hep-ex]
- S. Chekanov et al., Measurement of D\*+- production in deep inelastic e+- p scattering at HERA, Phys. Rev. D. 69 (2004) 012004, doi:10.1103/PhysRevD.69.012004, arXiv:hep-ex/0308068 [hep-ex]
- S. Chekanov et al., Observation of K0(s) K0(s) resonances in deep inelastic scattering at HERA, Phys. Lett. B. 578 (2004) 33–44, doi:10.1016/j.physletb.2003.10.049, arXiv:hep-ex/0308006 [hep-ex]
- S. Chekanov et al., **Observation of isolated high E(T) photons in deep inelastic scattering**, *Phys. Lett. B.* 595 (2004) 86–100, doi:10.1016/j.physletb.2004.05.033, arXiv:hep-ex/0402019 [hep-ex]
- S. Chekanov et al., Substructure dependence of jet cross sections at HERA and determination of alpha(s), Nucl. Phys. B. 700 (2004) 3–50, doi:10.1016/j.nuclphysb.2004.08.049, arXiv:hep-ex/0405065 [hep-ex]
- S. Chekanov et al., Evidence for a narrow baryonic state decaying to K0(S) p and K0(S) anti-p in deep inelastic scattering at HERA, Phys. Lett. B. 591 (2004) 7–22, doi:10.1016/j.physletb.2004.04.024, arXiv:hep-ex/0403051 [hep-ex]
- S. Chekanov et al., Search for a narrow charmed baryonic state decaying to D\*+- p-+ in ep collisions at HERA, Eur. Phys. J. C. 38 (2004) 29–41, doi:10.1140/epjc/s2004-02042-9, arXiv:hep-ex/0409033 [hep-ex]
- S. Chekanov et al., **Dissociation of virtual photons in events with a leading proton at HERA**, Eur. Phys. J. C. 38 (2004) 43–67, doi:10.1140/epjc/s2004-02047-4, arXiv:hep-ex/0408009 [hep-ex]
- S. Chekanov et al., Photoproduction of D\*+- mesons associated with a leading neutron, Phys. Lett. B. 590 (2004) 143–160, doi:10.1016/j.physletb.2004.03.076, arXiv:hep-ex/0401017 [hep-ex]
- S. Chekanov et al., The Dependence of dijet production on photon virtuality in ep collisions at HERA, Eur. Phys. J. C. 35 (2004) 487–500, doi:10.1140/epjc/s2004-01885-2, arXiv:hep-ex/0404033 [hep-ex]
- S. Chekanov et al., Measurement of beauty production in deep inelastic scattering at HERA, Phys. Lett. B. 599 (2004) 173–189, doi:10.1016/j.physletb.2004.08.048, arXiv:hep-ex/0405069 [hep-ex]
- S. Chekanov et al., Exclusive electroproduction of J/psi mesons at HERA, Nucl. Phys. B. 695 (2004) 3–37, doi:10.1016/j.nuclphysb.2004.06.034, arXiv:hep-ex/0404008 [hep-ex]

February 2, 2024 62 of 64

- S. Chekanov et al., Study of the azimuthal asymmetry of jets in neutral current deep inelastic scattering at HERA, Phys. Lett. B. 551 (2003) 226–240, doi:10.1016/S0370-2693(02)03072-1, arXiv:hep-ex/0210064 [hep-ex]
- S. Chekanov et al., Measurement of high Q\*\*2 e- p neutral current cross-sections at HERA and the extraction of xF(3), Eur. Phys. J. C. 28 (2003) 175–201, doi:10.1140/epjc/s2003-01163-y, arXiv:hep-ex/0208040 [hep-ex]
- S. Chekanov et al., Observation of the strange sea in the proton via inclusive phi meson production in neutral current deep inelastic scattering at HERA, *Phys. Lett. B.* 553 (2003) 141–158, doi:10.1016/S0370-2693(02)03206-9, arXiv:hep-ex/0211025 [hep-ex]
- S. Chekanov et al., Measurements of inelastic J / psi and psi-prime photoproduction at HERA, Eur. Phys. J. C. 27 (2003) 173–188, doi:10.1140/epjc/s2002-01130-2, arXiv:hep-ex/0211011 [hep-ex]
- S. Chekanov et al., Measurement of subjet multiplicities in neutral current deep inelastic scattering at HERA and determination of alpha(s), Phys. Lett. B. 558 (2003) 41–58, doi:10.1016/S0370-2693(03)00216-8, arXiv:hep-ex/0212030 [hep-ex]
- S. Chekanov et al., Measurement of event shapes in deep inelastic scattering at HERA, Eur. Phys. J. C. 27 (2003) 531–545, doi:10.1140/epjc/s2003-01148-x, arXiv:hep-ex/0211040 [hep-ex]
- S. Chekanov et al., Measurement of proton dissociative diffractive photoproduction of vector mesons at large momentum transfer at HERA, Eur. Phys. J. C. 26 (2003) 389–409, doi:10.1140/epjc/s2002-01079-0, arXiv:hep-ex/0205081 [hep-ex]
- S. Chekanov et al., A ZEUS next-to-leading-order QCD analysis of data on deep inelastic scattering, *Phys. Rev. D.* 67 (2003) 012007, doi:10.1103/PhysRevD.67.012007, arXiv:hep-ex/0208023 [hep-ex]
- S. Chekanov et al., Scaling violations and determination of alpha(s) from jet production in gamma p interactions at HERA, Phys. Lett. B. 560 (2003) 7–23, doi:10.1016/S0370-2693(03)00380-0, arXiv:hep-ex/0212064 [hep-ex]
- S. Chekanov et al., Leading proton production in e+p collisions at HERA, Nucl. Phys. B. 658 (2003) 3–46, doi:10.1016/S0550-3213(03)00152-4, arXiv:hep-ex/0210029 [hep-ex]
- S. Chekanov et al., Dijet angular distributions in photoproduction of charm at HERA, Phys. Lett. B. 565 (2003) 87-101, doi:10.1016/S0370-2693(03)00752-4, arXiv:hep-ex/0302025 [hep-ex]
- S. Chekanov et al., Measurement of high Q\*\*2 charged current cross-sections in e+ p deep inelastic scattering at HERA, Eur. Phys. J. C. 32 (2003) 1–16, doi:10.1140/epjc/s2003-01363-5, arXiv:hep-ex/0307043 [hep-ex]
- S. Chekanov et al., **Jet production in charged current deep inelastic e+ p scattering at HERA**, Eur. Phys. J. C. 31 (2003) 149–164, doi:10.1140/epjc/s2003-01358-2, arXiv:hep-ex/0306018 [hep-ex]
- S. Chekanov et al., Measurement of deeply virtual Compton scattering at HERA, Phys. Lett. B. 573 (2003) 46–62, doi:10.1016/j.physletb.2003.08.048, arXiv:hep-ex/0305028 [hep-ex]
- S. Chekanov et al., A Search for resonance decays to lepton + jet at HERA and limits on leptoquarks, *Phys. Rev. D.* 68 (2003) 052004, doi:10.1103/PhysRevD.68.052004, arXiv:hep-ex/0304008 [hep-ex]
- S. Chekanov et al., **Search for single top production in ep collisions at HERA**, *Phys. Lett. B.* 559 (2003) 153–170, doi:10.1016/S0370-2693(03)00333-2, arXiv:hep-ex/0302010 [hep-ex]
- S. Chekanov et al., Measurement of the open charm contribution to the diffractive proton structure function, Nucl. Phys. B. 672 (2003) 3–35, doi:10.1016/j.nuclphysb.2003.09.001, arXiv:hep-ex/0307068 [hep-ex]
- S. Chekanov et al., Measurement of the Q\*\*2 and energy dependence of diffractive interactions at HERA, Eur. Phys. J. C. 25 (2002) 169–187, doi:10.1007/s10052-002-1003-1, arXiv:hep-ex/0203039 [hep-ex]
- S. Chekanov et al., Leading neutron production in e+p collisions at HERA, Nucl. Phys. B. 637 (2002) 3–56, doi:10.1016/S0550-3213(02)00439-X, arXiv:hep-ex/0205076 [hep-ex]
- S. Chekanov et al., Measurement of high Q  $^2$  charged current cross-sections in e  $^-$ p deep inelastic scattering at HERA, Phys. Lett. B. 539 (2002) 197–217, doi:10.1016/S0370-2693(02)02093-2, arXiv:hep-ex/0205091 [hep-ex]
- S. Chekanov et al., Inclusive jet cross-sections in the Breit frame in neutral current deep inelastic scattering at HERA and determination of alpha(s), *Phys. Lett. B.* 547 (2002) 164–180, doi:10.1016/S0370-2693(02)02763-6, arXiv:hep-ex/0208037 [hep-ex]
- S. Chekanov et al., Measurement of diffractive production of D\*+-(2010) mesons in deep inelastic scattering at HERA, Phys. Lett. B. 545 (2002) 244–260, doi:10.1016/S0370-2693(02)02595-9, arXiv:hep-ex/0206020 [hep-ex]

February 2, 2024 63 of 64

- Full List of Physics Publications with Major Personal Contributions can be found here.
- Full List of Computing Publications with Major Personal Contributions can be found here.

February 2, 2024 64 of 64