## Publication List from all Collaborations and Experiments

## Oliver Gutsche

## February 2, 2019

- A.M. Sirunyan et al., Non-Gaussian elliptic-flow fluctuations in PbPb collisions at  $\sqrt{s_{_{NN}}} = 5.02$  TeV, Phys. Lett. B789 (2019) 643–665, doi:10.1016/j.physletb.2018.11.063, arXiv:1711.05594 [nucl-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 pair-produced three-jet resonances in proton-proton collisions at  $\sqrt{s}$  =13 TeV, Phys. Rev. D99 (2019) 012010, doi:10.1103/PhysRevD.99.012010, arXiv:1810.10092 [hep-ex]
- 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., 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. C79 (2019) 20, doi:10.1140/epjc/s10052-018-6482-9, arXiv:1807.00782 [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 low-mass resonances decaying into bottom quark-antiquark pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D99 (2019) 012005, doi:10.1103/PhysRevD.99.012005, arXiv:1810.11822 [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. B788 (2019) 7–36, doi:10.1016/j.physletb.2018.10.056, arXiv:1806.00408 [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. B790 (2019) 270–293, doi:10.1016/j.physletb.2019.01.006, arXiv:1805.09215 [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. B790 (2019) 140–166, doi:10.1016/j.physletb.2019.01.005, arXiv:1806.05264 [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 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., Measurement of differential cross sections for Z boson pair production in association with jets at  $\sqrt{s} = 8$  and 13 TeV, Phys. Lett. B789 (2019) 19–44, doi:10.1016/j.physletb.2018.11.007, arXiv:1806.11073 [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]
- 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, (2019), arXiv:1901.03428 [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, (2019), arXiv:1901.01553 [hep-ex]

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- A.M. Sirunyan et al., Search for supersymmetry in events with a photon, jets, b-jets, and missing transverse momentum in proton-proton collisions at 13 TeV, (2019), arXiv:1901.06726 [hep-ex]
- A.M. Sirunyan et al., Search for W boson decays to three charged pions, (2019), arXiv:1901.11201 [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, (2019), arXiv:1901.04060 [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, (2019), arXiv:1901.00174 [hep-ex]
- A.M. Sirunyan et al., Charged-particle angular correlations in XeXe collisions at  $\sqrt{s_{NN}} = 5.44$  TeV, (2019), arXiv:1901.07997 [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, (2019), arXiv:1901.01288 [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., Search for massive resonances decaying into WW, WZ, ZZ, qW, and qZ with dijet final states at  $\sqrt{s} = 13 TeV$ , Phys. Rev. D97 (2018) 072006, doi:10.1103/PhysRevD.97.072006, arXiv:1708.05379 [hep-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 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., 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 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., 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,  $Phys. \ Lett. \ B783 \ (2018) \ 114-139, \ doi:10.1016/j.physletb.2018.06.028, arXiv:1712.08920 [hep-ex]$
- 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. B781 (2018) 517–541, doi:10.1016/j.physletb.2018.04.030, arXiv:1710.02846 [hep-ex]
- A.M. Sirunyan et al., Search for Higgs boson pair production in events with two bottom quarks and two tau leptons in proton–proton collisions at  $\sqrt{s}$  =13TeV, *Phys. Lett.* B778 (2018) 101–127, doi:10.1016/j.physletb.2018.01.001, arXiv:1707.02909 [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. B779 (2018) 166–190, doi:10.1016/j.physletb.2017.12.069, arXiv:1709.00384 [hep-ex]
- A.M. Sirunyan et al., Evidence for the Higgs boson decay to a bottom quark–antiquark pair, *Phys. Lett.* B780 (2018) 501–532, doi:10.1016/j.physletb.2018.02.050, arXiv:1709.07497 [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., Search for excited quarks of light and heavy flavor in  $\gamma$ + jet final states in proton–proton collisions at  $\sqrt{s} = 13$ TeV, Phys. Lett. B781 (2018) 390–411, doi:10.1016/j.physletb.2018.04.007, arXiv:1711.04652 [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., 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]

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- 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., 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., Bose-Einstein correlations in pp, pPb, and PbPb collisions at  $\sqrt{s_{NN}} = 0.9 7$  TeV, Phys. Rev. C97 (2018) 064912, doi:10.1103/PhysRevC.97.064912, arXiv:1712.07198 [hep-ex]
- A.M. Sirunyan et al., Pseudorapidity and transverse momentum dependence of flow harmonics in pPb and PbPb collisions, Phys. Rev. C98 (2018) 044902, doi:10.1103/PhysRevC.98.044902, arXiv:1710.07864 [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 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. B781 (2018) 244–269, doi:10.1016/j.physletb.2018.03.084, arXiv:1710.04960 [hep-ex]
- A.M. Sirunyan et al., Measurement of prompt and nonprompt charmonium suppression in PbPb collisions at 5.02 TeV, Eur. Phys. J. C78 (2018) 509, doi:10.1140/epjc/s10052-018-5950-6, arXiv:1712.08959 [nucl-ex]
- A.M. Sirunyan et al., Search for new long-lived particles at  $\sqrt{s} = 13$  TeV, Phys. Lett. B780 (2018) 432–454, doi:10.1016/j.physletb.2018.03.019, arXiv:1711.09120 [hep-ex]
- A.M. Sirunyan et al., Electroweak production of two jets in association with a Z boson in proton–proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C78 (2018) 589, doi:10.1140/epjc/s10052-018-6049-9, arXiv:1712.09814 [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  $\sqrt{s}=13TeV$ , Phys. Rev. D97 (2018) 092005, doi:10.1103/PhysRevD.97.092005, arXiv:1712.02345 [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. C78 (2018) 566, doi:10.1140/epjc/s10052-018-6033-4, arXiv:1712.05471 [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., Observation of the Higgs boson decay to a pair of  $\tau$  leptons with the CMS detector, *Phys. Lett.* B779 (2018) 283–316, doi:10.1016/j.physletb.2018.02.004, arXiv:1708.00373 [hep-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 proton–proton collisions at  $\sqrt{s}=13$  TeV, Phys. Lett. B778 (2018) 263–291, doi:10.1016/j.physletb.2018.01.012, arXiv:1707.07274 [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., Search for top squarks and dark matter particles in opposite-charge dilepton final states at  $\sqrt{s} = 13$  TeV, Phys. Rev. D97 (2018) 032009, doi:10.1103/PhysRevD.97.032009, arXiv:1711.00752 [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., 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., 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. B780 (2018) 384–409, doi:10.1016/j.physletb.2018.03.028, arXiv:1709.09814 [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, 2019 3 of 44

- A.M. Sirunyan et al., Measurement of the associated production of a single top quark and a Z boson in pp collisions at  $\sqrt{s} = \text{TeV}$ , Phys. Lett. B779 (2018) 358–384, doi:10.1016/j.physletb.2018.02.025, arXiv:1712.02825 [hep-ex]
- A.M. Sirunyan et al., Measurement of b hadron lifetimes in pp collisions at  $\sqrt{s} = 8$  TeV, Eur. Phys. J. C78 (2018) 457, doi:10.1140/epjc/s10052-018-5929-3, arXiv:1710.08949 [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., 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. B780 (2018) 118–143, doi:10.1016/j.physletb.2018.02.045, arXiv:1711.08008 [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. D97 (2018) 032007, doi:10.1103/PhysRevD.97.032007, arXiv:1709.04896 [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., 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. B776 (2018) 195–216, doi:10.1016/j.physletb.2017.11.041, arXiv:1702.00630 [hep-ex]
- A.M. Sirunyan et al., Search for supersymmetry in proton-proton collisions at 13 TeV using identified top quarks, *Phys. Rev.* D97 (2018) 012007, doi:10.1103/PhysRevD.97.012007, arXiv:1710.11188 [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. B779 (2018) 82–106, doi:10.1016/j.physletb.2018.01.077, arXiv:1710.01539 [hep-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., Measurement of associated  $\mathbf{Z}$  + charm production in proton-proton collisions at  $\sqrt{s} = \mathbf{8}$  TeV, Eur. Phys. J. C78 (2018) 287, doi:10.1140/epjc/s10052-018-5752-x, arXiv:1711.02143 [hep-ex]
- A.M. Sirunyan et al., Measurement of quarkonium production cross sections in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B780 (2018) 251–272, doi:10.1016/j.physletb.2018.02.033, arXiv:1710.11002 [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 proton–proton collisions at  $\sqrt{s} = 13$  TeV, Eur. Phys. J. C78 (2018) 291, doi:10.1140/epjc/s10052-018-5740-1, arXiv:1711.00431 [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. B785 (2018) 14–39, doi:10.1016/j.physletb.2018.07.061, arXiv:1711.09738 [nucl-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. C97 (2018) 044912, doi:10.1103/PhysRevC.97.044912, arXiv:1708.01602 [nucl-ex]
- A.M. Sirunyan et al., Study of dijet events with a large rapidity gap between the two leading jets in pp collisions at  $\sqrt{s} = 7TeV$ , Eur. Phys. J. C78 (2018) 242, doi:10.1140/epjc/s10052-018-5691-6, arXiv:1710.02586 [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]
- 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., 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. B776 (2018) 355–378, doi:10.1016/j.physletb.2017.11.043, arXiv:1705.10141 [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]

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- 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., 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., 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 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 heavy resonances decaying to a top quark and a bottom quark in the lepton+jets final state in proton-proton collisions at 13 TeV, Phys. Lett. B777 (2018) 39–63, doi:10.1016/j.physletb.2017.12.006, arXiv:1708.08539 [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., Nuclear modification factor of D  $^0$  mesons in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B782 (2018) 474–496, doi:10.1016/j.physletb.2018.05.074, arXiv:1708.04962 [nucl-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 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. B781 (2018) 574–600, doi:10.1016/j.physletb.2018.04.036, arXiv:1708.01062 [hep-ex]
- A.M. Sirunyan et al., Search for pair production of excited top quarks in the lepton + jets final state, *Phys. Lett.* B778 (2018) 349–370, doi:10.1016/j.physletb.2018.01.049, arXiv:1711.10949 [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. C78 (2018) 165, doi:10.1140/epjc/s10052-018-5567-9, arXiv:1709.08601 [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., 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., Measurement of jet substructure observables in  $t\bar{t}$  events from proton-proton collisions at  $\sqrt{s} = 13$ TeV, Phys. Rev. D98 (2018) 092014, doi:10.1103/PhysRevD.98.092014, arXiv:1808.07340 [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, Submitted to: Phys. Lett. (2018), arXiv:1811.08459 [hep-ex]
- A.M. Sirunyan et al., Study of the underlying event in top quark pair production in pp collisions at 13 TeV, (2018), arXiv:1807.02810 [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. D97 (2018) 072010, doi:10.1103/PhysRevD.97.072010, arXiv:1802.04867 [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]
- A.M. Sirunyan et al., Search for pair production of first-generation scalar leptoquarks at  $\sqrt{s} = 13$  TeV, Submitted to: Phys. Rev. (2018), arXiv:1811.01197 [hep-ex]
- A.M. Sirunyan et al., Search for the associated production of the Higgs boson and a vector boson in protonproton collisions at  $\sqrt{s} = 13$  TeV via Higgs boson decays to  $\tau$  leptons, Submitted to: JHEP. (2018), arXiv:1809.03590 [hep-ex]

February 2, 2019 5 of 44

- 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. C78 (2018) 965, doi:10.1140/epjc/s10052-018-6373-0, arXiv:1804.05252 [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., Search for new physics in final states with a single photon and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Submitted to: JHEP. (2018), arXiv:1810.00196 [hep-ex]
- A.M. Sirunyan et al., Search for narrow H  $\gamma$  resonances in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2018), arXiv:1808.01257 [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., Measurements of properties of the Higgs boson decaying to a W boson pair in pp collisions at  $\sqrt{s} = 13$  TeV, Submitted to: Phys. Lett. (2018), arXiv:1806.05246 [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, Submitted to: JHEP. (2018), arXiv:1812.06302 [hep-ex]
- 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 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., Measurement of inclusive very forward jet cross sections in proton-lead collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Submitted to: JHEP. (2018), arXiv:1812.01691 [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, (2018), arXiv:1810.04602 [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., Search for a W' boson decaying to a vector-like quark and a top or bottom quark in the all-jets final state, Submitted to: JHEP. (2018), arXiv:1811.07010 [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, Submitted to: Eur. Phys. J. (2018), arXiv:1810.10056 [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 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., 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., 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, (2018), arXiv:1812.10505 [hep-ex]
- A.M. Sirunyan et al., Measurement of the top quark mass with lepton+jets final states using pp collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C78 (2018) 891, doi:10.1140/epjc/s10052-018-6332-9, arXiv:1805.01428 [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. C78 (2018) 939, doi:10.1140/epjc/s10052-018-6390-z, arXiv:1809.03578 [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, Submitted to: Eur. Phys. J. (2018), arXiv:1811.10021 [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]

February 2, 2019 6 of 44

- 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]
- 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, Submitted to: Eur. Phys. J. (2018), arXiv:1811.09760 [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., 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., Search for contact interactions and large extra dimensions in the dilepton mass spectra from proton-proton collisions at  $\sqrt{s} = 13$  TeV, Submitted to: JHEP. (2018), arXiv:1812.10443 [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., 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. B782 (2018) 440–467, doi:10.1016/j.physletb.2018.05.062, arXiv:1801.01846 [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., 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., Angular analysis of the decay B  $^+$  $\rightarrow$  K  $^+\mu^+\mu^-$  in proton-proton collisions at  $\sqrt{s}=8$  TeV, Phys. Rev. D98 (2018) 112011, doi:10.1103/PhysRevD.98.112011, arXiv:1806.00636 [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]
- A.M. Sirunyan et al., Measurement of the energy density as a function of pseudorapidity in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Submitted to: Eur. Phys. J. (2018), arXiv:1812.04095 [hep-ex]
- 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, Submitted to: Phys. Lett. (2018), arXiv:1810.01473 [hep-ex]
- A.M. Sirunyan et al., Combined measurements of Higgs boson couplings in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Submitted to: Eur. Phys. J. (2018), arXiv:1809.10733 [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., Measurement of inclusive and differential Higgs boson production cross sections in the diphoton decay channel in proton-proton collisions at  $\sqrt{s} = 13$  TeV, (2018), doi:10.1007/JHEP01(2019)183, arXiv:1807.03825 [hep-ex]
- A.M. Sirunyan et al., Studies of beauty suppression via nonprompt D  $^0$  mesons in PbPb collisions at  $\sqrt{s_{NN}} =$  5.02 TeV, Submitted to: Phys. Rev. Lett. (2018), arXiv:1810.11102 [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.* D98 (2018) 032005, doi:10.1103/PhysRevD.98.032005, arXiv:1805.10228 [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, Submitted to: Phys. Lett. (2018), arXiv:1807.11421 [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 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]

February 2, 2019 7 of 44

- 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 associated production of a Higgs boson and a single top quark in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Submitted to: Phys. Rev. (2018), arXiv:1811.09696 [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., A search for pair production of new light bosons decaying into muons in proton-proton collisions at 13 TeV, Submitted to: Phys. Lett. (2018), arXiv:1812.00380 [hep-ex]
- 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, (2018), arXiv:1812.10534 [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, Submitted to: Phys. Lett. (2018), arXiv:1812.06359 [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., 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  $t\bar{t}$ 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, (2018), arXiv:1804.03682 [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, (2018), arXiv:1809.08597 [hep-ex]
- A.M. Sirunyan et al., Jet shapes of isolated photon-tagged jets in PbPb and pp collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Submitted to: Phys. Rev. Lett. (2018), arXiv:1809.08602 [hep-ex]
- A.M. Sirunyan et al., Search for new particles decaying to a jet and an emerging jet, Submitted to: JHEP. (2018), arXiv:1810.10069 [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. C78 (2018) 707, doi:10.1140/epjc/s10052-018-6143-z, arXiv:1803.02864 [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, Submitted to: Phys. Lett. (2018), arXiv:1808.03684 [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, Submitted to: Phys. Rev. (2018), arXiv:1810.05745 [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]
- 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 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., 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., Measurement of the differential Drell-Yan cross section in proton-proton collisions at  $\sqrt{s} = 13 \text{ TeV}$ , (2018), arXiv:1812.10529 [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, Submitted to: Phys. Lett. (2018), arXiv:1809.05937 [hep-ex]

February 2, 2019 8 of 44

- 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., 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 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 prompt  $\psi(2S)$  production cross sections in proton-lead and proton-proton collisions at  $\sqrt{s_{_{NN}}} = 5.02$  TeV, (2018), arXiv:1805.02248 [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. D98 (2018) 092011, doi:10.1103/PhysRevD.98.092011, arXiv:1808.03078 [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. B785 (2018) 462, doi:10.1016/j.physletb.2018.08.057, arXiv:1805.10191 [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, Submitted to: Eur. Phys. J. (2018), arXiv:1812.09768 [hep-ex]
- 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., 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., 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. C78 (2018) 708, doi:10.1140/epjc/s10052-018-6146-9, arXiv:1801.03535 [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 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., 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, Submitted to: Eur. Phys. J. (2018), arXiv:1812.06489 [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.* D98 (2018) 112014, doi:10.1103/PhysRevD.98.112014, arXiv:1808.03124 [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, (2018), arXiv:1812.10514 [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 resonant  $t\bar{t}$  production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Submitted to: JHEP. (2018), arXiv:1810.05905 [hep-ex]
- A.M. Sirunyan et al., Search for pair production of second-generation leptoquarks at  $\sqrt{s} = 13$  TeV, Submitted to: Phys. Rev. (2018), arXiv:1808.05082 [hep-ex]
- A.M. Sirunyan et al., Measurement of exclusive  $\Upsilon$  photoproduction from protons in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Submitted to: Eur. Phys. J. (2018), arXiv:1809.11080 [hep-ex]

February 2, 2019 9 of 44

- A.M. Sirunyan et al., Measurement and interpretation of differential cross sections for Higgs boson production at  $\sqrt{s} = 13$  TeV, Submitted to: Phys. Lett. (2018), arXiv:1812.06504 [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 weak mixing angle using the forward-backward asymmetry of Drell-Yan events in pp collisions at 8 TeV, Eur. Phys. J. C78 (2018) 701, doi:10.1140/epjc/s10052-018-6148-7, arXiv:1806.00863 [hep-ex]
- 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 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 nonresonant Higgs boson pair production in the  $b\bar{b}b\bar{b}$  final state at  $\sqrt{s} = 13$  TeV, Submitted to: JHEP. (2018), arXiv:1810.11854 [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., Combination of searches for Higgs boson pair production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Submitted to: Phys. Rev. Lett. (2018), arXiv:1811.09689 [hep-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, Submitted to: JHEP. (2018), arXiv:1811.06625 [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, Submitted to: JHEP. (2018), arXiv:1811.00806 [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 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., Search for long-lived particles decaying into displaced jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Submitted to: Phys. Rev. (2018), arXiv:1811.07991 [hep-ex]
- A.M. Sirunyan et al., Search for new physics in dijet angular distributions using proton–proton collisions at  $\sqrt{s} =$  13 TeV and constraints on dark matter and other models, Eur. Phys. J. C78 (2018) 789, doi:10.1140/epjc/s10052-018-6242-x, arXiv:1803.08030 [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. D97 (2018) 112003, doi:10.1103/PhysRevD.97.112003, arXiv:1803.08856 [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 physics beyond the standard model in high-mass diphoton events from proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D98 (2018) 092001, doi:10.1103/PhysRevD.98.092001, arXiv:1809.00327 [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., 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]

February 2, 2019 10 of 44

- 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, Submitted to: Phys. Lett. (2018), arXiv:1811.10151 [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  $t\bar{t}H$  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 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, Submitted to: JHEP. (2018), arXiv:1810.03188 [hep-ex]
- A.M. Sirunyan et al., Measurement of charged particle spectra in minimum-bias events from proton-proton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C78 (2018) 697, doi:10.1140/epjc/s10052-018-6144-y, arXiv:1806.11245 [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, Submitted to: Phys. Rev. Lett. (2018), arXiv:1812.05900 [hep-ex]
- A.M. Sirunyan et al., Search for lepton-flavor violating decays of heavy resonances and quantum black holes to e 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., 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., 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., Measurement of B  $_s^0$  meson production in pp and PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Submitted to: Phys. Lett. (2018), arXiv:1810.03022 [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., Search for excited leptons in  $\ell\ell\gamma$  final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Submitted to: JHEP. (2018), arXiv:1811.03052 [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. B770 (2017) 50–71, doi:10.1016/j.physletb.2017.04.028, arXiv:1610.09551 [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., **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., 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.* B768 (2017) 137–162, doi:10.1016/j.physletb.2017.02.040, arXiv:1610.08066 [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]
- 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. B771 (2017) 435–456, doi:10.1016/j.physletb.2017.05.074, arXiv:1609.00873 [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. C77 (2017) 294, doi:10.1140/epjc/s10052-017-4787-8, arXiv:1611.00338 [hep-ex]
- V. Khachatryan et al., Inclusive search for supersymmetry using razor variables in pp collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D95 (2017) 012003, doi:10.1103/PhysRevD.95.012003, arXiv:1609.07658 [hep-ex]

February 2, 2019 11 of 44

- 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. D95 (2017) 052002, doi:10.1103/PhysRevD.95.052002, arXiv:1610.04222 [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]
- V. Khachatryan et al., Pseudorapidity dependence of long-range two-particle correlations in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Rev. C96 (2017) 014915, doi:10.1103/PhysRevC.96.014915, arXiv:1604.05347 [nucl-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. C77 (2017) 751, doi:10.1140/epjc/s10052-017-5140-y, arXiv:1611.06507 [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. C77 (2017) 92, doi:10.1140/epjc/s10052-016-4573-z, arXiv:1608.07561 [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. C96 (2017) 015202, doi:10.1103/PhysRevC.96.015202, arXiv:1609.05383 [nucl-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., Search for heavy gauge W' boson in events with an energetic lepton and large missing transverse momentum at  $\sqrt{s}=13$  TeV, Phys. Lett. B770 (2017) 278–301, doi:10.1016/j.physletb.2017.04.043, arXiv:1612.09274 [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 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. C77 (2017) 172, doi:10.1140/epjc/s10052-017-4718-8, arXiv:1611.04040 [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 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., 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. D95 (2017) 092001, doi:10.1103/PhysRevD.95.092001, arXiv:1610.04191 [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., 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., Observation of the decay  $B^+ \to \psi(2S)\phi(1020)K^+$  in pp collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B764 (2017) 66–86, doi:10.1016/j.physletb.2016.11.001, arXiv:1607.02638 [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., 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., Search for supersymmetry in events with photons and missing transverse energy in pp collisions at 13 TeV, Phys. Lett. B769 (2017) 391–412, doi:10.1016/j.physletb.2017.04.005, arXiv:1611.06604 [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. C77 (2017) 236, doi:10.1140/epjc/s10052-017-4730-z, arXiv:1609.05721 [hep-ex]

February 2, 2019 12 of 44

- 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. B767 (2017) 403–430, doi:10.1016/j.physletb.2017.02.007, arXiv:1605.08993 [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.* B772 (2017) 489–511, doi:10.1016/j.physletb.2017.07.001, arXiv:1605.06966 [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]
- 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., Measurement of the WZ production cross section in pp collisions at  $\sqrt(s) = 13$  TeV, Phys. Lett. B766 (2017) 268–290, doi:10.1016/j.physletb.2017.01.011, arXiv:1607.06943 [hep-ex]
- V. Khachatryan et al., Search for electroweak production of charginos in final states with two 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., Evidence for collectivity in pp collisions at the LHC, Phys. Lett. B765 (2017) 193–220, doi:10.1016/j.physletb.2016.12.009, arXiv:1606.06198 [nucl-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. D95 (2017) 012009, doi:10.1103/PhysRevD.95.012009, arXiv:1610.05133 [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., 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., 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.* B771 (2017) 80–105, doi:10.1016/j.physletb.2017.05.019, arXiv:1612.00999 [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 supersymmetry in events with one lepton and multiple jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D95 (2017) 012011, doi:10.1103/PhysRevD.95.012011, arXiv:1609.09386 [hep-ex]
- V. Khachatryan et al., Search for new phenomena in events with high jet multiplicity and low missing transverse momentum in proton-proton collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B770 (2017) 257–267, doi:10.1016/j.physletb.2017.01.073, arXiv:1608.01224 [hep-ex]
- V. Khachatryan et al., Suppression of  $\Upsilon(1S), \Upsilon(2S)$  and  $\Upsilon(3S)$  production in PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Lett. B770 (2017) 357–379, doi:10.1016/j.physletb.2017.04.031, arXiv:1611.01510 [nucl-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., Search for high-mass diphoton resonances in proton-proton collisions at 13 TeV and combination with 8 TeV search, *Phys. Lett.* B767 (2017) 147–170, doi:10.1016/j.physletb.2017.01.027, arXiv:1609.02507 [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. C77 (2017) 252, doi:10.1140/epjc/s10052-017-4781-1, arXiv:1610.00613 [nuclex]
- V. Khachatryan et al., Multiplicity and rapidity dependence of strange hadron production in pp, pPb, and PbPb collisions at the LHC, Phys. Lett. B768 (2017) 103–129, doi:10.1016/j.physletb.2017.01.075, arXiv:1605.06699 [nucl-ex]

February 2, 2019 13 of 44

- 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. C77 (2017) 15, doi:10.1140/epjc/s10052-016-4504-z, arXiv:1602.09024 [hep-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.* B768 (2017) 57–80, doi:10.1016/j.physletb.2017.02.010, arXiv:1609.05391 [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 proton–proton collisions at  $\sqrt{s} = 8$  TeV, *Phys. Lett.* B770 (2017) 380–402, doi:10.1016/j.physletb.2017.04.071, arXiv:1702.03025 [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]
- V. Khachatryan et al., Search for new phenomena with multiple charged leptons in proton-proton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C77 (2017) 635, doi:10.1140/epjc/s10052-017-5182-1, arXiv:1701.06940 [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. D96 (2017) 012004, doi:10.1103/PhysRevD.96.012004, arXiv:1701.01954 [hep-ex]
- V. Khachatryan et al., Search for leptophobic Z bosons decaying into four-lepton final states in proton-proton collisions at  $\sqrt{s}$  =8TeV, Phys. Lett. B773 (2017) 563-584, doi:10.1016/j.physletb.2017.08.069, arXiv:1701.01345 [hep-ex]
- V. Khachatryan et al., Exclusive and semi-exclusive pi+pi- production in proton-proton collisions at sqrt(s) = 7 TeV, (2017), arXiv:1706.08310 [hep-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]
- 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. B772 (2017) 752–776, doi:10.1016/j.physletb.2017.07.047, arXiv:1610.00678 [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. B772 (2017) 306–329, doi:10.1016/j.physletb.2017.06.053, arXiv:1612.08972 [nucl-ex]
- A.M. Sirunyan et al., Search for dijet resonances in proton–proton collisions at  $\sqrt{s} = 13$  TeV and constraints on dark matter and other models, *Phys. Lett.* B769 (2017) 520–542, doi:10.1016/j.physletb.2017.09.029, arXiv:1611.03568 [hep-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]
- 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.* B772 (2017) 363–387, doi:10.1016/j.physletb.2017.06.062, arXiv:1612.09516 [hep-ex]
- A.M. Sirunyan et al., Relative Modification of Prompt (2S) and J/ Yields from pp to PbPb Collisions at  $\sqrt{s_{NN}} = 5.02 \text{ TeV}$ , Phys. Rev. Lett. 118 (2017) 162301, doi:10.1103/PhysRevLett.118.162301, arXiv:1611.01438 [nucl-ex]
- A.M. Sirunyan et al., Search for black holes in high-multiplicity final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B774 (2017) 279–307, doi:10.1016/j.physletb.2017.09.053, arXiv:1705.01403 [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. C77 (2017) 459, doi:10.1140/epjc/s10052-017-4984-5, arXiv:1703.01630 [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. B772 (2017) 21–42, doi:10.1016/j.physletb.2017.06.009, arXiv:1703.06095 [hep-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]
- A.M. Sirunyan et al., Search for supersymmetry in multijet events with missing transverse momentum in proton-proton collisions at 13 TeV, *Phys. Rev.* D96 (2017) 032003, doi:10.1103/PhysRevD.96.032003, arXiv:1704.07781 [hep-ex]

February 2, 2019 14 of 44

- 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., 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]
- 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]
- 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]
- 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 vector boson scattering and constraints on anomalous quartic couplings from events with four leptons and two jets in proton–proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B774 (2017) 682–705, doi:10.1016/j.physletb.2017.10.020, arXiv:1708.02812 [hep-ex]
- A.M. Sirunyan et al., **Principal-component analysis of two-particle azimuthal correlations in PbPb and** pPb **collisions at CMS**, Phys. Rev. C96 (2017) 064902, doi:10.1103/PhysRevC.96.064902, arXiv:1708.07113 [nucl-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., 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., Measurement of the top quark mass using single top quark events in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Eur. Phys. J. C77 (2017) 354, doi:10.1140/epjc/s10052-017-4912-8, arXiv:1703.02530 [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  $\sqrt{s}=8\,\text{TeV}$ , Phys. Rev. D96 (2017) 032002, doi:10.1103/PhysRevD.96.032002, arXiv:1704.06142 [hep-ex]
- A.M. Sirunyan et al., Measurement of the semileptonic  $t\bar{t}$  + 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., 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., 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., 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., 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., Measurement of prompt and nonprompt  $J/\psi$  production in pp and pPb collisions at  $\sqrt{s_{NN}} = 5.02 TeV$ , Eur. Phys. J. C77 (2017) 269, doi:10.1140/epjc/s10052-017-4828-3, arXiv:1702.01462 [nucl-ex]
- A.M. Sirunyan et al., Combination of searches for heavy resonances decaying to WW, WZ, ZZ, WH, and ZH boson pairs in proton–proton collisions at  $\sqrt{s} = 8$  and 13 TeV, Phys. Lett. B774 (2017) 533–558, doi:10.1016/j.physletb.2017.09.083, arXiv:1705.09171 [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., 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/JHEP01(2018)056, arXiv:1701.02042 [hep-ex]

February 2, 2019 15 of 44

- 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 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., 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 Charged Higgs Bosons Produced via Vector Boson Fusion and Decaying into a Pair of W and Z Bosons Using pp Collisions at  $\sqrt{s}=13TeV$ , Phys.  $Rev.\ Lett.$  119 (2017) 141802, doi:10.1103/PhysRevLett.119.141802, arXiv:1705.02942 [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. C77 (2017) 746, doi:10.1140/epjc/s10052-017-5286-7, arXiv:1705.02628 [hep-ex]
- A.M. Sirunyan et al., Challenges to the chiral magnetic wave using charge-dependent azimuthal anisotropies in pPb and PbPb collisions at  $\sqrt{s_{_{NN}}} = 5.02$  TeV, (2017), arXiv:1708.08901 [nucl-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. B772 (2017) 336–358, doi:10.1016/j.physletb.2017.06.064, arXiv:1702.06164 [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. B772 (2017) 634–656, doi:10.1016/j.physletb.2017.07.022, arXiv:1701.08328 [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.* B775 (2017) 1–24, doi:10.1016/j.physletb.2017.10.021, arXiv:1707.00541 [hep-ex]
- 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. D96 (2017) 072004, doi:10.1103/PhysRevD.96.072004, arXiv:1707.00350 [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., 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., 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., 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., 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 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., 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., 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.~D96~(2017)~072005, doi:10.1103/PhysRevD.96.072005, arXiv:1707.05979 [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., 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. C77 (2017) 636, doi:10.1140/epjc/s10052-017-5192-z, arXiv:1707.01303 [hep-ex]

February 2, 2019 16 of 44

- 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. C77 (2017) 845, doi:10.1140/epjc/s10052-017-5317-4, arXiv:1706.02581 [hep-ex]
- 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 composite Majorana neutrino in the final state with two leptons and two quarks at  $\sqrt{s} = 13$  TeV, Phys. Lett. B775 (2017) 315–337, doi:10.1016/j.physletb.2017.11.001, arXiv:1706.08578 [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. C77 (2017) 467, doi:10.1140/epjc/s10052-017-5030-3, arXiv:1703.06330 [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., 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., 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., Measurement of charged pion, kaon, and proton production in proton-proton collisions at  $\sqrt{s} = 13$  TeV, *Phys. Rev.* D96 (2017) 112003, doi:10.1103/PhysRevD.96.112003, arXiv:1706.10194 [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. B757 (2016) 6–31, doi:10.1016/j.physletb.2016.03.039, arXiv:1508.01218 [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. B752 (2016) 221–246, doi:10.1016/j.physletb.2015.11.042, arXiv:1508.01437 [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. B755 (2016) 102–124, doi:10.1016/j.physletb.2016.01.057, arXiv:1410.8812 [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 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. B758 (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. D93 (2016) 052011, doi:10.1103/PhysRevD.97.099903, arXiv:1511.09375 [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., 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., Reconstruction and identification of lepton decays to hadrons and  $_{\tau}$  at CMS, JINST. 11 (2016) P01019, doi:10.1088/1748-0221/11/01/P01019, arXiv:1510.07488 [physics.ins-det]
- V. Khachatryan et al., 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  $W' \to tb$  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  $t\bar{t}$  production cross section in the all-jets final state in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C76 (2016) 128, doi:10.1140/epjc/s10052-016-3956-5, arXiv:1509.06076 [hep-ex]

February 2, 2019 17 of 44

- V. Khachatryan et al., Search for pair-produced vectorlike B quarks in proton-proton collisions at  $\sqrt{s}$ =8 TeV, Phys. Rev. D93 (2016) 112009, doi:10.1103/PhysRevD.93.112009, arXiv:1507.07129 [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. D93 (2016) 072004, doi:10.1103/PhysRevD.93.072004, arXiv:1509.04044 [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. B753 (2016) 424–448, doi:10.1016/j.physletb.2015.12.020, arXiv:1507.08126 [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. B753 (2016) 341–362, doi:10.1016/j.physletb.2015.12.039, arXiv:1507.03031 [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., 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. B756 (2016) 84–102, doi:10.1016/j.physletb.2016.02.047, arXiv:1501.06089 [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. C76 (2016) 265, doi:10.1140/epjc/s10052-016-4083-z, arXiv:1512.06212 [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., Measurement of the charge asymmetry in top quark pair production in pp collisions at  $\sqrt(s) = 8$  TeV using a template method, *Phys. Rev.* D93 (2016) 034014, doi:10.1103/PhysRevD.93.034014, arXiv:1508.03862 [hep-ex]
- 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., 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. C76 (2016) 379, doi:10.1140/epjc/s10052-016-4105-x, arXiv:1510.03072 [hep-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., 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. B757 (2016) 97–120, doi:10.1016/j.physletb.2016.03.046, arXiv:1507.07527 [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. D93 (2016) 012003, doi:10.1103/PhysRevD.93.012003, arXiv:1509.04177 [hep-ex]
- 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. B757 (2016) 154–179, doi:10.1016/j.physletb.2016.03.060, arXiv:1507.03119 [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., Event generator tunes obtained from underlying event and multiparton scattering measurements, Eur. Phys. J. C76 (2016) 155, doi:10.1140/epjc/s10052-016-3988-x, arXiv:1512.00815 [hep-ex]
- V. Khachatryan et al., Search for supersymmetry in events with soft leptons, low jet multiplicity, and missing transverse energy in proton–proton collisions at  $\sqrt{s}$ =8 TeV, Phys. Lett. B759 (2016) 9–35, doi:10.1016/j.physletb.2016.05.033, arXiv:1512.08002 [hep-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. B755 (2016) 196–216, doi:10.1016/j.physletb.2016.02.002, arXiv:1508.04308 [hep-ex]
- V. Khachatryan et al., Study of Z boson production in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B759 (2016) 36–57, doi:10.1016/j.physletb.2016.05.044, arXiv:1512.06461 [hep-ex]
- V. Khachatryan et al., Search for single production of scalar leptoquarks in proton-proton collisions at  $\sqrt{s} = 8TeV$ , Phys. Rev. D93 (2016) 032005, doi:10.1103/PhysRevD.95.039906, arXiv:1509.03750 [hep-ex]

February 2, 2019 18 of 44

- 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. C76 (2016) 13, doi:10.1140/epjc/s10052-015-3853-3, arXiv:1508.07819 [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., 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., Search for resonant  $t\bar{t}$  production in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D93 (2016) 012001, doi:10.1103/PhysRevD.93.012001, arXiv:1506.03062 [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. B754 (2016) 59, doi:10.1016/j.physletb.2016.01.010, arXiv:1510.03373 [nucl-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. B755 (2016) 217–244, doi:10.1016/j.physletb.2016.01.056, arXiv:1510.01181 [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. B758 (2016) 321–346, doi:10.1016/j.physletb.2016.05.005, arXiv:1511.06170 [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., 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., Search for pair production of first and second generation leptoquarks in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D93 (2016) 032004, doi:10.1103/PhysRevD.93.032004, arXiv:1509.03744 [hep-ex]
- V. Khachatryan et al., Search for exotic decays of a Higgs boson into undetectable particles and one or more photons, *Phys. Lett.* B753 (2016) 363–388, doi:10.1016/j.physletb.2015.12.017, arXiv:1507.00359 [hep-ex]
- V. Khachatryan et al., A search for pair production of new light bosons decaying into muons, *Phys. Lett.* B752 (2016) 146–168, doi:10.1016/j.physletb.2015.10.067, arXiv:1506.00424 [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 inelastic cross section in proton–lead collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B759 (2016) 641–662, doi:10.1016/j.physletb.2016.06.027, arXiv:1509.03893 [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. B759 (2016) 369–394, doi:10.1016/j.physletb.2016.05.087, arXiv:1603.02991 [hep-ex]
- V. Khachatryan et al., Search for heavy resonances decaying to two Higgs bosons in final states containing four b quarks, Eur. Phys. J. C76 (2016) 371, doi:10.1140/epjc/s10052-016-4206-6, arXiv:1602.08762 [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., 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., 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 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]

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- 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  $\sqrt{s} = 8$ TeV, Phys. Lett. B762 (2016) 512–534, doi:10.1016/j.physletb.2016.10.007, arXiv:1605.09047 [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. D94 (2016) 072002, doi:10.1103/PhysRevD.94.072002, arXiv:1605.00116 [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., Measurement of dijet azimuthal decorrelation in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C76 (2016) 536, doi:10.1140/epjc/s10052-016-4346-8, arXiv:1602.04384 [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. B759 (2016) 479–500, doi:10.1016/j.physletb.2016.05.088, arXiv:1602.08772 [hep-ex]
- V. Khachatryan et al., Searches for R-parity-violating supersymmetry in pp collisions at  $\sqrt(s) = 8$  TeV in final states with 0-4 leptons, Phys. Rev. D94 (2016) 112009, doi:10.1103/PhysRevD.94.112009, arXiv:1606.08076 [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. B758 (2016) 152–180, doi:10.1016/j.physletb.2016.05.002, arXiv:1602.06581 [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., 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, JHEP. 08 (2016) 119, doi:10.1007/JHEP08(2016)119, arXiv:1604.04464 [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 direct pair production of supersymmetric top quarks decaying to all-hadronic final states in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C76 (2016) 460, doi:10.1140/epjc/s10052-016-4292-5, arXiv:1603.00765 [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 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. D94 (2016) 052006, doi:10.1103/PhysRevD.94.052006, arXiv:1607.00837 [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. C76 (2016) 317, doi:10.1140/epjc/s10052-016-4149-y, arXiv:1604.05239 [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 differential cross section and charge asymmetry for inclusive  $pp \rightarrow W^{\pm} + X$  production at  $\sqrt{s} = 8$  TeV, Eur. Phys. J. C76 (2016) 469, doi:10.1140/epjc/s10052-016-4293-4, arXiv:1603.01803 [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 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]

February 2, 2019 20 of 44

- 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., Studies of inclusive four-jet production with two b-tagged jets in proton-proton collisions at 7 TeV, Phys. Rev. D94 (2016) 112005, doi:10.1103/PhysRevD.94.112005, arXiv:1609.03489 [hep-ex]
- V. Khachatryan et al., Search for lepton flavour violating decays of the Higgs boson to  $e\tau$  and  $e\mu$  in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B763 (2016) 472–500, doi:10.1016/j.physletb.2016.09.062, arXiv:1607.03561 [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. D94 (2016) 052012, doi:10.1103/PhysRevD.94.052012, arXiv:1603.06896 [hep-ex]
- V. Khachatryan et al., Search for long-lived charged particles in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Rev. D94 (2016) 112004, doi:10.1103/PhysRevD.94.112004, arXiv:1609.08382 [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., Combined search for anomalous pseudoscalar HVV couplings in VH(H  $\rightarrow b\bar{b}$ ) production and H  $\rightarrow$  VV decay, Phys. Lett. B759 (2016) 672–696, doi:10.1016/j.physletb.2016.06.004, arXiv:1602.04305 [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.* B763 (2016) 280–303, doi:10.1016/j.physletb.2017.09.030, arXiv:1607.08834 [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., 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]
- 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.,  $\Upsilon(nS)$  polarizations versus particle multiplicity in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B761 (2016) 31–52, doi:10.1016/j.physletb.2016.07.065, arXiv:1603.02913 [hep-ex]
- V. Khachatryan et al., Measurement of the double-differential inclusive jet cross section in proton-proton collisions at  $\sqrt{s} = 13 TeV$ , Eur. Phys. J. C76 (2016) 451, doi:10.1140/epjc/s10052-016-4286-3, arXiv:1605.04436 [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. D93 (2016) 092006, doi:10.1103/PhysRevD.93.092006, arXiv:1603.06536 [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. C76 (2016) 372, doi:10.1140/epjc/s10052-016-4205-7, arXiv:1601.02001 [nucl-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. B760 (2016) 178–201, doi:10.1016/j.physletb.2016.06.039, arXiv:1602.04334 [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. C76 (2016) 237, doi:10.1140/epjc/s10052-016-4067-z, arXiv:1601.06431 [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.* B760 (2016) 448–468, doi:10.1016/j.physletb.2016.06.080, arXiv:1602.07152 [hep-ex]
- V. Khachatryan et al., Forward–backward asymmetry of Drell–Yan lepton pairs in pp collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C76 (2016) 325, doi:10.1140/epjc/s10052-016-4156-z, arXiv:1601.04768 [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.* D93 (2016) 092009, doi:10.1103/PhysRevD.93.092009, arXiv:1602.02917 [hep-ex]

February 2, 2019 21 of 44

- 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]
- 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]
- S. Chatrchyan et al., Measurement of jet multiplicity distributions in  $t\bar{t}$  production in pp collisions at  $\sqrt{s} = 7TeV$ , Eur. Phys. J. C74 (2015) 3014, doi:10.1140/epjc/s10052-014-3014-0, arXiv:1404.3171 [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. B745 (2015) 5–28, doi:10.1016/j.physletb.2015.04.002, arXiv:1412.4109 [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. B743 (2015) 503–525, doi:10.1016/j.physletb.2015.03.017, arXiv:1411.7255 [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. D91 (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. C75 (2015) 147, doi:10.1140/epjc/s10052-015-3364-2, arXiv:1412.1115 [hep-ex]
- V. Khachatryan et al., Measurement of the inclusive 3-jet production differential cross section in proton—proton collisions at 7 TeV and determination of the strong coupling constant in the TeV range, Eur. Phys. J. C75 (2015) 186, doi:10.1140/epjc/s10052-015-3376-y, arXiv:1412.1633 [hep-ex]
- 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. D91 (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. B740 (2015) 250–272, doi:10.1016/j.physletb.2016.04.010, arXiv:1406.0113 [hep-ex]
- 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. B746 (2015) 132–153, doi:10.1016/j.physletb.2015.04.060, arXiv:1411.5621 [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. B744 (2015) 184–207, doi:10.1016/j.physletb.2015.03.048, arXiv:1410.6679 [hep-ex]
- V. Khachatryan et al., Search for quark contact interactions and extra spatial dimensions using dijet angular distributions in proton–proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B746 (2015) 79–99, doi:10.1016/j.physletb.2015.04.042, arXiv:1411.2646 [hep-ex]
- V. Khachatryan et al., Measurement of electroweak production of two jets in association with a Z boson in proton-proton collisions at  $\sqrt{s}=8TeV,\ Eur.\ Phys.\ J.\ C75\ (2015)\ 66,\ doi:10.1140/epjc/s10052-014-3232-5,$  arXiv:1410.3153 [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., 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., 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. C75 (2015) 212, doi:10.1140/epjc/s10052-015-3351-7, arXiv:1412.8662 [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.* B742 (2015) 200–224, doi:10.1016/j.physletb.2015.01.034, arXiv:1409.3392 [nucl-ex]

February 2, 2019 22 of 44

- 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. D92 (2015) 012004, doi:10.1103/PhysRevD.92.012004, arXiv:1411.3441 [hep-ex]
- V. Khachatryan et al., Search for pair-produced resonances decaying to jet pairs in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B747 (2015) 98–119, doi:10.1016/j.physletb.2015.04.045, arXiv:1412.7706 [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., 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., Measurement of the production cross section ratio  $\sigma(Xb2(1P))$  /  $\sigma(Xb1(1P))$  in pp collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B743 (2015) 383–402, doi:10.1016/j.physletb.2015.02.048, arXiv:1409.5761 [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. C75 (2015) 235, doi:10.1140/epjc/s10052-015-3451-4, arXiv:1408.3583 [hep-ex]
- 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. D91 (2015) 092005, doi:10.1103/PhysRevD.91.092005, arXiv:1408.2745 [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 proton–proton collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B741 (2015) 12–37, doi:10.1016/j.physletb.2014.12.003, arXiv:1406.7533 [hep-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]
- 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. C75 (2015) 288, doi:10.1140/epjc/s10052-015-3499-1, arXiv:1410.6765 [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. B740 (2015) 83–104, doi:10.1016/j.physletb.2014.11.026, arXiv:1407.3476 [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. D91 (2015) 052008, doi:10.1103/PhysRevD.91.052008, arXiv:1408.3104 [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 the standard model Higgs boson produced through vector boson fusion and decaying to  $b\bar{b}$ , Phys. Rev. D92 (2015) 032008, doi:10.1103/PhysRevD.92.032008, arXiv:1506.01010 [hep-ex]
- 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., 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]
- V. Khachatryan et al., Search for supersymmetry with photons in pp collisions at  $\sqrt{s}$ =8 TeV, Phys. Rev. D92 (2015) 072006, doi:10.1103/PhysRevD.92.072006, arXiv:1507.02898 [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. D92 (2015) 112001, doi:10.1103/PhysRevD.92.112001, arXiv:1507.00233 [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. B748 (2015) 144–166, doi:10.1016/j.physletb.2015.06.070, arXiv:1501.05566 [hep-ex]

February 2, 2019 23 of 44

- V. Khachatryan et al., Measurement of diffraction dissociation cross sections in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D92 (2015) 012003, doi:10.1103/PhysRevD.92.012003, arXiv:1503.08689 [hep-ex]
- V. Khachatryan et al., Study of W boson production in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV, Phys. Lett. B750 (2015) 565–586, doi:10.1016/j.physletb.2015.09.057, arXiv:1503.05825 [nucl-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., 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. C75 (2015) 251, doi:10.1140/epjc/s10052-015-3454-1, arXiv:1502.02485 [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., 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 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 Decays of Stopped Long-Lived Particles Produced in Proton-Proton Collisions at  $\sqrt{s} = 8TeV$ , Eur. Phys. J. C75 (2015) 151, doi:10.1140/epjc/s10052-015-3367-z, arXiv:1501.05603 [hep-ex]
- V. Khachatryan et al., Pseudorapidity distribution of charged hadrons in proton-proton collisions at  $\sqrt{s} = 13$  TeV, Phys. Lett. B751 (2015) 143–163, doi:10.1016/j.physletb.2015.10.004, arXiv:1507.05915 [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., Measurement of the Z 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., Search for Lepton-Flavour-Violating Decays of the Higgs Boson, Phys. Lett. B749 (2015) 337–362, doi:10.1016/j.physletb.2015.07.053, arXiv:1502.07400 [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 a pseudoscalar boson decaying into a Z boson and the 125 GeV Higgs boson in  $\ell^+\ell^-b\bar{b}$  final states, *Phys. Lett.* B748 (2015) 221–243, doi:10.1016/j.physletb.2015.07.010, arXiv:1504.04710 [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. C75 (2015) 325, doi:10.1140/epjc/s10052-015-3533-3, arXiv:1502.02522 [hep-ex]
- V. Khachatryan et al., Limits on the Higgs boson lifetime and width from its decay to four charged leptons, *Phys. Rev.* D92 (2015) 072010, doi:10.1103/PhysRevD.92.072010, arXiv:1507.06656 [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]
- V. Khachatryan et al., Measurement of the Z boson differential cross section in transverse momentum and rapidity in proton—proton collisions at 8 TeV, *Phys. Lett.* B749 (2015) 187–209, doi:10.1016/j.physletb.2015.07.065, arXiv:1504.03511 [hep-ex]
- V. Khachatryan et al., Evidence for transverse momentum and pseudorapidity dependent event plane fluctuations in PbPb and pPb collisions, *Phys. Rev.* C92 (2015) 034911, doi:10.1103/PhysRevC.92.034911, arXiv:1503.01692 [nucl-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. C75 (2015) 542, doi:10.1140/epjc/s10052-015-3709-x, arXiv:1505.04480 [hep-ex]

February 2, 2019 24 of 44

- 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.* B750 (2015) 154–175, doi:10.1016/j.physletb.2015.08.061, arXiv:1504.03512 [hep-ex]
- V. Khachatryan et al., Measurements of the ZZ production cross sections in the  $2l2\nu$  channel in proton–proton collisions at  $\sqrt{s}=7$  and 8 TeV and combined constraints on triple gauge couplings, Eur. Phys. J. C75 (2015) 511, doi:10.1140/epjc/s10052-015-3706-0, arXiv:1503.05467 [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. D91 (2015) 052018, doi:10.1103/PhysRevD.91.052018, arXiv:1502.00300 [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. B750 (2015) 494–519, doi:10.1016/j.physletb.2015.09.062, arXiv:1506.02301 [hep-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. B749 (2015) 14–34, doi:10.1016/j.physletb.2015.07.037, arXiv:1501.07750 [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., Study of Final-State Radiation in Decays of Z Bosons Produced in pp Collisions at 7 TeV, Phys. Rev. D91 (2015) 092012, doi:10.1103/PhysRevD.91.092012, arXiv:1502.07940 [hep-ex]
- V. Khachatryan et al., Measurement of J/ and (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 resonances and quantum black holes using dijet mass spectra in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Rev. D91 (2015) 052009, doi:10.1103/PhysRevD.91.052009, arXiv:1501.04198 [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 light charged Higgs boson decaying to  $c\bar{s}$  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., 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., 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., 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., Nuclear Effects on the Transverse Momentum Spectra of Charged Particles in pPb Collisions at  $\sqrt{s_{_{NN}}} = 5.02$  TeV, Eur. Phys. J. C75 (2015) 237, doi:10.1140/epjc/s10052-015-3435-4, arXiv:1502.05387 [nucl-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. C75 (2015) 302, doi:10.1140/epjc/s10052-015-3491-9, arXiv:1502.04785 [hep-ex]
- V. Khachatryan et al., Search for resonant pair production of Higgs bosons decaying to two bottom quark—antiquark pairs in proton—proton collisions at 8 TeV, Phys. Lett. B749 (2015) 560–582, doi:10.1016/j.physletb.2015.08.047, arXiv:1503.04114 [hep-ex]
- V. Khachatryan et al., Search for Narrow High-Mass Resonances in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV Decaying to a Z and a Higgs Boson, *Phys. Lett.* B748 (2015) 255–277, doi:10.1016/j.physletb.2015.07.011, arXiv:1502.04994 [hep-ex]
- S. Chatrchyan et al., Search for baryon number violation in top-quark decays, *Phys. Lett.* B731 (2014) 173–196, doi:10.1016/j.physletb.2014.02.033, arXiv:1310.1618 [hep-ex]
- S. Chatrchyan et al., Observation of a peaking structure in the  $J/\psi\phi$  mass spectrum from  $B^{\pm} \rightarrow J/\psi\phi K^{\pm}$  decays, Phys. Lett. B734 (2014) 261–281, doi:10.1016/j.physletb.2014.05.055, arXiv:1309.6920 [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.115.029903, arXiv:1312.4198 [nucl-ex]

February 2, 2019 25 of 44

- 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. C74 (2014) 2847, doi:10.1140/epjc/s10052-014-2847-x, arXiv:1307.3442 [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., Probing color coherence effects in pp collisions at  $\sqrt{s} = 7 TeV$ , Eur. Phys. J. C74 (2014) 2901, doi:10.1140/epjc/s10052-014-2901-8, arXiv:1311.5815 [hep-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.~D89~(2014)~092005,~doi:10.1103/PhysRevD.89.092005,~arXiv:1308.6832~[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. B730 (2014) 193–214, doi:10.1016/j.physletb.2014.01.049, arXiv:1311.1799 [hep-ex]
- S. Chatrchyan et al., Determination of the top-quark pole mass and strong coupling constant from the t t-bar production cross section in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B728 (2014) 496–517, doi:10.1016/j.physletb.2014.08.040, arXiv:1307.1907 [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.* B733 (2014) 328–353, doi:10.1016/j.physletb.2014.04.023, arXiv:1311.4937 [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. C89 (2014) 044906, doi:10.1103/PhysRevC.89.044906, arXiv:1310.8651 [nucl-ex]
- S. Chatrchyan et al., Modification of jet shapes in PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Lett. B730 (2014) 243–263, doi:10.1016/j.physletb.2014.01.042, arXiv:1310.0878 [nucl-ex]
- S. Chatrchyan et al., Measurement of the triple-differential cross section for photon+jets production in protonproton 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., Measurement of the properties of a Higgs boson in the four-lepton final state, *Phys. Rev.* D89 (2014) 092007, doi:10.1103/PhysRevD.89.092007, arXiv:1312.5353 [hep-ex]
- 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 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.* D90 (2014) 032004, doi:10.1103/PhysRevD.90.032004, arXiv:1312.6283 [hep-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., 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 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 four-jet production in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D89 (2014) 092010, doi:10.1103/PhysRevD.89.092010, arXiv:1312.6440 [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., Inclusive search for a vector-like T quark with charge  $\frac{2}{3}$  in pp collisions at  $\sqrt{s}=8$  TeV, Phys. Lett. B729 (2014) 149–171, doi:10.1016/j.physletb.2014.01.006, arXiv:1311.7667 [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. B735 (2014) 204–225, doi:10.1016/j.physletb.2014.06.041, arXiv:1312.6608 [hep-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., 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]

February 2, 2019 26 of 44

- 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. C74 (2014) 2758, doi:10.1140/epjc/s10052-014-2758-x, arXiv:1307.4617 [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.* D89 (2014) 012003, doi:10.1103/PhysRevD.89.012003, arXiv:1310.3687 [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. D90 (2014) 032006, doi:10.1103/PhysRevD.90.032006, arXiv:1404.5801 [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. C74 (2014) 2973, doi:10.1140/epjc/s10052-014-2973-5, arXiv:1403.3047 [hep-ex]
- S. Chatrchyan et al., Measurement of jet fragmentation in PbPb and pp collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Rev. C90 (2014) 024908, doi:10.1103/PhysRevC.90.024908, arXiv:1406.0932 [nucl-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. D90 (2014) 032008, doi:10.1103/PhysRevD.90.032008, arXiv:1404.4619 [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., 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 differential cross sections for the production of a pair of isolated photons in pp collisions at  $\sqrt{s} = 7TeV$ , Eur. Phys. J. C74 (2014) 3129, doi:10.1140/epjc/s10052-014-3129-3, arXiv:1405.7225 [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. D90 (2014) 072006, doi:10.1103/PhysRevD.90.072006, arXiv:1406.0324 [hep-ex]
- S. Chatrchyan et al., Search for supersymmetry with razor variables in pp collisions at  $\sqrt{s}$ =7 TeV, Phys. Rev. D90 (2014) 112001, doi:10.1103/PhysRevD.90.112001, arXiv:1405.3961 [hep-ex]
- 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. C74 (2014) 2951, doi:10.1140/epjc/s10052-014-2951-y, arXiv:1401.4433 [nucl-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]
- 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]
- 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]
- 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]
- 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. C74 (2014) 3053, doi:10.1140/epjc/s10052-014-3053-6, arXiv:1405.0722 [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. C74 (2014) 2980, doi:10.1140/epjc/s10052-014-2980-6, arXiv:1404.1344 [hep-ex]
- 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., 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]
- 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]

February 2, 2019 27 of 44

- 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]
- V. Khachatryan et al., Search for excited quarks in the  $\gamma$ +jet final state in proton-proton collisions at  $\sqrt{s} = 8$  TeV, Phys. Lett. B738 (2014) 274–293, doi:10.1016/j.physletb.2014.09.048, arXiv:1406.5171 [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]
- 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. C74 (2014) 3149, doi:10.1140/epjc/s10052-014-3149-z, arXiv:1407.3683 [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., 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]
- V. Khachatryan et al., Constraints on the Higgs boson width from off-shell production and decay to Z-boson pairs, *Phys. Lett.* B736 (2014) 64–85, doi:10.1016/j.physletb.2014.06.077, arXiv:1405.3455 [hep-ex]
- 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., Study of hadronic event-shape variables in multijet final states in pp collisions at sqrt(s) = 7 TeV, JHEP. 10 (2014) 87, doi:10.1007/JHEP10(2014)087, arXiv:1407.2856 [hep-ex]
- V. Khachatryan et al., Observation of the diphoton decay of the Higgs boson and measurement of its properties, Eur. Phys. J. C74 (2014) 3076, doi:10.1140/epjc/s10052-014-3076-z, arXiv:1407.0558 [hep-ex]
- V. Khachatryan et al., Measurement of the t-channel single-top-quark production cross section and of the  $|V_{tb}|$  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]
- 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. D90 (2014) 112013, doi:10.1103/PhysRevD.90.112013, arXiv:1410.2751 [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. B739 (2014) 23–43, doi:10.1016/j.physletb.2014.10.032, arXiv:1407.6643 [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. B736 (2014) 33–57, doi:10.1016/j.physletb.2014.06.076, arXiv:1404.2292 [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]
- 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]
- V. Khachatryan et al., Search for pair production of third-generation scalar leptoquarks and top squarks in proton–proton collisions at  $\sqrt{s}$ =8 TeV, Phys. Lett. B739 (2014) 229–249, doi:10.1016/j.physletb.2014.10.063, arXiv:1408.0806 [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. D90 (2014) 032005, doi:10.1103/PhysRevD.90.032005, arXiv:1405.7653 [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]
- 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 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 narrow spin-2 resonance decaying to a pair of Z vector bosons in the semileptonic final state, *Phys. Lett.* B718 (2013) 1208–1228, doi:10.1016/j.physletb.2012.11.063, arXiv:1209.3807 [hep-ex]

February 2, 2019 28 of 44

- 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., Measurement of the sum of WW and WZ production with W+dijet events in pp collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C73 (2013) 2283, doi:10.1140/epjc/s10052-013-2283-3, arXiv:1210.7544 [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.* D87 (2013) 112002, doi:10.1103/PhysRevD.87.112002, arXiv:1212.6660 [hep-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.* B726 (2013) 564–586, doi:10.1016/j.physletb.2013.09.009, arXiv:1210.7619 [hep-ex]
- S. Chatrchyan et al., Forward-backward asymmetry of Drell-Yan lepton pairs in pp collisions at  $\sqrt{s} = 7$  TeV,  $Phys.\ Lett.\ B718\ (2013)\ 752-772,\ doi:10.1016/j.physletb.2012.10.082,\ arXiv:1207.3973\ [hep-ex]$
- 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,  $Phys.\ Lett.\ B718\ (2013)\ 1229-1251$ , doi:10.1016/j.physletb.2012.12.008, arXiv:1208.0956 [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,  $Phys.\ Lett.\ B718\ (2013)\ 773-794$ , doi:10.1016/j.physletb.2012.11.003, arXiv:1205.0206 [nucl-ex]
- S. Chatrchyan et al., Search for contact interactions in  $\mu^+\mu^-$  events in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D87 (2013) 032001, doi:10.1103/PhysRevD.87.032001, arXiv:1212.4563 [hep-ex]
- S. Chatrchyan et al., Search for flavor changing neutral currents in top quark decays in pp collisions at 7 TeV, *Phys. Lett.* B718 (2013) 1252–1272, doi:10.1016/j.physletb.2012.12.045, arXiv:1208.0957 [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]
- 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., **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., Search for long-lived particles decaying to photons and missing energy in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B722 (2013) 273–294, doi:10.1016/j.physletb.2013.04.027, arXiv:1212.1838 [hep-ex]
- S. Chatrchyan et al., Measurement of the inelastic proton-proton cross section at  $\sqrt{s} = 7$  TeV, Phys. Lett. B722 (2013) 5–27, doi:10.1016/j.physletb.2013.03.024, arXiv:1210.6718 [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,  $Phys. \ Lett. \ B720\ (2013)\ 63-82$ , doi:10.1016/j.physletb.2013.02.003, arXiv:1212.6175 [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,  $Phys.\ Lett.\ B720\ (2013)\ 83-104$ , doi:10.1016/j.physletb.2013.02.021, arXiv:1212.6682 [hep-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., Measurement of differential top-quark pair production cross sections in pp colisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C73 (2013) 2339, doi:10.1140/epjc/s10052-013-2339-4, arXiv:1211.2220 [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. D87 (2013) 052006, doi:10.1103/PhysRevD.87.052006, arXiv:1211.3143 [hep-ex]
- 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., 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 elliptic anisotropy of charged particles produced in PbPb collisions at  $\sqrt{s_{NN}}$ =2.76 TeV, Phys. Rev. C87 (2013) 014902, doi:10.1103/PhysRevC.87.014902, arXiv:1204.1409 [nucl-ex]

February 2, 2019 29 of 44

- S. Chatrchyan et al., Search for anomalous production of highly boosted Z bosons decaying to  $\mu^+\mu^-$  in protonproton collisions at  $\sqrt{s}=7$  TeV, Phys. Lett. B722 (2013) 28–47, doi:10.1016/j.physletb.2013.03.037, arXiv:1210.0867 [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., Observation of a diffractive contribution to dijet production in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D87 (2013) 012006, doi:10.1103/PhysRevD.87.012006, arXiv:1209.1805 [hep-ex]
- S. Chatrchyan et al., Measurement of the azimuthal anisotropy of neutral pions in PbPb collisions 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 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 alphaT, *JHEP*. 01 (2013) 077, doi:10.1007/JHEP01(2013)077, arXiv:1210.8115 [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 Z 'resonances decaying to  $t\bar{t}$  in dilepton+jets final states in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D87 (2013) 072002, doi:10.1103/PhysRevD.87.072002, arXiv:1211.3338 [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. B723 (2013) 280–301, doi:10.1016/j.physletb.2013.05.040, arXiv:1212.1910 [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, Eur. Phys. J. C73 (2013) 2404, doi:10.1140/epjc/s10052-013-2404-z, arXiv:1212.6428 [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., 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., Jet and underlying event properties as a function of charged-particle multiplicity in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C73 (2013) 2674, doi:10.1140/epjc/s10052-013-2674-5, arXiv:1310.4554 [hep-ex]
- S. Chatrchyan et al., Measurement of the B(s) to mu+ mu- branching fraction and search for B0 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., Measurement of masses in the  $t\bar{t}$  system by kinematic endpoints in pp collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C73 (2013) 2494, doi:10.1140/epjc/s10052-013-2494-7, arXiv:1304.5783 [hep-ex]
- S. Chatrchyan et al., Angular analysis and branching fraction measurement of the decay  $B^0 \to K^{*0} \mu^+ \mu^-$ , Phys. Lett. B727 (2013) 77–100, doi:10.1016/j.physletb.2013.10.017, arXiv:1308.3409 [hep-ex]
- S. Chatrchyan et al., Measurement of the prompt  $J/\psi$  and  $\psi(2S)$  polarizations in pp collisions at  $\sqrt{s}=7$  TeV,  $Phys.\ Lett.\ B727\ (2013)\ 381-402,\ doi:10.1016/j.physletb.2013.10.055,\ arXiv:1307.6070\ [hep-ex]$
- 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]
- 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., 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. C73 (2013) 2493, doi:10.1140/epjc/s10052-013-2493-8, arXiv:1301.3792 [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]

February 2, 2019 30 of 44

- 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., 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., 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 top-antitop production cross section in the tau+jets channel in pp collisions at sqrt(s) = 7 TeV, Eur. Phys. J. C73 (2013) 2386, doi:10.1140/epjc/s10052-013-2386-x, arXiv:1301.5755 [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.* D87 (2013) 072001, doi:10.1103/PhysRevD.87.072001, arXiv:1301.0916 [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., 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 new physics in final states with a lepton and missing transverse energy in pp collisions at the LHC, *Phys. Rev.* D87 (2013) 072005, doi:10.1103/PhysRevD.87.072005, arXiv:1302.2812 [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. B727 (2013) 57–76, doi:10.1016/j.physletb.2013.10.016, arXiv:1309.0250 [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. D87 (2013) 052017, doi:10.1103/PhysRevD.87.052017, arXiv:1301.5023 [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. C73 (2013) 2568, doi:10.1140/epjc/s10052-013-2568-6, arXiv:1303.2985 [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., Multiplicity and transverse momentum dependence of two- and four-particle correlations in pPb and PbPb collisions, Phys. Lett. B724 (2013) 213–240, doi:10.1016/j.physletb.2013.06.028, arXiv:1305.0609 [nucl-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., Rapidity distributions in exclusive  $\mathbf{Z}$  + jet and  $\gamma$  + jet events in pp collisions at  $\sqrt{s}$  = 7 TeV, Phys.~Rev.~D88~(2013)~112009,~doi:10.1103/PhysRevD.88.112009,~arXiv:1310.3082~[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 Higgs boson decaying into a b-quark pair and produced in association with b quarks in proton—proton collisions at 7 TeV, Phys. Lett. B722 (2013) 207–232, doi:10.1016/j.physletb.2013.04.017, arXiv:1302.2892 [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. D87 (2013) 114015, doi:10.1103/PhysRevD.87.114015, arXiv:1302.4794 [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. D88 (2013) 052001, doi:10.1103/PhysRevD.88.052001, arXiv:1305.6016 [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]

February 2, 2019 31 of 44

- 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.* B725 (2013) 36–59, doi:10.1016/j.physletb.2013.06.043, arXiv:1302.1764 [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., Interpretation of Searches for Supersymmetry with simplified Models, *Phys. Rev.* D88 (2013) 052017, doi:10.1103/PhysRevD.88.052017, arXiv:1301.2175 [hep-ex]
- S. Chatrchyan et al., Measurement of the differential and double-differential Drell-Yan cross sections in protonproton 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., Event shapes and azimuthal correlations in Z + jets events in pp collisions at  $\sqrt{s} = 7$  TeV,  $Phys. \ Lett. \ B722 (2013) \ 238-261, \ doi:10.1016/j.physletb.2013.04.025, \ arXiv:1301.1646 \ [hep-ex]$
- 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. C73 (2013) 2604, doi:10.1140/epjc/s10052-013-2604-6, arXiv:1304.7498 [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., Search for a Higgs boson decaying into a Z and a photon in pp collisions at sqrt(s) = 7 and 8 TeV, Phys. Lett. B726 (2013) 587–609, doi:10.1016/j.physletb.2013.09.057, arXiv:1307.5515 [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 gluino mediated bottom- and top-squark production in multijet final states in pp collisions at 8 TeV, *Phys. Lett.* B725 (2013) 243–270, doi:10.1016/j.physletb.2013.06.058, arXiv:1305.2390 [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., 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., 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  $\Upsilon(1S), \Upsilon(2S), \Upsilon(2S), \Upsilon(3S)$  cross sections in pp collisions at  $\sqrt{s}=7$  TeV, Phys. Lett. B727 (2013) 101–125, doi:10.1016/j.physletb.2013.10.033, arXiv:1303.5900 [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. C73 (2013) 2469, doi:10.1140/epjc/s10052-013-2469-8, arXiv:1304.0213 [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., Search for excited leptons in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B720 (2013) 309–329, doi:10.1016/j.physletb.2013.02.031, arXiv:1210.2422 [hep-ex]
- S. Chatrchyan et al., Observation of long-range near-side angular correlations in proton-lead collisions at the LHC, *Phys. Lett.* B718 (2013) 795–814, doi:10.1016/j.physletb.2012.11.025, arXiv:1210.5482 [nucl-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. B719 (2013) 42–61, doi:10.1016/j.physletb.2012.12.055, arXiv:1210.2052 [hep-ex]
- S. Chatrchyan et al., Search for fractionally charged particles in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D87 (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., 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]

February 2, 2019 32 of 44

- S. Chatrchyan et al., Inclusive search for squarks and gluinos in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D85 (2012) 012004, doi:10.1103/PhysRevD.85.012004, arXiv:1107.1279 [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., Measurement of the charge asymmetry in top-quark pair production in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B709 (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., 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]
- 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., 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. C72 (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. D85 (2012) 032002, doi:10.1103/PhysRevD.85.032002, arXiv:1110.4973 [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]
- 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  $t\bar{t}$  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 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., Inclusive and differential measurements of the  $t\bar{t}$  charge asymmetry in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B717 (2012) 129–150, doi:10.1016/j.physletb.2012.09.028, arXiv:1207.0065 [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 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]
- 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., 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. C72 (2012) 2202, doi:10.1140/epjc/s10052-012-2202-z, arXiv:1209.2393 [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 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. B717 (2012) 109–128, doi:10.1016/j.physletb.2012.09.012, arXiv:1207.6079 [hep-ex]
- S. Chatrchyan et al., Combined search for the quarks of a sequential fourth generation, *Phys. Rev.* D86 (2012) 112003, doi:10.1103/PhysRevD.86.112003, arXiv:1209.1062 [hep-ex]
- 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]

February 2, 2019 33 of 44

- 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., Search for high-mass resonances decaying into -lepton pairs in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B716 (2012) 82–102, doi:10.1016/j.physletb.2012.07.062, arXiv:1206.1725 [hep-ex]
- 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., Measurement of the cross section for production of  $bb^-$  bar X, decaying to muons in pp collisions at  $\sqrt{s} = 7$  TeV, JHEP. 06 (2012) 110, doi:10.1007/JHEP06(2012)110, arXiv:1203.3458 [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 narrow resonances in dilepton mass spectra in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B714 (2012) 158–179, doi:10.1016/j.physletb.2012.06.051, arXiv:1206.1849 [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 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., Search for large extra dimensions in dimuon and dielectron events in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B711 (2012) 15–34, doi:10.1016/j.physletb.2012.03.029, arXiv:1202.3827 [hep-ex]
- S. Chatrchyan et al., Search for a W' or Techni-  $\rho$  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., 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., 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., **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., 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 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., 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., 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., 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., **Observation of a new Xi(b) baryon**, *Phys. Rev. Lett.* 108 (2012) 252002, doi:10.1103/PhysRevLett.108.25200 arXiv:1204.5955 [hep-ex]
- S. Chatrchyan et al., Jet momentum dependence of jet quenching in PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Lett. B712 (2012) 176–197, doi:10.1016/j.physletb.2012.04.058, arXiv:1202.5022 [nucl-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., Study of W boson production in PbPb and pp collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Phys. Lett. B715 (2012) 66–87, doi:10.1016/j.physletb.2012.07.025, arXiv:1205.6334 [nucl-ex]

February 2, 2019 34 of 44

- 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. C72 (2012) 2216, doi:10.1140/epjc/s10052-012-2216-6, arXiv:1204.0696 [hep-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. C72 (2012) 2164, doi:10.1140/epjc/s10052-012-2164-1, arXiv:1207.4724 [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., Search for supersymmetry in events with b-quark jets and missing transverse energy in pp collisions at 7 TeV, Phys. Rev. D86 (2012) 072010, doi:10.1103/PhysRevD.86.072010, arXiv:1208.4859 [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 a Higgs boson in the decay channel H to ZZ(\*) to q qbar  $\ell^-$  l+ 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 heavy long-lived charged particles in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B713 (2012) 408–433, doi:10.1016/j.physletb.2012.06.023, arXiv:1205.0272 [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., Search for charge-asymmetric production of W ' bosons in  $t\bar{t}+$  jet events from pp collisions at  $\sqrt{s}=$  7 TeV, Phys. Lett. B717 (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., Measurement of the underlying event in the Drell-Yan process in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C72 (2012) 2080, doi:10.1140/epjc/s10052-012-2080-4, arXiv:1204.1411 [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., 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 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 the standard model Higgs boson decaying into two photons in pp collisions at  $\sqrt{s} = 7$  TeV,  $Phys.\ Lett.\ B710\ (2012)\ 403-425$ , doi:10.1016/j.physletb.2012.03.003, arXiv:1202.1487 [hep-ex]
- S. Chatrchyan et al., Combined results of searches for the standard model Higgs boson in pp collisions at  $\sqrt{s} = 7$  TeV,  $Phys.\ Lett.\ B710\ (2012)\ 26-48$ , doi:10.1016/j.physletb.2012.02.064, arXiv:1202.1488 [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. C72 (2012) 2251, doi:10.1140/epjc/s10052-012-2251-3, arXiv:1210.0875 [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 three-jet resonances in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B718 (2012) 329–347, doi:10.1016/j.physletb.2012.10.048, arXiv:1208.2931 [hep-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 neutral Higgs bosons decaying to tau pairs in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B713 (2012) 68–90, doi:10.1016/j.physletb.2012.05.028, arXiv:1202.4083 [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. B710 (2012) 256–277, doi:10.1016/j.physletb.2012.02.077, arXiv:1201.3093 [nucl-ex]

February 2, 2019 35 of 44

- S. Chatrchyan et al., Measurement of the Z/  $\gamma^*$ +b-jet cross section in pp collisions at  $\sqrt{s} = 7$  TeV, JHEP. 06 (2012) 126, doi:10.1007/JHEP06(2012)126, arXiv:1204.1643 [hep-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. D85 (2012) 112007, doi:10.1103/PhysRevD.85.112007, arXiv:1203.6810 [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. B718 (2012) 307–328, doi:10.1016/j.physletb.2012.10.038, arXiv:1209.0471 [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., Search for pair production of first- and second-generation scalar leptoquarks in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. D86 (2012) 052013, doi:10.1103/PhysRevD.86.052013, arXiv:1207.5406 [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. C72 (2012) 2012, doi:10.1140/epjc/s10052-012-2012-3, arXiv:1201.3158 [nucl-ex]
- 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. B710 (2012) 284–306, doi:10.1016/j.physletb.2012.02.085, arXiv:1202.4195 [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,  $Phys. \ Lett. \ B714 (2012) 136–157, doi:10.1016/j.physletb.2012.05.063, arXiv:1205.0594 [hep-ex]$
- 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., 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., 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., A search for a doubly-charged Higgs boson in pp collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C72 (2012) 2189, doi:10.1140/epjc/s10052-012-2189-5, arXiv:1207.2666 [hep-ex]
- S. Chatrchyan et al., Search for heavy bottom-like quarks in 4.9 inverse femtobarns 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., **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., Study of high-pT charged particle suppression in PbPb compared to pp collisions at  $\sqrt{s_{NN}} = 2.76$  TeV, Eur. Phys. J. C72 (2012) 1945, doi:10.1140/epjc/s10052-012-1945-x, arXiv:1202.2554 [nucl-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., 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
- 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.* B718 (2012) 348–368, doi:10.1016/j.physletb.2012.10.070, arXiv:1210.1797 [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]
- 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. B703 (2011) 246-266, doi:10.1016/j.physletb.2011.07.089, arXiv:1105.5237 [hep-ex]

February 2, 2019 36 of 44

- 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., 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 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 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 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]
- 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 a W' boson decaying to a muon and a neutrino in pp collisions at  $\sqrt{s} = 7$  TeV,  $Phys. \ Lett. \ B701 (2011) \ 160-179, \ doi:10.1016/j.physletb.2011.05.048, \ arXiv:1103.0030 \ [hep-ex]$
- 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., Search for a Heavy Bottom-like Quark in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B701 (2011) 204–223, doi:10.1016/j.physletb.2011.05.074, arXiv:1102.4746 [hep-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. C71 (2011) 1721, doi:10.1140/epjc/s10052-011-1721-3, arXiv:1106.0902 [hep-ex]
- S. Chatrchyan et al., Search for physics beyond the standard model using multilepton signatures in pp collisions at  $\sqrt{s} = 7$  TeV,  $Phys. \ Lett. \ B704 (2011) 411-433$ , doi:10.1016/j.physletb.2011.09.047, arXiv:1106.0933 [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., 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., 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., 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 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., 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]
- 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., Search for Resonances in the Dijet Mass Spectrum from 7 TeV pp Collisions at CMS, Phys. Lett. B704 (2011) 123–142, doi:10.1016/j.physletb.2011.09.015, arXiv:1107.4771 [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 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., 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]

February 2, 2019 37 of 44

- 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., A search for excited leptons in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B704 (2011) 143–162, doi:10.1016/j.physletb.2011.09.021, arXiv:1107.1773 [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]
- 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., Measurement of the differential dijet production cross section in proton-proton collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B700 (2011) 187–206, doi:10.1016/j.physletb.2011.05.027, arXiv:1104.1693 [hep-ex]
- S. Chatrchyan et al., Measurement of  $W\gamma$  and  $Z\gamma$  production in pp collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B701 (2011) 535–555, doi:10.1016/j.physletb.2011.06.034, arXiv:1105.2758 [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. C84 (2011) 024906, doi:10.1103/PhysRevC.84.024906, arXiv:1102.1957 [nucl-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., 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., Measurement of the Differential Cross Section for Isolated Prompt Photon Production in pp Collisions at 7 TeV, Phys. Rev. D84 (2011) 052011, doi:10.1103/PhysRevD.84.052011, arXiv:1108.2044 [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. D84 (2011) 052008, doi:10.1103/PhysRevD.84.052008, arXiv:1106.4048 [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]
- 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., 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., Measurement of the ratio of the 3-jet to 2-jet cross sections in pp collisions at  $\sqrt{s} = 7$  TeV,  $Phys. \ Lett. \ B702\ (2011)\ 336-354, \ doi:10.1016/j.physletb.2011.07.067, \ arXiv:1106.0647\ [hep-ex]$
- 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., Measurement of the weak mixing angle with the Drell-Yan process in proton-proton collisions at the LHC, *Phys. Rev.* D84 (2011) 112002, doi:10.1103/PhysRevD.84.112002, arXiv:1110.2682 [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. D84 (2011) 092004, doi:10.1103/PhysRevD.84.092004, arXiv:1108.3773 [hep-ex]
- 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., 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 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]

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- 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. B698 (2011) 21–39, doi:10.1016/j.physletb.2011.02.048, arXiv:1012.5945 [hep-ex]
- V. Khachatryan et al., Measurement of the Isolated Prompt Photon Production Cross Section in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 106 (2011) 082001, doi:10.1103/PhysRevLett.106.082001, arXiv:1012.0799 [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 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., 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 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 Microscopic Black Hole Signatures at the Large Hadron Collider, Phys. Lett. B697 (2011) 434–453, doi:10.1016/j.physletb.2011.02.032, arXiv:1012.3375 [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., Prompt and non-prompt  $J/\psi$  production in pp collisions at  $\sqrt{s} = 7$  TeV, Eur. Phys. J. C71 (2011) 1575, doi:10.1140/epjc/s10052-011-1575-8, arXiv:1011.4193 [hep-ex]
- V. Khachatryan et al., **Upsilon Production Cross-Section in pp Collisions at** sqrts = 7 **TeV**, Phys. Rev. D83 (2011) 112004, doi:10.1103/PhysRevD.83.112004, arXiv:1012.5545 [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]
- V. Khachatryan et al., First Measurement of Hadronic Event Shapes in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Lett. B699 (2011) 48–67, doi:10.1016/j.physletb.2011.03.060, arXiv:1102.0068 [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]
- 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]
- V. Khachatryan et al., Measurement of the  $B^+$  Production Cross Section in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 106 (2011) 112001, doi:10.1103/PhysRevLett.106.112001, arXiv:1101.0131 [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.* B698 (2011) 196–218, doi:10.1016/j.physletb.2011.03.021, arXiv:1101.1628 [hep-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]
- 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]
- V. Khachatryan et al., Measurement of  $B\bar{B}$  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]
- V. Khachatryan et al., Dijet Azimuthal Decorrelations in pp Collisions at  $\sqrt{s} = 7$  TeV, Phys. Rev. Lett. 106 (2011) 122003, doi:10.1103/PhysRevLett.106.122003, arXiv:1101.5029 [hep-ex]
- 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 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]

February 2, 2019 39 of 44

- 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., 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 Muon Reconstruction in Cosmic-Ray Events, JINST. 5 (2010) T03022, doi:10.1088/1748-0221/5/03/T03022, arXiv:0911.4994 [physics.ins-det]
- 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., 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., 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]
- 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., **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., 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., 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., **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 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., 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., 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., 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., 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., **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., 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., 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]
- 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., 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, 2019 40 of 44

- V. Khachatryan et al., Measurement of the charge ratio of atmospheric muons with the CMS detector, *Phys. Lett.* B692 (2010) 83–104, doi:10.1016/j.physletb.2010.07.033, arXiv:1005.5332 [hep-ex]
- V. Khachatryan et al., First Measurement of the Underlying Event Activity at the LHC with  $\sqrt{s} = 0.9$  TeV, Eur. Phys. J. C70 (2010) 555–572, doi:10.1140/epjc/s10052-010-1453-9, arXiv:1006.2083 [hep-ex]
- V. Khachatryan et al., CMS Tracking Performance Results from early LHC Operation, Eur. Phys. J. C70 (2010) 1165–1192, doi:10.1140/epjc/s10052-010-1491-3, arXiv:1007.1988 [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., 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., 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., 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]
- 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 technical design report, volume II: Physics performance, J. Phys. G34 (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. C49 (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. C51 (2007) 289–299, doi:10.1140/epjc/s10052-007-0310-y, arXiv:hep-ex/0608053 [hep-ex]
- S. Chekanov et al., **Event shapes in deep inelastic scattering at HERA**, Nucl. Phys. B767 (2007) 1–28, doi:10.1016/j.nuclphysb.2006.05.016, arXiv:hep-ex/0604032 [hep-ex]
- S. Chekanov et al., Measurement of prompt photons with associated jets in photoproduction at HERA, Eur. Phys. J. C49 (2007) 511–522, doi:10.1140/epjc/s10052-006-0134-1, arXiv:hep-ex/0608028 [hep-ex]
- S. Chekanov et al., Inclusive-jet and dijet cross-sections in deep inelastic scattering at HERA, Nucl. Phys. B765 (2007) 1–30, doi:10.1016/j.nuclphysb.2006.09.018, arXiv:hep-ex/0608048 [hep-ex]
- D.G. d'Enterria et al., CMS physics technical design report: Addendum on high density QCD with heavy ions,  $J.\ Phys.\ G34\ (2007)\ 2307-2455,\ doi:10.1088/0954-3899/34/11/008$
- J. Nash et al., CMS expression of interest in the SLHC, (2007)
- G.L. Bayatian et al., CMS Physics, (2006)
- S. Chekanov et al., Forward jet production in deep inelastic ep scattering and low-x parton dynamics at HERA, *Phys. Lett.* B632 (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.* B637 (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. B610 (2005) 199–211, doi:10.1016/j.physletb.2005.01.101, arXiv:hep-ex/0404002 [hep-ex]

February 2, 2019 41 of 44

- S. Chekanov et al., Search for pentaquarks decaying to Xi-pi in deep inelastic scattering at HERA, Phys. Lett. B610 (2005) 212–224, doi:10.1016/j.physletb.2005.02.016, arXiv:hep-ex/0501069 [hep-ex]
- S. Chekanov et al., **Search for lepton-flavor violation at HERA**, Eur. Phys. J. C44 (2005) 463–479, doi:10.1140/epjc/s2005-02399-1, arXiv:hep-ex/0501070 [hep-ex]
- S. Chekanov et al., Measurement of inelastic  $J/\psi$  production in deep inelastic scattering at HERA, Eur. Phys. J. C44 (2005) 13–25, doi:10.1140/epjc/s2005-02346-2, arXiv:hep-ex/0505008 [hep-ex]
- S. Chekanov et al., Exclusive electroproduction of phi mesons at HERA, Nucl. Phys. B718 (2005) 3–31, doi:10.1016/j.nuclphysb.2005.04.009, arXiv:hep-ex/0504010 [hep-ex]
- S. Chekanov et al., Measurement of charm fragmentation ratios and fractions in photoproduction at HERA, Eur. Phys. J. C44 (2005) 351–366, doi:10.1140/epjc/s2005-02397-3, arXiv:hep-ex/0508019 [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. C42 (2005) 1–16, doi:10.1140/epjc/s2005-02293-x, arXiv:hep-ph/0503274 [hep-ph]
- S. Chekanov et al., Multijet production in neutral current deep inelastic scattering at HERA and determination of alpha(s), Eur. Phys. J. C44 (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. B713 (2005) 3–80, doi:10.1016/j.nuclphysb.2005.02.001, arXiv:hep-ex/0501060 [hep-ex]
- S. Chekanov et al., Inclusive jet cross sections and dijet correlations in D\*+- photoproduction at HERA, Nucl. Phys. B729 (2005) 492–525, doi:10.1016/j.nuclphysb.2005.09.021, arXiv:hep-ex/0507089 [hep-ex]
- S. Chekanov et al., Isolated tau leptons in events with large missing transverse momentum at HERA, *Phys. Lett.* B583 (2004) 41–58, doi:10.1016/j.physletb.2003.12.054, arXiv:hep-ex/0311028 [hep-ex]
- S. Chekanov et al., Bose-Einstein correlations in one and two-dimensions in deep inelastic scattering, *Phys. Lett.* B583 (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.* B591 (2004) 23–41, doi:10.1016/j.physletb.2004.03.081, arXiv:hep-ex/0401009 [hep-ex]
- S. Chekanov et al., Measurement of D\*+- production in deep inelastic e+- p scattering at HERA, Phys. Rev. D69 (2004) 012004, doi:10.1103/PhysRevD.69.012004, arXiv:hep-ex/0308068 [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. D70 (2004) 012008, doi:10.1103/PhysRevD.74.059906, arXiv:hep-ex/0312057 [hep-ex]
- S. Chekanov et al., Observation of K0(s) K0(s) resonances in deep inelastic scattering at HERA, Phys. Lett. B578 (2004) 33–44, doi:10.1016/j.physletb.2003.10.049, arXiv:hep-ex/0308006 [hep-ex]
- S. Chekanov et al., Search for QCD instanton induced events in deep inelastic ep scattering at HERA, Eur. Phys. J. C34 (2004) 255–265, doi:10.1140/epic/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. D70 (2004) 052001, doi:10.1103/PhysRevD.70.052001, arXiv:hep-ex/0401003 [hep-ex]
- S. Chekanov et al., Photoproduction of D\*+- mesons associated with a leading neutron, Phys. Lett. B590 (2004) 143–160, doi:10.1016/j.physletb.2004.03.076, arXiv:hep-ex/0401017 [hep-ex]
- S. Chekanov et al., Dissociation of virtual photons in events with a leading proton at HERA, Eur. Phys. J. C38 (2004) 43–67, doi:10.1140/epjc/s2004-02047-4, arXiv:hep-ex/0408009 [hep-ex]
- S. Chekanov et al., The Dependence of dijet production on photon virtuality in ep collisions at HERA, Eur. Phys. J. C35 (2004) 487–500, doi:10.1140/epjc/s2004-01885-2, arXiv:hep-ex/0404033 [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. B591 (2004) 7–22, doi:10.1016/j.physletb.2004.04.024, arXiv:hep-ex/0403051 [hep-ex]
- S. Chekanov et al., Substructure dependence of jet cross sections at HERA and determination of alpha(s), Nucl. Phys. B700 (2004) 3–50, doi:10.1016/j.nuclphysb.2004.08.049, arXiv:hep-ex/0405065 [hep-ex]
- S. Chekanov et al., Exclusive electroproduction of J/psi mesons at HERA, Nucl. Phys. B695 (2004) 3–37, doi:10.1016/j.nuclphysb.2004.06.034, arXiv:hep-ex/0404008 [hep-ex]

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- S. Chekanov et al., Search for a narrow charmed baryonic state decaying to D\*+- p-+ in ep collisions at HERA, Eur. Phys. J. C38 (2004) 29–41, doi:10.1140/epjc/s2004-02042-9, arXiv:hep-ex/0409033 [hep-ex]
- S. Chekanov et al., Measurement of beauty production in deep inelastic scattering at HERA, *Phys. Lett.* B599 (2004) 173–189, doi:10.1016/j.physletb.2004.08.048, arXiv:hep-ex/0405069 [hep-ex]
- S. Chekanov et al., **Observation of isolated high E(T) photons in deep inelastic scattering**, *Phys. Lett.* B595 (2004) 86–100, doi:10.1016/j.physletb.2004.05.033, arXiv:hep-ex/0402019 [hep-ex]
- S. Chekanov et al., Measurements of inelastic J / psi and psi-prime photoproduction at HERA, Eur. Phys. J. C27 (2003) 173–188, doi:10.1140/epjc/s2002-01130-2, arXiv:hep-ex/0211011 [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. C28 (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.* B553 (2003) 141–158, doi:10.1016/S0370-2693(02)03206-9, arXiv:hep-ex/0211025 [hep-ex]
- S. Chekanov et al., A ZEUS next-to-leading-order QCD analysis of data on deep inelastic scattering, *Phys. Rev.* D67 (2003) 012007, doi:10.1103/PhysRevD.67.012007, arXiv:hep-ex/0208023 [hep-ex]
- S. Chekanov et al., Measurement of proton dissociative diffractive photoproduction of vector mesons at large momentum transfer at HERA, Eur. Phys. J. C26 (2003) 389–409, doi:10.1140/epjc/s2002-01079-0, arXiv:hep-ex/0205081 [hep-ex]
- S. Chekanov et al., Scaling violations and determination of alpha(s) from jet production in gamma p interactions at HERA, Phys. Lett. B560 (2003) 7–23, doi:10.1016/S0370-2693(03)00380-0, arXiv:hep-ex/0212064 [hep-ex]
- S. Chekanov et al., Study of the azimuthal asymmetry of jets in neutral current deep inelastic scattering at HERA, Phys. Lett. B551 (2003) 226–240, doi:10.1016/S0370-2693(02)03072-1, arXiv:hep-ex/0210064 [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. B558 (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. C27 (2003) 531–545, doi:10.1140/epjc/s2003-01148-x, arXiv:hep-ex/0211040 [hep-ex]
- S. Chekanov et al., **Leading proton production in e+ p collisions at HERA**, *Nucl. Phys.* B658 (2003) 3–46, doi:10.1016/S0550-3213(03)00152-4, arXiv:hep-ex/0210029 [hep-ex]
- S. Chekanov et al., A Search for resonance decays to lepton + jet at HERA and limits on leptoquarks, *Phys. Rev.* D68 (2003) 052004, doi:10.1103/PhysRevD.68.052004, arXiv:hep-ex/0304008 [hep-ex]
- S. Chekanov et al., **Dijet angular distributions in photoproduction of charm at HERA**, *Phys. Lett.* B565 (2003) 87–101, doi:10.1016/S0370-2693(03)00752-4, arXiv:hep-ex/0302025 [hep-ex]
- S. Chekanov et al., Measurement of the open charm contribution to the diffractive proton structure function, Nucl. Phys. B672 (2003) 3–35, doi:10.1016/j.nuclphysb.2003.09.001, arXiv:hep-ex/0307068 [hep-ex]
- S. Chekanov et al., **Jet production in charged current deep inelastic e+ p scattering at HERA**, Eur. Phys. J. C31 (2003) 149–164, doi:10.1140/epjc/s2003-01358-2, arXiv:hep-ex/0306018 [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. C32 (2003) 1–16, doi:10.1140/epjc/s2003-01363-5, arXiv:hep-ex/0307043 [hep-ex]
- S. Chekanov et al., Measurement of deeply virtual Compton scattering at HERA, Phys. Lett. B573 (2003) 46–62, doi:10.1016/j.physletb.2003.08.048, arXiv:hep-ex/0305028 [hep-ex]
- S. Chekanov et al., Search for single top production in ep collisions at HERA, Phys. Lett. B559 (2003) 153–170, doi:10.1016/S0370-2693(03)00333-2, arXiv:hep-ex/0302010 [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. B547 (2002) 164–180, doi:10.1016/S0370-2693(02)02763-6, arXiv:hep-ex/0208037 [hep-ex]
- S. Chekanov et al., Measurement of the  $Q^{**2}$  and energy dependence of diffractive interactions at HERA, Eur. Phys. J. C25 (2002) 169–187, doi:10.1007/s10052-002-1003-1, arXiv:hep-ex/0203039 [hep-ex]

February 2, 2019 43 of 44

- S. Chekanov et al., Leading neutron production in e+ p collisions at HERA, Nucl. Phys. B637 (2002) 3–56, doi:10.1016/S0550-3213(02)00439-X, arXiv:hep-ex/0205076 [hep-ex]
- S. Chekanov et al., Measurement of diffractive production of D\*+-(2010) mesons in deep inelastic scattering at HERA, Phys. Lett. B545 (2002) 244–260, doi:10.1016/S0370-2693(02)02595-9, arXiv:hep-ex/0206020 [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. B539 (2002) 197–217, doi:10.1016/S0370-2693(02)03097-6, arXiv:hep-ex/0205091 [hep-ex]
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