

## Publications from all Collaborations and Experiments

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 Higgs boson pair production in events with two bottom quarks and two tau leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *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., **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]

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., **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 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]

A.M. Sirunyan et al., **Measurement of the associated production of a single top quark and a Z boson in pp collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Lett.* B779 (2018) 358–384, doi:10.1016/j.physletb.2018.02.025, arXiv:1712.02825

[hep-ex]

A.M. Sirunyan et al., **Search for low mass vector resonances decaying into quark-antiquark pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP*. 01 (2018) 097, doi:10.1007/JHEP01(2018)097, arXiv:1710.00159 [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  $H \rightarrow b\bar{b}$** , *Phys. Rev. D* 97 (2018) 032007, doi:10.1103/PhysRevD.97.032007, arXiv:1709.04896 [hep-ex]

A.M. Sirunyan et al., **Azimuthal anisotropy of charged particles with transverse momentum up to 100 GeV/  $c$  in PbPb collisions at  $\sqrt{s_{NN}}=5.02$  TeV**, *Phys. Lett. B* 776 (2018) 195–216, doi:10.1016/j.physletb.2017.11.041, arXiv:1702.00630 [hep-ex]

A.M. Sirunyan et al., **Search for supersymmetry in proton-proton collisions at 13 TeV using identified top quarks**, *Phys. Rev. D* 97 (2018) 012007, doi:10.1103/PhysRevD.97.012007, arXiv:1710.11188 [hep-ex]

A.M. Sirunyan et al., **Search for pair production of vector-like quarks in the  $bW$   $\bar{b}W$  channel from proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Lett. B* 779 (2018) 82–106, doi:10.1016/j.physletb.2018.01.077, arXiv:1710.01539 [hep-ex]

A.M. Sirunyan et al., **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., **Measurements of  $t\bar{t}$  cross sections in association with  $b$  jets and inclusive jets and their ratio using dilepton final states in  $pp$  collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Lett. B* 776 (2018) 355–378, doi:10.1016/j.physletb.2017.11.043, arXiv:1705.10141 [hep-ex]

A.M. Sirunyan et al., **Observation of Correlated Azimuthal Anisotropy Fourier Harmonics in  $pp$  and  $p + Pb$  Collisions at the LHC**, *Phys. Rev. Lett.* 120 (2018) 092301, doi:10.1103/PhysRevLett.120.092301, arXiv:1709.09189 [nucl-ex]

A.M. Sirunyan et al., **Search for 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. B* 777 (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., **Search for pair production of excited top quarks in the lepton + jets final state**, *Phys. Lett. B* 778 (2018) 349–370,

doi:10.1016/j.physletb.2018.01.049, arXiv:1711.10949 [hep-ex]

A.M. Sirunyan et al., **Measurement of the  $\Lambda_b$  polarization and angular parameters in  $\Lambda_b \rightarrow J/\psi \Lambda$  decays from pp collisions at  $\sqrt{s} = 7$  and 8 TeV**, (2018), arXiv:1802.04867 [hep-ex]

A.M. Sirunyan et al., **Search for single production of vector-like quarks decaying to a b quark and a Higgs boson**, (2018), arXiv:1802.01486 [hep-ex]

A.M. Sirunyan et al., **Search for a heavy resonance decaying to a pair of vector bosons in the lepton plus merged jet final state at  $\sqrt{s} = 13$  TeV**, (2018), arXiv:1802.09407 [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**, (2018), arXiv:1801.01846 [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**, (2018), arXiv:1802.00707 [hep-ex]

A.M. Sirunyan et al., **Jet properties in PbPb and pp collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, (2018), arXiv:1803.00042 [nucl-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**, (2018), arXiv:1802.02965 [hep-ex]

A.M. Sirunyan et al., **Measurement of the inelastic proton-proton cross section at  $\sqrt{s} = 13$  TeV**, (2018), arXiv:1802.02613 [hep-ex]

A.M. Sirunyan et al., **Search for narrow resonances in the b-tagged di-jet mass spectrum in proton-proton collisions at  $\sqrt{s} = 8$  TeV**, (2018), arXiv:1802.06149 [hep-ex]

A.M. Sirunyan et al., **Observation of medium induced modifications of jet fragmentation in PbPb collisions using isolated-photon-tagged jets**, (2018), arXiv:1801.04895 [hep-ex]

A.M. Sirunyan et al., **Measurement of the  $Z\gamma^* \rightarrow \tau\tau$  cross section in pp collisions at  $\sqrt{s} = 13$  TeV and validation of  $\tau$  lepton analysis techniques**, (2018), arXiv:1801.03535 [hep-ex]

A.M. Sirunyan et al., **Combined search for electroweak production of charginos and neutralinos in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2018), arXiv:1801.03957 [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, (2018), arXiv:1802.02110 [hep-ex]
- A.M. Sirunyan et al., **Measurements of the  $pp \rightarrow ZZ$  production cross section and the  $Z \rightarrow 4\ell$  branching fraction, and constraints on anomalous triple gauge couplings at  $\sqrt{s} = 13\text{TeV}$** , *Eur. Phys. J. C* 78 (2018) 165, doi:10.1140/epjc/s10052-018-5567-9
- A.M. Sirunyan et al., **Search for lepton-flavor violating decays of heavy resonances and quantum black holes to  $e\mu$  final states in proton-proton collisions at  $\sqrt{s} = 13\text{ TeV}$** , (2018), arXiv:1802.01122 [hep-ex]
- S. Chatrchyan et al., **Measurement of the mass difference between top quark and antiquark in pp collisions at  $\sqrt{s} = 8\text{ TeV}$** , *Phys. Lett. B* 770 (2017) 50–71, doi:10.1016/j.physletb.2017.04.028, arXiv:1610.09551 [hep-ex]
- V. Khachatryan et al., **Search for top quark decays via Higgs-boson-mediated flavor-changing neutral currents in pp collisions at  $\sqrt{s} = 8\text{ TeV}$** , *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. B* 768 (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  $\sqrt{s} = 8\text{ TeV}$** , *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  $\sqrt{s} = 13\text{ TeV}$** , *Phys. Lett. B* 771 (2017) 435–456, doi:10.1016/j.physletb.2017.05.074, arXiv:1609.00873 [hep-ex]
- V. Khachatryan et al., **A search for new phenomena in pp collisions at  $\sqrt{s} = 13\text{TeV}$  in final states with missing transverse momentum and at least one jet using the  $\alpha_T$  variable**, *Eur. Phys. J. C* 77 (2017) 294, doi:10.1140/epjc/s10052-017-4787-8, arXiv:1611.00338 [hep-ex]
- V. Khachatryan et al., **Inclusive search for supersymmetry using razor variables in pp collisions at  $\sqrt{s} = 13\text{ TeV}$** , *Phys. Rev. D* 95 (2017) 012003, doi:10.1103/PhysRevD.95.012003, arXiv:1609.07658 [hep-ex]
- V. Khachatryan et al., **Measurements of differential cross sections for associated production of a W boson and jets in proton-proton collisions at  $\sqrt{s} = 8\text{ TeV}$** , *Phys. Rev. D* 95 (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  $p$ Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, *Phys. Rev. C* 96 (2017) 014915, doi:10.1103/PhysRevC.96.014915, arXiv:1604.05347 [nucl-ex]

V. Khachatryan et al., **Measurements of the associated production of a Z boson and b jets in pp collisions at  $\sqrt{s} = 8$  TeV**, *Eur. Phys. J. C* 77 (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  $\sqrt{s} = 8$  TeV**, *Eur. Phys. J. C* 77 (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. C* 96 (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. B* 770 (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. C* 77 (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. D* 95 (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  $B^+ \rightarrow \psi(2S)\phi(1020)K^+$  in pp collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 764 (2017) 66–86, doi:10.1016/j.physletb.2016.11.001, arXiv:1607.02638 [hep-ex]

V. Khachatryan et al., **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. B* 769 (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  $\sqrt{s} = 8$  TeV**, *Eur. Phys. J. C* 77 (2017) 236, doi:10.1140/epjc/s10052-017-4730-z, arXiv:1609.05721 [hep-ex]

V. Khachatryan et al., **Search for top squark pair production in compressed-mass-spectrum scenarios in proton-proton collisions at  $\sqrt{s} = 8$  TeV using the  $\alpha_T$  variable**, *Phys. Lett. B* 767 (2017) 403–430, doi:10.1016/j.physletb.2017.02.007, arXiv:1605.08993 [hep-ex]

V. Khachatryan et al., **Coherent  $J/\psi$  photoproduction in ultra-peripheral PbPb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV with the CMS experiment**, *Phys. Lett. B* 772 (2017) 489–511, doi:10.1016/j.physletb.2017.07.001, arXiv:1605.06966 [nucl-ex]

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. B* 766 (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. B* 765 (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. D* 95 (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  $H \rightarrow WW$  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. B* 771 (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. D* 95 (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. B* 770 (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. B* 770 (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. B* 767 (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. C* 77 (2017) 252, doi:10.1140/epjc/s10052-017-4781-1, arXiv:1610.00613 [nucl-ex]

V. Khachatryan et al., **Multiplicity and rapidity dependence of strange hadron production in pp, pPb, and PbPb collisions at the LHC**, *Phys. Lett. B* 768 (2017) 103–129, doi:10.1016/j.physletb.2017.01.075, arXiv:1605.06699 [nucl-ex]

V. Khachatryan et al., **Measurements of the  $t\bar{t}$  production cross section in lepton+jets final states in pp collisions at 8 TeV and ratio of 8 to 7 TeV cross sections**, *Eur. Phys. J. C* 77 (2017) 15, doi:10.1140/epjc/s10052-016-4504-z, arXiv:1602.09024 [hep-ex]

V. Khachatryan et al., **Search for narrow resonances in dilepton mass spectra in proton–proton collisions at  $\sqrt{s} = 13$  TeV and combination with 8 TeV data**, *Phys. Lett. B* 768 (2017) 57–80, doi:10.1016/j.physletb.2017.02.010, arXiv:1609.05391 [hep-ex]

V. Khachatryan et al., **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. B* 770 (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. C* 77 (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. D* 96 (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  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 773 (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. B* 772 (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. B* 772 (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. B* 769 (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. B* 772 (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  $\sqrt{s_{NN}} = 5.02$  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 massive resonances decaying into WW, WZ, ZZ, qW, and qZ with dijet final states at  $\sqrt{s} = 13$  TeV**, (2017), arXiv:1708.05379 [hep-ex]

A.M. Sirunyan et al., **Search for black holes in high-multiplicity final**

**states in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Lett.* 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  $\sqrt{s} = 8$  TeV 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., **Measurement of the splitting function in pp and PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, (2017), 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**, *Submitted to: Phys. Rev. Lett.* (2017), arXiv:1712.08501 [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]

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**, (2017), 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**, *Submitted to: Phys. Lett. B.* (2017), arXiv:1712.08920 [hep-ex]

A.M. Sirunyan et al., **Measurement of angular parameters from the decay  $B^0 \rightarrow K^{*0}\mu^+\mu^-$  in proton-proton collisions at  $\sqrt{s} = 8$  TeV**, (2017), arXiv:1710.02846 [hep-ex]

A.M. Sirunyan et al., **Search for Low Mass Vector Resonances Decaying to Quark-Antiquark Pairs in Proton-Proton Collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Rev. Lett.* 119 (2017) 111802, doi:10.1103/PhysRevLett.119.111802, arXiv:1705.10532 [hep-ex]

A.M. Sirunyan et al., **Evidence for the Higgs boson decay to a bottom quark-antiquark pair**, (2017), arXiv:1709.07497 [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., **Identification of heavy-flavour jets with the CMS detector in pp collisions at 13 TeV**, *Submitted to: JINST.* (2017), arXiv:1712.07158 [physics.ins-det]

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 excited states of light and heavy flavor quarks in the  $\gamma$ +jet final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2017), arXiv:1711.04652 [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., **Non-Gaussian elliptic-flow fluctuations in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, (2017), arXiv:1711.05594 [nucl-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. B* 774 (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. C* 96 (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., **Search for Z  $\gamma$  resonances using leptonic and hadronic final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2017),

arXiv:1712.03143 [hep-ex]

A.M. Sirunyan et al., **Measurement of the top quark mass using single top quark events in proton-proton collisions at  $\sqrt{s} = 8$  TeV**, *Eur. Phys. J. C* 77 (2017) 354, doi:10.1140/epjc/s10052-017-4912-8, arXiv:1703.02530 [hep-ex]

A.M. Sirunyan et al., **Measurement of the top quark mass in the dileptonic  $t\bar{t}$  decay channel using the mass observables  $M_{b\ell}$ ,  $M_{T2}$ , and  $M_{b\ell\nu}$  in pp collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Rev. D* 96 (2017) 032002, doi:10.1103/PhysRevD.96.032002, arXiv:1704.06142 [hep-ex]

A.M. Sirunyan et al., **Study of Bose-Einstein correlations in pp, pPb, and PbPb collisions at the LHC**, *Submitted to: Phys. Rev. C.* (2017), arXiv:1712.07198 [hep-ex]

A.M. Sirunyan et al., **Pseudorapidity and transverse momentum dependence of flow harmonics in pPb and PbPb collisions**, (2017), arXiv:1710.07864 [nucl-ex]

A.M. Sirunyan et al., **Measurement of differential cross sections in the  $\phi^*$  variable for inclusive Z boson production in pp collisions at  $\sqrt{s} = 8$  TeV**, (2017), 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**, (2017), arXiv:1710.04960 [hep-ex]

A.M. Sirunyan et al., **Measurement of prompt and nonprompt charmonium suppression in PbPb collisions at 5.02 TeV**, *Submitted to: Eur. Phys. J. C.* (2017), arXiv:1712.08959 [nucl-ex]

A.M. Sirunyan et al., **Measurement of the semileptonic  $t\bar{t} + \text{production cross section in pp collisions at } \sqrt{s} = 8$  TeV**, *JHEP.* 10 (2017) 006, doi:10.1007/JHEP10(2017)006, arXiv:1706.08128 [hep-ex]

A.M. Sirunyan et al., **Search for new long-lived particles at  $\sqrt{s} = 13$  TeV**, (2017), 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**, *Submitted to: Eur. Phys. J. C.* (2017), arXiv:1712.09814 [hep-ex]

A.M. Sirunyan et al., **Study of Jet Quenching with  $Z + \text{jet}$  Correlations in Pb-Pb and pp Collisions at  $\sqrt{s_{NN}} = 5.02\text{TeV}$** , *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 new physics in final states with an**

**energetic jet or a hadronically decaying W or Z boson and transverse momentum imbalance at  $\sqrt{s} = 13$  TeV**, (2017), 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**, (2017), arXiv:1712.05471 [hep-ex]

A.M. Sirunyan et al., **Search for diboson resonances in the  $2\ \ell\ 2\ \nu$  final state**, (2017), arXiv:1711.04370 [hep-ex]

A.M. Sirunyan et al., **Search for associated production of a Z boson with a single top quark and for tZ flavour-changing interactions in pp collisions at  $\sqrt{s} = 8$  TeV**, *JHEP.* 07 (2017) 003, doi:10.1007/JHEP07(2017)003, arXiv:1702.01404 [hep-ex]

A.M. Sirunyan et al., **Search for electroweak production of charginos and neutralinos in multilepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2017), arXiv:1709.05406 [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**, *Submitted to: JHEP.* (2017), arXiv:1709.05327 [hep-ex]

A.M. Sirunyan et al., **Measurements of the  $pp \rightarrow W\gamma\gamma$  and  $pp \rightarrow Z\gamma\gamma$  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., **Suppression of excited Upsilon states relative to the ground state in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, (2017), arXiv:1706.05984 [hep-ex]

A.M. Sirunyan et al., **Search for vector-like light-flavor quark partners in proton-proton collisions at  $\sqrt{s}=8$  TeV**, (2017), arXiv:1708.02510 [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**, (2017), arXiv:1709.09814 [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. C* 77 (2017) 269, doi:10.1140/epjc/s10052-017-4828-3, arXiv:1702.01462 [nucl-ex]

A.M. Sirunyan et al., **Measurement of normalized differential t-tbar cross sections in the dilepton channel from pp collisions at  $\sqrt{s} = 13$  TeV**, (2017), arXiv:1708.07638 [hep-ex]

A.M. Sirunyan et al., **Measurement of b hadron lifetimes in pp collisions**

at  $\sqrt{s} = 8$  TeV, (2017), arXiv:1710.08949 [hep-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. B* 774 (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 proton-proton 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 gauge-mediated supersymmetry in events with at least one photon and missing transverse momentum in pp collisions at  $\sqrt{s} = 13$  TeV**, (2017), doi:10.1016/j.physletb.2018.02.045, arXiv:1711.08008 [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**, (2017), arXiv:1712.06144 [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/JHEP03(2017)061, arXiv:1701.02042 [hep-ex]

A.M. Sirunyan et al., **Measurement of the  $B^\pm$  Meson Nuclear Modification Factor in Pb-Pb Collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, *Phys. Rev. Lett.* 119 (2017) 152301, doi:10.1103/PhysRevLett.119.152301, arXiv:1705.04727 [hep-ex]

A.M. Sirunyan et al., **Measurement of prompt  $D^0$  meson azimuthal anisotropy in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, (2017), arXiv:1708.03497 [nucl-ex]

A.M. Sirunyan et al., **Measurement of associated Z + charm production in proton-proton collisions at  $\sqrt{s} = 8$  TeV**, (2017), arXiv:1711.02143 [hep-ex]

A.M. Sirunyan et al., **Measurement of quarkonium production cross sections in pp collisions at  $\sqrt{s} = 13$  TeV**, (2017), 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**, (2017), 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**, (2017), arXiv:1711.09738 [nucl-ex]

A.M. Sirunyan et al., **Search for Evidence of the Type-III Seesaw Mechanism in Multilepton Final States in Proton-Proton**

**Collisions at  $\sqrt{s} = 13\text{TeV}$** , *Phys. Rev. Lett.* 119 (2017) 221802, doi:10.1103/PhysRevLett.119.221802, arXiv:1708.07962 [hep-ex]

A.M. Sirunyan et al., **Constraints on the chiral magnetic effect using charge-dependent azimuthal correlations in pPb and PbPb collisions at the LHC**, (2017), arXiv:1708.01602 [nucl-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., **Study of dijet events with a large rapidity gap between the two leading jets in pp collisions at  $\sqrt{s} = 7\text{ TeV}$** , (2017), arXiv:1710.02586 [hep-ex]

A.M. Sirunyan et al., **Search for Charged Higgs Bosons Produced via Vector Boson Fusion and Decaying into a Pair of  $W$  and  $Z$  Bosons Using  $pp$  Collisions at  $\sqrt{s} = 13\text{TeV}$** , *Phys. Rev. Lett.* 119 (2017) 141802, doi:10.1103/PhysRevLett.119.141802, arXiv:1705.02942 [hep-ex]

A.M. Sirunyan et al., **Search for decays of stopped exotic long-lived particles produced in proton-proton collisions at  $\sqrt{s} = 13\text{ TeV}$** , *Submitted to: JHEP.* (2017), arXiv:1801.00359 [hep-ex]

A.M. Sirunyan et al., **Measurement of the triple-differential dijet cross section in proton-proton collisions at  $\sqrt{s} = 8\text{TeV}$  and constraints on parton distribution functions**, *Eur. Phys. J. C* 77 (2017) 746, doi:10.1140/epjc/s10052-017-5286-7, arXiv:1705.02628 [hep-ex]

A.M. Sirunyan et al., **Challenges to the chiral magnetic wave using charge-dependent azimuthal anisotropies in pPb and PbPb collisions at  $\sqrt{s_{NN}} = 5.02\text{ TeV}$** , (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  $\sqrt{s} = 13\text{ TeV}$** , *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  $\sqrt{s} = 13\text{ TeV}$** , *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  $b\bar{b}\tau\tau$  final state in proton-proton collisions at  $\sqrt{s} = 8\text{TeV}$** , *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 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**, (2017), arXiv:1712.02399 [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., **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**, (2017), arXiv:1711.03143 [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 cross section for top quark pair production in association with a W or Z boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2017), arXiv:1711.02547 [hep-ex]

A.M. Sirunyan et al., **Measurement of the underlying event activity in inclusive Z boson production in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2017), arXiv:1711.04299 [hep-ex]

A.M. Sirunyan et al., **Measurement of the differential cross sections for the associated production of a W boson and jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Rev. D* 96 (2017) 072005,



doi:10.1103/PhysRevD.96.072005, arXiv:1707.05979 [hep-ex]

A.M. Sirunyan et al., **Search for direct production of supersymmetric partners of the top quark in the all-jets 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. C* 77 (2017) 636, doi:10.1140/epjc/s10052-017-5192-z, arXiv:1707.01303 [hep-ex]

A.M. Sirunyan et al., **Search for dark matter produced in association with heavy-flavor quark pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Eur. Phys. J. C* 77 (2017) 845, doi:10.1140/epjc/s10052-017-5317-4, arXiv:1706.02581 [hep-ex]

A.M. Sirunyan et al., **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. B* 775 (2017) 315–337, doi:10.1016/j.physletb.2017.11.001, arXiv:1706.08578 [hep-ex]

A.M. Sirunyan et al., **Nuclear modification factor of D0 mesons in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, (2017), 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**, *Submitted to: JHEP*. (2017), arXiv:1712.07173 [hep-ex]

A.M. Sirunyan et al., **Measurement of the jet mass in highly boosted  $t\bar{t}$  events from pp collisions at  $\sqrt{s} = 8$  TeV**, *Eur. Phys. J. C* 77 (2017) 467, doi:10.1140/epjc/s10052-017-5030-3, arXiv:1703.06330 [hep-ex]

A.M. Sirunyan et al., **Search for 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 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**, (2017), arXiv:1708.01062 [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., **Measurements of the  $pp \rightarrow ZZ$  production cross section and the  $Z \rightarrow 4\ell$  branching fraction, and constraints on anomalous triple gauge couplings at  $\sqrt{s} = 13$  TeV**, (2017), arXiv:1709.08601 [hep-ex]

A.M. Sirunyan et al., **Measurement of charged pion, kaon, and proton production in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Rev. D* 96 (2017) 112003, doi:10.1103/PhysRevD.96.112003, arXiv:1706.10194 [hep-ex]

V. Khachatryan et al., **Search for supersymmetry in events with a photon, a lepton, and missing transverse momentum in pp collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 757 (2016) 6–31, doi:10.1016/j.physletb.2016.03.039, arXiv:1508.01218 [hep-ex]

V. Khachatryan et al., **Search for neutral MSSM Higgs bosons decaying to  $\mu^+\mu^-$  in pp collisions at  $\sqrt{s} = 7$  and 8 TeV**, *Phys. Lett. B* 752 (2016) 221–246, doi:10.1016/j.physletb.2015.11.042, arXiv:1508.01437 [hep-ex]

V. Khachatryan et al., **Search for new phenomena in monophoton final states in proton-proton collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 755 (2016) 102–124, doi:10.1016/j.physletb.2016.01.057, arXiv:1410.8812 [hep-ex]

V. Khachatryan et al., **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. B* 758 (2016) 296–320, doi:10.1016/j.physletb.2016.05.003, arXiv:1511.03610 [hep-ex]

V. Khachatryan et al., **Search for dark matter and unparticles produced in association with a Z boson in proton-proton collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Rev. D* 93 (2016) 052011, doi:10.1103/PhysRevD.93.052011, arXiv:1511.09375 [hep-ex]

V. Khachatryan et al., **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  $W' \rightarrow tb$  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  $\sqrt{s} = 8\text{TeV}$** , *Eur. Phys. J. C* 76 (2016) 128, doi:10.1140/epjc/s10052-016-3956-5, arXiv:1509.06076 [hep-ex]

V. Khachatryan et al., **Search for pair-produced vectorlike B quarks in proton-proton collisions at  $\sqrt{s}=8$  TeV**, *Phys. Rev. D* 93 (2016) 112009, doi:10.1103/PhysRevD.93.112009, arXiv:1507.07129 [hep-ex]

V. Khachatryan et al., **Measurement of the top quark mass using proton-proton data at  $\sqrt{s} = 7$  and 8 TeV**, *Phys. Rev. D* 93 (2016) 072004, doi:10.1103/PhysRevD.93.072004, arXiv:1509.04044 [hep-ex]

V. Khachatryan et al., **Angular analysis of the decay  $B^0 \rightarrow K^{*0}\mu^+\mu^-$  from pp collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 753 (2016) 424–448, doi:10.1016/j.physletb.2015.12.020, arXiv:1507.08126 [hep-ex]

V. Khachatryan et al., **Search for a Higgs boson decaying into  $\gamma^*\gamma \rightarrow \ell\ell\gamma$  with low dilepton mass in pp collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 753 (2016) 341–362, doi:10.1016/j.physletb.2015.12.039, arXiv:1507.03031 [hep-ex]

V. Khachatryan et al., **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  $B(B_s^0 \rightarrow J/\psi f_0(980)) / B(B_s^0 \rightarrow J/\psi \phi(1020))$  in pp collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett. B* 756 (2016) 84–102, doi:10.1016/j.physletb.2016.02.047, arXiv:1501.06089 [hep-ex]

V. Khachatryan et al., **Measurement of the inclusive jet cross section in pp collisions at  $\sqrt{s} = 2.76\text{TeV}$** , *Eur. Phys. J. C* 76 (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. D* 93 (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. C* 76 (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  $B_s^0 \rightarrow J/\psi\phi(1020)$  decay channel in pp collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 757 (2016) 97–120, doi:10.1016/j.physletb.2016.03.046, arXiv:1507.07527 [hep-ex]
- V. Khachatryan et al., **Search for vector-like charge 2/3 T quarks in proton-proton collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Rev. D* 93 (2016) 012003, doi:10.1103/PhysRevD.93.012003, arXiv:1509.04177 [hep-ex]
- V. Khachatryan et al., **Inclusive and differential measurements of the  $t\bar{t}$  charge asymmetry in pp collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 757 (2016) 154–179, doi:10.1016/j.physletb.2016.03.060, arXiv:1507.03119 [hep-ex]
- V. Khachatryan et al., **Search for the associated production of a Higgs boson with a single top quark in proton-proton 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. C* 76 (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. B* 759 (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. B* 755 (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. B* 759 (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  $\sqrt{s} = 8$  TeV**, *Phys. Rev. D* 93 (2016) 032005, doi:10.1103/PhysRevD.93.032005, arXiv:1509.03750 [hep-ex]
- V. Khachatryan et al., **Measurement of differential cross sections for**

**Higgs boson production in the diphoton decay channel in pp collisions at  $\sqrt{s} = 8\text{TeV}$ ,** *Eur. Phys. J. C* 76 (2016) 13, doi:10.1140/epjc/s10052-015-3853-3, arXiv:1508.07819 [hep-ex]

V. Khachatryan et al., **Search for excited leptons in proton-proton collisions at  $\sqrt{s} = 8\text{TeV}$ ,** *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  $\sqrt{s} = 8\text{TeV}$ ,** *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  $\sqrt{s} = 8\text{TeV}$ ,** *Phys. Rev. D* 93 (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  $\sqrt{s_{NN}} = 5.02\text{TeV}$ ,** *Phys. Lett. B* 754 (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  $h \rightarrow \tau\tau$ ,** *Phys. Lett. B* 755 (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  $\sqrt{s} = 8\text{TeV}$ ,** *Phys. Lett. B* 758 (2016) 321–346, doi:10.1016/j.physletb.2016.05.005, arXiv:1511.06170 [hep-ex]

V. Khachatryan et al., **Study of B Meson Production in p + Pb Collisions at  $\sqrt{s_{NN}} = 5.02\text{TeV}$  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  $\sqrt{s} = 13\text{TeV}$ ,** *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  $\sqrt{s} = 8\text{TeV}$ ,** *Phys. Rev. D* 93 (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. B* 753 (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. B* 752 (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]

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  $\sqrt{s} = 8\text{TeV}$** , *Eur. Phys. J. C* 76 (2016) 536, doi:10.1140/epjc/s10052-016-4346-8, arXiv:1602.04384 [hep-ex]

V. Khachatryan et al., **Search for supersymmetry in electroweak production with photons and large missing transverse energy in pp collisions at  $\sqrt{s} = 8\text{ TeV}$** , *Phys. Lett. B* 759 (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  $\sqrt{s} = 8\text{ TeV}$  in final states with 0-4 leptons**, *Phys. Rev. D* 94 (2016) 112009, doi:10.1103/PhysRevD.94.112009, arXiv:1606.08076 [hep-ex]

V. Khachatryan et al., **Search for supersymmetry in the multijet and missing transverse momentum final state in pp collisions at 13 TeV**, *Phys. Lett. B* 758 (2016) 152–180, doi:10.1016/j.physletb.2016.05.002, arXiv:1602.06581 [hep-ex]

V. Khachatryan et al., **Search for 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  $t$ - $\bar{t}$  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  $\gamma\gamma \rightarrow W^+W^-$  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  $\sqrt{s} = 8\text{TeV}$** , *Eur. Phys. J. C* 76 (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  $e^\pm e^\pm + \text{jets}$  and  $e^\pm \mu^\pm + \text{jets}$  events in proton-proton collisions at  $\sqrt{s} = 8\text{ TeV}$** , *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. D* 94 (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. C* 76 (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. C* 76 (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 proton-proton collisions at  $\sqrt{s} = 8$  TeV**, *JHEP*. 11 (2016) 147, doi:10.1007/JHEP11(2016)147, arXiv:1607.06975 [hep-ex]

V. Khachatryan et al., **Search for 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. D* 94 (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. B* 763 (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. D* 94 (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. D* 94 (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. C* 76 (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. D* 93 (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. C* 76 (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. C* 76 (2016) 237,

doi:10.1140/epjc/s10052-016-4067-z, arXiv:1601.06431 [hep-ex]

V. Khachatryan et al., **Measurement of the  $Z\gamma \rightarrow \nu\bar{\nu}\gamma$  production cross section in pp collisions at  $\sqrt{s} = 8$  TeV and limits on anomalous  $ZZ\gamma$  and  $Z\gamma\gamma$  trilinear gauge boson couplings**, *Phys. Lett. B* 760 (2016) 448–468, doi:10.1016/j.physletb.2016.06.080, arXiv:1602.07152 [hep-ex]

V. Khachatryan et al., **Forward–backward asymmetry of Drell–Yan lepton pairs in pp collisions at  $\sqrt{s} = 8$  TeV**, *Eur. Phys. J. C* 76 (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. D* 93 (2016) 092009, doi:10.1103/PhysRevD.93.092009, arXiv:1602.02917 [hep-ex]

G. Aad et al., **Combined Measurement of the Higgs Boson Mass in pp Collisions at  $\sqrt{s} = 7$  and 8 TeV with the ATLAS and CMS Experiments**, *Phys. Rev. Lett.* 114 (2015) 191803, doi:10.1103/PhysRevLett.114.191803, arXiv:1503.07589 [hep-ex]

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  $\sqrt{s} = 7$  TeV**, *Eur. Phys. J. C* 74 (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. B* 745 (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. B* 743 (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. D* 91 (2015) 052012, doi:10.1103/PhysRevD.91.052012, arXiv:1411.6977 [hep-ex]

V. Khachatryan et al., **Measurements of differential and double-differential Drell-Yan cross sections in proton-proton collisions at 8 TeV**, *Eur. Phys. J. C* 75 (2015) 147, doi:10.1140/epjc/s10052-015-3364-2,

arXiv:1412.1115 [hep-ex]

V. Khachatryan et al., **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. C* 75 (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. D* 91 (2015) 012007, doi:10.1103/PhysRevD.91.012007, arXiv:1411.6530 [hep-ex]

V. Khachatryan et al., **Measurement of the  $pp \rightarrow ZZ$  production cross section and constraints on anomalous triple gauge couplings in four-lepton final states at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 740 (2015) 250–272, doi:10.1016/j.physletb.2016.04.010, arXiv:1406.0113 [hep-ex]

V. Khachatryan et al., **Measurement of the cross section ratio  $\sigma_{t\bar{t}b\bar{b}}/\sigma_{t\bar{t}jj}$  in pp collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 746 (2015) 132–153, doi:10.1016/j.physletb.2015.04.060, arXiv:1411.5621 [hep-ex]

V. Khachatryan et al., **Search for a standard model-like Higgs boson in the  $\mu^+\mu^-$  and  $e^+e^-$  decay channels at the LHC**, *Phys. Lett. B* 744 (2015) 184–207, doi:10.1016/j.physletb.2015.03.048, arXiv:1410.6679 [hep-ex]

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. B* 746 (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  $\sqrt{s} = 8$  TeV**, *Eur. Phys. J. C* 75 (2015) 66, doi:10.1140/epjc/s10052-014-3232-5, arXiv:1410.3153 [hep-ex]

V. Khachatryan et al., **Search for 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. C* 75 (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]

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  $B_c^\pm \rightarrow J/\psi\pi^\pm$  and  $B^\pm \rightarrow J/\psi K^\pm$  and  $\mathcal{B}(B_c^\pm \rightarrow J/\psi\pi^\pm\pi^\pm\pi^\mp)/\mathcal{B}(B_c^\pm \rightarrow J/\psi\pi^\pm)$  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  $\sigma(\text{Xb2(1P)}) / \sigma(\text{Xb1(1P)})$  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  $\sqrt{s} = 7\text{TeV}$** , *Eur. Phys. J. C* 75 (2015) 288, doi:10.1140/epjc/s10052-015-3499-1, arXiv:1410.6765 [hep-ex]

V. Khachatryan et al., **Search for new resonances decaying via WZ to leptons in proton-proton collisions at  $\sqrt{s} = 8\text{ TeV}$** , *Phys. Lett. B* 740 (2015) 83–104, doi:10.1016/j.physletb.2014.11.026, arXiv:1407.3476 [hep-ex]

V. Khachatryan et al., **Measurements of jet multiplicity and differential production cross sections of  $Z + \text{jets}$  events in proton-proton collisions at  $\sqrt{s} = 7\text{ TeV}$** , *Phys. Rev. D* 91 (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. D* 92 (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  $\sqrt{s} = 8\text{ TeV}$** , *JHEP.* 07 (2015) 042, doi:10.1007/JHEP07(2015)042, 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  $\sqrt{s}=8\text{ TeV}$** , *Phys. Rev. D* 92 (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  $\sqrt{s} = 8\text{ TeV}$** , *Phys. Rev. D* 92 (2015) 112001, doi:10.1103/PhysRevD.92.112001, arXiv:1507.00233 [hep-ex]

V. Khachatryan et al., **Search for heavy Majorana neutrinos in  $\mu^\pm\mu^\pm + \text{jets}$  events in proton-proton collisions at  $\sqrt{s} = 8\text{ TeV}$** , *Phys. Lett. B* 748 (2015) 144–166, doi:10.1016/j.physletb.2015.06.070, arXiv:1501.05566 [hep-ex]

V. Khachatryan et al., **Measurement of diffraction dissociation cross sections in pp collisions at  $\sqrt{s} = 7\text{ TeV}$** , *Phys. Rev. D* 92 (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  $\sqrt{s_{NN}} = 5.02\text{ TeV}$** , *Phys. Lett. B* 750 (2015) 565–586,

doi:10.1016/j.physletb.2015.09.057, arXiv:1503.05825 [nucl-ex]

V. Khachatryan et al., **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  $Z/\gamma^* + \text{jets}$  to  $\gamma + \text{jets}$  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  $\sqrt{s} = 8$  TeV**, *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. B* 748 (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. C* 75 (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. D* 92 (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. B* 749 (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 pseudo-rapidity dependent event plane fluctuations in PbPb and pPb collisions**, *Phys. Rev. C* 92 (2015) 034911, doi:10.1103/PhysRevC.92.034911, arXiv:1503.01692 [nucl-ex]

V. Khachatryan et al., **Measurement of the differential cross section for top quark pair production in pp collisions at  $\sqrt{s} = 8$  TeV**, *Eur. Phys. J. C* 75 (2015) 542, doi:10.1140/epjc/s10052-015-3709-x, arXiv:1505.04480 [hep-ex]

V. Khachatryan et al., **Angular coefficients of Z bosons produced in pp collisions at  $\sqrt{s} = 8$  TeV and decaying to  $\mu^+\mu^-$  as a function of transverse momentum and rapidity**, *Phys. Lett. B* 750 (2015) 154–175, doi:10.1016/j.physletb.2015.08.061, arXiv:1504.03512 [hep-ex]

V. Khachatryan et al., **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. C* 75 (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. D* 91 (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. B* 750

- (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. B* 749 (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. D* 91 (2015) 092012, doi:10.1103/PhysRevD.91.092012, arXiv:1502.07940 [hep-ex]
- V. Khachatryan et al., **Measurement of  $J/\psi$  and  $\psi(2S)$  Prompt Double-Differential Cross Sections in pp Collisions at  $\sqrt{s}=7$  TeV**, *Phys. Rev. Lett.* 114 (2015) 191802, doi:10.1103/PhysRevLett.114.191802, arXiv:1502.04155 [hep-ex]
- V. Khachatryan et al., **Search for resonances and quantum black holes using dijet mass spectra in proton-proton collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Rev. D* 91 (2015) 052009, doi:10.1103/PhysRevD.91.052009, arXiv:1501.04198 [hep-ex]
- V. Khachatryan et al., **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 proton-proton 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. C* 75 (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**, *Phys. Lett. B* 749 (2015) 14–34, doi:10.1016/j.physletb.2015.07.037, arXiv:1501.07750 [hep-ex]



**7 TeV**, *Eur. Phys. J. C* 75 (2015) 302, doi:10.1140/epjc/s10052-015-3491-9, arXiv:1502.04785 [hep-ex]

V. Khachatryan et al., **Search for resonant pair production of Higgs bosons decaying to two bottom quark-antiquark pairs in proton-proton collisions at 8 TeV**, *Phys. Lett. B* 749 (2015) 560–582, doi:10.1016/j.physletb.2015.08.047, arXiv:1503.04114 [hep-ex]

V. Khachatryan et al., **Search for Narrow High-Mass Resonances in Proton-Proton Collisions at  $\sqrt{s} = 8$  TeV Decaying to a Z and a Higgs Boson**, *Phys. Lett. B* 748 (2015) 255–277, doi:10.1016/j.physletb.2015.07.011, arXiv:1502.04994 [hep-ex]

S. Chatrchyan et al., **Search for baryon number violation in top-quark decays**, *Phys. Lett. B* 731 (2014) 173–196, doi:10.1016/j.physletb.2014.02.033, arXiv:1310.1618 [hep-ex]

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. B* 734 (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]

S. Chatrchyan et al., **Study of the production of charged pions, kaons, and protons in pPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, *Eur. Phys. J. C* 74 (2014) 2847, doi:10.1140/epjc/s10052-014-2847-x, arXiv:1307.3442 [hep-ex]

S. Chatrchyan et al., **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. C* 74 (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. D* 89 (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. B* 730 (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  $t\bar{t}$  production cross section in pp collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett. B* 728 (2014) 496–517, doi:10.1016/j.physletb.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 proton-proton collisions at  $\sqrt{s}=7$  TeV**, *JHEP.* 06 (2014) 009, doi:10.1007/JHEP06(2014)009, arXiv:1311.6141 [hep-ex]

S. Chatrchyan et al., **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  $pp \rightarrow W + X$  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  $t \rightarrow Zq$  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. B* 735 (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]

S. Chatrchyan et al., **Measurement of the top-quark mass in all-jets  $t\bar{t}$  events in pp collisions at  $\sqrt{s}=7$  TeV**, *Eur. Phys. J. C* 74 (2014) 2758, doi:10.1140/epjc/s10052-014-2758-x, arXiv:1307.4617 [hep-ex]

S. Chatrchyan et al., **Search for the standard model Higgs boson produced in association with a W or a Z boson and decaying to bottom quarks**, *Phys. Rev. D* 89 (2014) 012003, doi:10.1103/PhysRevD.89.012003, arXiv:1310.3687 [hep-ex]

S. Chatrchyan et al., **Search for anomalous production of events with three or more leptons in pp collisions at  $\sqrt{s}=8$  TeV**, *Phys. Rev. D* 90 (2014) 032006, doi:10.1103/PhysRevD.90.032006, arXiv:1404.5801 [hep-ex]

S. Chatrchyan et al., **Measurement of WZ and ZZ production in pp collisions at  $\sqrt{s}=8$  TeV in final states with b-tagged jets**, *Eur. Phys. J. C* 74 (2014) 2973, doi:10.1140/epjc/s10052-014-2973-5, arXiv:1403.3047 [hep-ex]

S. Chatrchyan et al., **Measurement of jet fragmentation in PbPb and pp collisions at  $\sqrt{s_{NN}} = 2.76$  TeV**, *Phys. Rev. C* 90 (2014) 024908, doi:10.1103/PhysRevC.90.024908, arXiv:1406.0932 [nucl-ex]

S. Chatrchyan et al., **Search for  $WW\gamma$  and  $WZ\gamma$  production and constraints on anomalous quartic gauge couplings in pp collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Rev. D* 90 (2014) 032008, doi:10.1103/PhysRevD.90.032008, arXiv:1404.4619 [hep-ex]

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. C* 74 (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. D* 90 (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. D* 90 (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. C* 74 (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. C* 74 (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. C* 74 (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]

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  $\psi(2S) \rightarrow J/\psi$  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  $\sqrt{s} = 8$  TeV**, *Eur. Phys. J. C* 74 (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. C* 74 (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  $t \rightarrow ch$  decay using multilepton and diphoton final states in  $pp$  collisions at 8 TeV**, *Phys. Rev. D* 90 (2014) 112013, doi:10.1103/PhysRevD.90.112013, arXiv:1410.2751 [hep-ex]

V. Khachatryan et al., **Measurement of the  $t\bar{t}$  production cross section in  $pp$  collisions at  $\sqrt{s} = 8$  TeV in dilepton final states containing one  $\tau$  lepton**, *Phys. Lett. B* 739 (2014) 23–43, doi:10.1016/j.physletb.2014.10.032, arXiv:1407.6643 [hep-ex]

V. Khachatryan et al., **Measurement of the ratio  $\mathcal{B}(t \rightarrow Wb)/\mathcal{B}(t \rightarrow Wq)$  in  $pp$  collisions at  $\sqrt{s} = 8$  TeV**, *Phys. Lett. B* 736 (2014) 33–57, doi:10.1016/j.physletb.2014.06.076, arXiv:1404.2292 [hep-ex]

V. Khachatryan et al., **Search for 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. B* 739 (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. D* 90 (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. B* 718 (2013) 1208–1228, doi:10.1016/j.physletb.2012.11.063, arXiv:1209.3807 [hep-ex]

S. Chatrchyan et al., **Search for new physics in events with photons, jets,**

**and missing transverse energy in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *JHEP*. 03 (2013) 111, doi:10.1007/JHEP03(2013)111, arXiv:1211.4784 [hep-ex]

S. Chatrchyan et al., **Measurement of the sum of  $WW$  and  $WZ$  production with  $W$ +dijet events in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *Eur. Phys. J. C* 73 (2013) 2283, doi:10.1140/epjc/s10052-013-2283-3, arXiv:1210.7544 [hep-ex]

S. Chatrchyan et al., **Measurements of differential jet cross sections in proton-proton collisions at  $\sqrt{s} = 7$  TeV with the CMS detector**, *Phys. Rev. D* 87 (2013) 112002, doi:10.1103/PhysRevD.87.112002, arXiv:1212.6660 [hep-ex]

S. Chatrchyan et al., **Search for a non-standard-model Higgs boson decaying to a pair of new light bosons in four-muon final states**, *Phys. Lett. B* 726 (2013) 564–586, doi:10.1016/j.physletb.2013.09.009, arXiv:1210.7619 [hep-ex]

S. Chatrchyan et al., **Forward-backward asymmetry of Drell-Yan lepton pairs in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett. B* 718 (2013) 752–772, doi:10.1016/j.physletb.2012.10.082, arXiv:1207.3973 [hep-ex]

S. Chatrchyan et al., **Search for a  $W'$  boson decaying to a bottom quark and a top quark in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett. B* 718 (2013) 1229–1251, doi:10.1016/j.physletb.2012.12.008, arXiv:1208.0956 [hep-ex]

S. Chatrchyan et al., **Studies of jet quenching using isolated-photon+jet correlations in PbPb and  $pp$  collisions at  $\sqrt{s_{NN}} = 2.76$  TeV**, *Phys. Lett. B* 718 (2013) 773–794, doi:10.1016/j.physletb.2012.11.003, arXiv:1205.0206 [nucl-ex]

S. Chatrchyan et al., **Search for contact interactions in  $\mu^+\mu^-$  events in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Rev. D* 87 (2013) 032001, doi:10.1103/PhysRevD.87.032001, arXiv:1212.4563 [hep-ex]

S. Chatrchyan et al., **Search for flavor changing neutral currents in top quark decays in  $pp$  collisions at 7 TeV**, *Phys. Lett. B* 718 (2013) 1252–1272, doi:10.1016/j.physletb.2012.12.045, arXiv:1208.0957 [hep-ex]

S. Chatrchyan et al., **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  $pp$  collisions 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  $2\ell 2\ell'$  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 leptons 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]

S. Chatrchyan et al., **Search for anomalous production of highly boosted  $Z$  bosons decaying to  $\mu^+\mu^-$  in proton-proton collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett.* 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. D* **87** (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  $\alpha_T$** , *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. D* **87** (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. B* **723** (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. C* **73** (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. C* **73** (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  $B^0$  to  $\mu^+ \mu^-$  with the CMS Experiment**, *Phys. Rev. Lett.* **111** (2013) 101804, doi:10.1103/PhysRevLett.111.101804, arXiv:1307.5025 [hep-ex]

S. Chatrchyan et al., **Measurement of masses in the  $t\bar{t}$  system by kine-**

**matic endpoints in pp collisions at  $\sqrt{s} = 7$  TeV**, *Eur. Phys. J. C* 73 (2013) 2494, doi:10.1140/epjc/s10052-013-2494-7, arXiv:1304.5783 [hep-ex]

S. Chatrchyan et al., **Angular analysis and branching fraction measurement of the decay  $B^0 \rightarrow K^{*0} \mu^+ \mu^-$** , *Phys. Lett. B* 727 (2013) 77–100, doi:10.1016/j.physletb.2013.10.017, arXiv:1308.3409 [hep-ex]

S. Chatrchyan et al., **Measurement of the prompt  $J/\psi$  and  $\psi(2S)$  polarizations in pp collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett. B* 727 (2013) 381–402, doi:10.1016/j.physletb.2013.10.055, arXiv:1307.6070 [hep-ex]

S. Chatrchyan et al., **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. C* 73 (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]

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. C* 73 (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. D* 87 (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. D* 87 (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. B* 727 (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. D* 87 (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. C* 73 (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  $Z\gamma \rightarrow \nu\bar{\nu}\gamma$  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. B* 724 (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  $Z + \text{jet}$  and  $\gamma + \text{jet}$  events in pp collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Rev. D* 88 (2013) 112009, doi:10.1103/PhysRevD.88.112009, arXiv:1310.3082 [hep-ex]
- S. Chatrchyan et al., **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]

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 proton-proton collisions at  $\sqrt{s}=7$  TeV**, *JHEP.* 12 (2013) 030, doi:10.1007/JHEP12(2013)030, arXiv:1310.7291 [hep-ex]

S. Chatrchyan et al., **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. B* 725 (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  $\Upsilon(1S)$ ,  $\Upsilon(2S)$ , and  $\Upsilon(3S)$  cross sections in pp collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett. B* 727 (2013) 101–125, doi:10.1016/j.physletb.2013.10.033, arXiv:1303.5900 [hep-ex]
- S. Chatrchyan et al., **Search for a standard-model-like Higgs boson with a mass in the range 145 to 1000 GeV at the LHC**, *Eur. Phys. J. C* 73 (2013) 2469, doi:10.1140/epjc/s10052-013-2469-8, arXiv:1304.0213 [hep-ex]
- S. Chatrchyan et al., **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. B* 720 (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. B* 718 (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. B* 719 (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. D* 87 (2013) 092008,

doi:10.1103/PhysRevD.87.092008, arXiv:1210.2311 [hep-ex]

S. Chatrchyan et al., **Search for narrow resonances and quantum black holes in inclusive and  $b$ -tagged dijet mass spectra from  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *JHEP*. 01 (2013) 013, doi:10.1007/JHEP01(2013)013, arXiv:1210.2387 [hep-ex]

S. Chatrchyan et al., **Exclusive photon-photon production of muon pairs in proton-proton collisions at  $\sqrt{s} = 7$  TeV**, *JHEP*. 01 (2012) 052, doi:10.1007/JHEP01(2012)052, arXiv:1111.5536 [hep-ex]

S. Chatrchyan et al., **Inclusive search for squarks and gluinos in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Rev. D* 85 (2012) 012004, doi:10.1103/PhysRevD.85.012004, arXiv:1107.1279 [hep-ex]

S. Chatrchyan et al., **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. B* 709 (2012) 28–49, doi:10.1016/j.physletb.2012.01.078, arXiv:1112.5100 [hep-ex]

S. Chatrchyan et al.,  **$J/\psi$  and  $\psi_{2S}$  production in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *JHEP*. 02 (2012) 011, doi:10.1007/JHEP02(2012)011, arXiv:1111.1557 [hep-ex]

S. Chatrchyan et al., **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. C* 72 (2012) 1839, doi:10.1140/epjc/s10052-011-1839-3, arXiv:1110.0181 [hep-ex]

S. Chatrchyan et al., **Measurement of the Rapidity and Transverse Momentum Distributions of  $Z$  Bosons in  $pp$  Collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Rev. D* 85 (2012) 032002, doi:10.1103/PhysRevD.85.032002, arXiv:1110.4973 [hep-ex]

S. Chatrchyan et al., **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. B* 717 (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. C* 72 (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. B* 717 (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. D* 86 (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]
- 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  $\ell$ -lepton pairs in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett. B* 716 (2012) 82–102, doi:10.1016/j.physletb.2012.07.062, arXiv:1206.1725 [hep-ex]
- S. Chatrchyan et al., **Search for 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  $b\bar{b}$   $X$ , 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. B* 714 (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  $pp \rightarrow W + \text{jets}$  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  $MT_2$  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. B* 711 (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.108.252002, 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]

S. Chatrchyan et al., **Ratios of dijet production cross sections as a function of the absolute difference in rapidity between jets in proton-proton collisions at  $\sqrt{s} = 7$  TeV**, *Eur. Phys. J. C* 72 (2012) 2216, doi:10.1140/epjc/s10052-012-2216-6, arXiv:1204.0696 [hep-ex]

S. Chatrchyan et al., **Study of the inclusive production of charged pions, kaons, and protons in  $pp$  collisions at  $\sqrt{s} = 0.9, 2.76$ , and 7 TeV**, *Eur.*

*Phys. J. C*72 (2012) 2164, doi:10.1140/epjc/s10052-012-2164-1, arXiv:1207.4724 [hep-ex]

S. Chatrchyan et al., **Search for 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. D*86 (2012) 072010, doi:10.1103/PhysRevD.86.072010, arXiv:1208.4859 [hep-ex]

S. Chatrchyan et al., **Search for  $B_s^0 \rightarrow \mu^+ \mu^-$  and  $B^0 \rightarrow \mu^+ \mu^-$  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  $q \bar{q}$   $\ell^+ \ell^-$  in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *JHEP*. 04 (2012) 036, doi:10.1007/JHEP04(2012)036, arXiv:1202.1416 [hep-ex]

S. Chatrchyan et al., **Search for heavy long-lived charged particles in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett. B*713 (2012) 408–433, doi:10.1016/j.physletb.2012.06.023, arXiv:1205.0272 [hep-ex]

S. Chatrchyan et al., **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. B*717 (2012) 351–370, doi:10.1016/j.physletb.2012.09.048, arXiv:1206.3921 [hep-ex]

S. Chatrchyan et al., **Search for microscopic black holes in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *JHEP*. 04 (2012) 061, doi:10.1007/JHEP04(2012)061, arXiv:1202.6396 [hep-ex]

S. Chatrchyan et al., **Measurement of the underlying event in the Drell-Yan process in proton-proton collisions at  $\sqrt{s} = 7$  TeV**, *Eur. Phys. J. C*72 (2012) 2080, doi:10.1140/epjc/s10052-012-2080-4, arXiv:1204.1411 [hep-ex]

S. Chatrchyan et al., **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. B* 710 (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. B* 710 (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. C* 72 (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. B* 718 (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. B* 713 (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. B* 710 (2012) 256–277, doi:10.1016/j.physletb.2012.02.077, arXiv:1201.3093 [nucl-ex]

S. Chatrchyan et al., **Measurement of the  $Z/\gamma^* + b$ -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. D* 85 (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. B* 718 (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. D* 86 (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. C* 72 (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. B* 710 (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. B* 714 (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. C* 72 (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. C* 72 (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. B* 718 (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. B* 703 (2011) 246–266, doi:10.1016/j.physletb.2011.07.089, arXiv:1105.5237 [hep-ex]

S. Chatrchyan et al., **Charged particle transverse momentum spectra in pp collisions at  $\sqrt{s} = 0.9$  and 7 TeV**, *JHEP*. 08 (2011) 086, doi:10.1007/JHEP08(2011)086, arXiv:1104.3547 [hep-ex]

S. Chatrchyan et al., **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. B* 701 (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]

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. D* **84** (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. D* **84** (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. B* **702** (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. D* **84** (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. D* **84** (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]

V. Khachatryan et al., **Search for a heavy gauge boson  $W'$  in the final state with an electron and large missing transverse energy in  $pp$  collisions at  $\sqrt{s} = 7$  TeV**, *Phys. Lett. B* 698 (2011) 21–39, doi:10.1016/j.physletb.2011.02.048, arXiv:1012.5945 [hep-ex]

V. Khachatryan et al., **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. B* 697 (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. C* 71 (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  $\sqrt{s} = 7$  TeV**, *Phys. Rev. D* 83 (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  $\sqrt{s} = 7$  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. B* 699 (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. B* 698 (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]
- 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]
- 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. C* 70 (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. C* 49 (2007) 523–544, doi:10.1140/epjc/s10052-006-0164-8, arXiv:hep-ex/0608014 [hep-ex]
- S. Chekanov et al., **Measurement of azimuthal asymmetries in neutral current deep inelastic scattering at HERA**, *Eur. Phys. J. C* 51 (2007) 289–299, doi:10.1140/epjc/s10052-007-0310-y, arXiv:hep-ex/0608053 [hep-ex]
- S. Chekanov et al., **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]

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  $K_0(s)$   $K_0(s)$  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/epjc/s2004-01735-3, arXiv:hep-ex/0312048 [hep-ex]
- S. Chekanov et al., **High  $Q^{*2}$  neutral current cross-sections in  $e^{+}p$  deep inelastic scattering at  $s^{*}(1/2) = 318$ -GeV**, *Phys. Rev.* 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. C* 38 (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. C* 35 (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. B* 591 (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. B* 700 (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. B* 695 (2004) 3–37, doi:10.1016/j.nuclphysb.2004.06.034, arXiv:hep-ex/0404008 [hep-ex]

S. Chekanov et al., **Search for a narrow charmed baryonic state decaying to  $D^{*+} p$  in ep collisions at HERA**, *Eur. Phys. J. C* 38 (2004) 29–41, doi:10.1140/epjc/s2004-02042-9, arXiv:hep-ex/0409033 [hep-ex]

S. Chekanov et al., **Measurement of beauty production in deep inelastic scattering at HERA**, *Phys. Lett. B* 599 (2004) 173–189, doi:10.1016/j.physletb.2004.08.048, arXiv:hep-ex/0405069 [hep-ex]

S. Chekanov et al., **Observation of isolated high  $E(T)$  photons in deep inelastic scattering**, *Phys. Lett. B* 595 (2004) 86–100, doi:10.1016/j.physletb.2004.05.033, arXiv:hep-ex/0402019 [hep-ex]

S. Chekanov et al., **Measurements of inelastic J / psi and psi-prime photoproduction at HERA**, *Eur. Phys. J. C* 27 (2003) 173–188, doi:10.1140/epjc/s2002-01130-2, arXiv:hep-ex/0211011 [hep-ex]

S. Chekanov et al., **Measurement of high  $Q^2$  e- p neutral current cross-sections at HERA and the extraction of  $x_F(3)$** , *Eur. Phys. J. C* 28 (2003) 175–201, doi:10.1140/epjc/s2003-01163-y, arXiv:hep-ex/0208040 [hep-ex]

S. Chekanov et al., **Observation of the strange sea in the proton via inclusive phi meson production in neutral current deep inelastic scattering at HERA**, *Phys. Lett. B* 553 (2003) 141–158, doi:10.1016/S0370-2693(02)03206-9, arXiv:hep-ex/0211025 [hep-ex]

S. Chekanov et al., **A ZEUS next-to-leading-order QCD analysis of data on deep inelastic scattering**, *Phys. Rev. D* 67 (2003) 012007,



doi:10.1103/PhysRevD.67.012007, arXiv:hep-ex/0208023 [hep-ex]

S. Chekanov et al., **Measurement of proton dissociative diffractive photoproduction of vector mesons at large momentum transfer at HERA**, *Eur. Phys. J. C* 26 (2003) 389–409, doi:10.1140/epjc/s2002-01079-0, arXiv:hep-ex/0205081 [hep-ex]

S. Chekanov et al., **Scaling violations and determination of  $\alpha(s)$  from jet production in gamma p interactions at HERA**, *Phys. Lett. B* 560 (2003) 7–23, doi:10.1016/S0370-2693(03)00380-0, arXiv:hep-ex/0212064 [hep-ex]

S. Chekanov et al., **Study of the azimuthal asymmetry of jets in neutral current deep inelastic scattering at HERA**, *Phys. Lett. B* 551 (2003) 226–240, doi:10.1016/S0370-2693(02)03072-1, arXiv:hep-ex/0210064 [hep-ex]

S. Chekanov et al., **Measurement of subjet multiplicities in neutral current deep inelastic scattering at HERA and determination of  $\alpha(s)$** , *Phys. Lett. B* 558 (2003) 41–58, doi:10.1016/S0370-2693(03)00216-8, arXiv:hep-ex/0212030 [hep-ex]

S. Chekanov et al., **Measurement of event shapes in deep inelastic scattering at HERA**, *Eur. Phys. J. C* 27 (2003) 531–545, doi:10.1140/epjc/s2003-01148-x, arXiv:hep-ex/0211040 [hep-ex]

S. Chekanov et al., **Leading proton production in  $e^+ p$  collisions at HERA**, *Nucl. Phys. B* 658 (2003) 3–46, doi:10.1016/S0550-3213(03)00152-4, arXiv:hep-ex/0210029 [hep-ex]

S. Chekanov et al., **A Search for resonance decays to lepton + jet at HERA and limits on leptoquarks**, *Phys. Rev. D* 68 (2003) 052004, doi:10.1103/PhysRevD.68.052004, arXiv:hep-ex/0304008 [hep-ex]

S. Chekanov et al., **Dijet angular distributions in photoproduction of charm at HERA**, *Phys. Lett. B* 565 (2003) 87–101, doi:10.1016/S0370-2693(03)00752-4, arXiv:hep-ex/0302025 [hep-ex]

S. Chekanov et al., **Measurement of the open charm contribution to the diffractive proton structure function**, *Nucl. Phys. B* 672 (2003) 3–35, doi:10.1016/j.nuclphysb.2003.09.001, arXiv:hep-ex/0307068 [hep-ex]

S. Chekanov et al., **Jet production in charged current deep inelastic  $e^+ p$  scattering at HERA**, *Eur. Phys. J. C* 31 (2003) 149–164, doi:10.1140/epjc/s2003-01358-2, arXiv:hep-ex/0306018 [hep-ex]

S. Chekanov et al., **Measurement of high  $Q^2$  charged current cross-sections in  $e^+ p$  deep inelastic scattering at HERA**, *Eur. Phys. J. C* 32 (2003) 1–16, doi:10.1140/epjc/s2003-01363-5, arXiv:hep-ex/0307043 [hep-ex]

S. Chekanov et al., **Measurement of deeply virtual Compton scattering at HERA**, *Phys. Lett. B* 573 (2003) 46–62, doi:10.1016/j.physletb.2003.08.048,

arXiv:hep-ex/0305028 [hep-ex]

S. Chekanov et al., **Search for single top production in ep collisions at HERA**, *Phys. Lett. B* 559 (2003) 153–170, doi:10.1016/S0370-2693(03)00333-2, arXiv:hep-ex/0302010 [hep-ex]

S. Chekanov et al., **Inclusive jet cross-sections in the Breit frame in neutral current deep inelastic scattering at HERA and determination of  $\alpha(s)$** , *Phys. Lett. B* 547 (2002) 164–180, doi:10.1016/S0370-2693(02)02763-6, arXiv:hep-ex/0208037 [hep-ex]

S. Chekanov et al., **Measurement of the  $Q^2$  and energy dependence of diffractive interactions at HERA**, *Eur. Phys. J. C* 25 (2002) 169–187, doi:10.1007/s10052-002-1003-1, arXiv:hep-ex/0203039 [hep-ex]

S. Chekanov et al., **Leading neutron production in  $e^+p$  collisions at HERA**, *Nucl. Phys. B* 637 (2002) 3–56, doi:10.1016/S0550-3213(02)00439-X, arXiv:hep-ex/0205076 [hep-ex]

S. Chekanov et al., **Measurement of diffractive production of  $D^{*+}$ - (2010) mesons in deep inelastic scattering at HERA**, *Phys. Lett. B* 545 (2002) 244–260, doi:10.1016/S0370-2693(02)02595-9, arXiv:hep-ex/0206020 [hep-ex]

S. Chekanov et al., **Measurement of high  $Q^2$  charged current cross-sections in  $e^-p$  deep inelastic scattering at HERA**, *Phys. Lett. B* 539 (2002) 197–217, doi:10.1016/S0370-2693(02)03097-6, arXiv:hep-ex/0205091 [hep-ex]