- A.M. Sirunyan et al., Search for standard model production of four top quarks with same-sign and multilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV, Eur. Phys. J. C78 (2018) 140, doi:10.1140/epjc/s10052-018-5607-5, arXiv:1710.10614 [hep-ex]
- A.M. Sirunyan et al., Search for dark matter in events with energetic, hadronically decaying top quarks and missing transverse momentum at $\sqrt{s} = 13$ TeV, (2018), arXiv:1801.08427 [hep-ex]
- O. Gutsche, Dark Matter and Super Symmetry: Exploring and Explaining the Universe with Simulations at the LHC, in: Proceedings, Winter Simulation Conference: Simulating Complex Service Systems (WSC 16): Washington, D.C., United States, December 11-14, 2016, 2017: pp. 4-13, doi:10.1109/WSC.2016.7822075
- A.M. Sirunyan et al., Searches for pair production of third-generation squarks in $\sqrt{s} = 13 \text{TeV}$ pp collisions, Eur. Phys. J. C77 (2017) 327, doi:10.1140/epjc/s10052-017-4853-2, arXiv:1612.03877 [hep-ex]
- A.M. Sirunyan et al., Search for new phenomena with the $M_{\rm T2}$ variable in the all-hadronic final state produced in proton–proton collisions at $\sqrt{s}=13{\rm TeV},~Eur.~Phys.~J.~C77~(2017)~710,~doi:10.1140/epjc/s10052-017-5267-x,~arXiv:1705.04650~[hep-ex]$
- A.M. Sirunyan et al., Search for new phenomena in final states with two opposite-charge, same-flavor leptons, jets, and missing transverse momentum in pp collisions at $\sqrt{s} = 13$ TeV, (2017), arXiv:1709.08908 [hep-ex]
- A.M. Sirunyan et al., Search for physics beyond the standard model in events with two leptons of same sign, missing transverse momentum, and jets in proton–proton collisions at $\sqrt{s} = 13$ TeV, Eur. Phys. J. C77 (2017) 578, doi:10.1140/epjc/s10052-017-5079-z, arXiv:1704.07323 [hep-ex]
- A.M. Sirunyan et al., Search for top squark pair production in pp collisions at $\sqrt{s} = 13$ TeV using single lepton events, *JHEP*. 10 (2017) 019, doi:10.1007/JHEP10(2017)019, arXiv:1706.04402 [hep-ex]
- A.M. Sirunyan et al., Search for electroweak production of charginos and neutralinos in WH events in proton-proton collisions at $\sqrt{s} = 13$ TeV, *JHEP*. 11 (2017) 029, doi:10.1007/JHEP11(2017)029, arXiv:1706.09933 [hep-ex]
- V. Khachatryan et al., Measurement of the W⁺W⁻ cross section in pp collisions at $\sqrt{s}=8$ TeV and limits on anomalous gauge couplings, Eur. Phys. J. C76 (2016) 401, doi:10.1140/epjc/s10052-016-4219-1, arXiv:1507.03268 [hep-ex]
- V. Khachatryan et al., Search for new physics in final states with two opposite-sign, same-flavor leptons, jets, and missing transverse momentum in pp collisions at sqrt(s) = 13 TeV, *JHEP*. 12 (2016) 013, doi:10.1007/JHEP12(2016)013, arXiv:1607.00915 [hep-ex]

- V. Khachatryan et al., Search for new physics in same-sign dilepton events in proton–proton collisions at $\sqrt{s} = 13$ TeV, Eur. Phys. J. C76 (2016) 439, doi:10.1140/epjc/s10052-016-4261-z, arXiv:1605.03171 [hep-ex]
- V. Khachatryan et al., Search for new physics with the M $_{T2}$ variable in all-jets final states produced in pp collisions at $\sqrt{s} = 13$ TeV, *JHEP*. 10 (2016) 006, doi:10.1007/JHEP10(2016)006, arXiv:1603.04053 [hep-ex]
- V. Khachatryan et al., Measurements of t t-bar spin correlations and top quark polarization using dilepton final states in pp collisions at sqrt(s) = 8 TeV, Phys. Rev. D93 (2016) 052007, doi:10.1103/PhysRevD.93.052007, arXiv:1601.01107 [hep-ex]
- V. Khachatryan et al., Measurements of $t\bar{t}$ charge asymmetry using dilepton final states in pp collisions at $\sqrt{s}=8$ TeV, Phys. Lett. B760 (2016) 365–386, doi:10.1016/j.physletb.2016.07.006, arXiv:1603.06221 [hep-ex]
- V. Khachatryan et al., Observation of the rare $B_s^0 \to \mu^+\mu^-$ decay from the combined analysis of CMS and LHCb data, *Nature*. 522 (2015) 68–72, doi:10.1038/nature14474, arXiv:1411.4413 [hep-ex]
- V. Khachatryan et al., Study of vector boson scattering and search for new physics in events with two same-sign leptons and two jets, *Phys. Rev. Lett.* 114 (2015) 051801, doi:10.1103/PhysRevLett.114.051801, arXiv:1410.6315 [hep-ex]
- V. Khachatryan et al., Search for Physics Beyond the Standard Model in Events with Two Leptons, Jets, and Missing Transverse Momentum in pp Collisions at sqrt(s) = 8 TeV, JHEP. 04 (2015) 124, doi:10.1007/JHEP04(2015)124, arXiv:1502.06031 [hep-ex]
- S. Chatrchyan et al., Search for new physics in events with same-sign dileptons and jets in pp collisions at $\sqrt{s}=8$ TeV, *JHEP*. 01 (2014) 163, doi:10.1007/JHEP01(2015)014, arXiv:1311.6736 [hep-ex]
- S. Chatrchyan et al., Measurement of Higgs boson production and properties in the WW decay channel with leptonic final states, *JHEP*. 01 (2014) 096, doi:10.1007/JHEP01(2014)096, arXiv:1312.1129 [hep-ex]
- S. Chatrchyan et al., Measurements of $t\bar{t}$ spin correlations and top-quark polarization using dilepton final states in pp collisions at $\sqrt{s}=7$ TeV, Phys.~Rev.~Lett.~112~(2014)~182001,~doi:10.1103/PhysRevLett.112.182001,~arXiv:1311.3924~[hep-ex]
- S. Chatrchyan et al., Measurements of the $t\bar{t}$ charge asymmetry using the dilepton decay channel in pp collisions at $\sqrt{s} = 7$ TeV, JHEP. 04 (2014) 191, doi:10.1007/JHEP04(2014)191, arXiv:1402.3803 [hep-ex]
- V. Khachatryan et al., Search for top-squark pairs decaying into Higgs or **Z** bosons in pp collisions at \sqrt{s} =8 TeV, *Phys. Lett.* B736 (2014) 371–397, doi:10.1016/j.physletb.2014.07.053, arXiv:1405.3886 [hep-ex]

- V. Khachatryan et al., Measurement of top quark-antiquark pair production in association with a W or Z boson in pp collisions at $\sqrt{s}=8$ TeV, Eur. Phys. J. C74 (2014) 3060, doi:10.1140/epjc/s10052-014-3060-7, arXiv:1406.7830 [hep-ex]
- V. Khachatryan et al., Searches for electroweak neutralino and chargino production in channels with Higgs, Z, and W bosons in pp collisions at 8 TeV, *Phys. Rev.* D90 (2014) 092007, doi:10.1103/PhysRevD.90.092007, arXiv:1409.3168 [hep-ex]
- V. Khachatryan et al., Searches for electroweak production of charginos, neutralinos, and sleptons decaying to leptons and W, Z, and Higgs bosons in pp collisions at 8 TeV, Eur. Phys. J. C74 (2014) 3036, doi:10.1140/epjc/s10052-014-3036-7, arXiv:1405.7570 [hep-ex]
- S. Chatrchyan et al., Search for new physics in events with same-sign dileptons and b jets in pp collisions at $\sqrt{s} = 8$ TeV, JHEP. 03 (2013) 037, doi:10.1007/JHEP03(2013)037, arXiv:1212.6194 [hep-ex]
- S. Chatrchyan et al., Search for new physics in events with opposite-sign leptons, jets, and missing transverse energy in pp collisions at $\sqrt{s} = 7$ TeV, Phys. Lett. B718 (2013) 815–840, doi:10.1016/j.physletb.2012.11.036, arXiv:1206.3949 [hep-ex]
- S. Chatrchyan et al., Measurement of W+W- and ZZ production cross sections in pp collisions at sqrt(s) = 8 TeV, Phys. Lett. B721 (2013) 190–211, doi:10.1016/j.physletb.2013.03.027, arXiv:1301.4698 [hep-ex]
- S. Chatrchyan et al., Search for top-squark pair production in the single-lepton final state in pp collisions at $\sqrt{s}=8$ TeV, Eur. Phys. J. C73 (2013) 2677, doi:10.1140/epjc/s10052-013-2677-2, arXiv:1308.1586 [hep-ex]
- S. Chatrchyan et al., Measurement of the W^+W^- Cross section in pp Collisions at $\sqrt{s}=7$ TeV and Limits on Anomalous $WW\gamma$ and WWZ couplings, $Eur.\ Phys.\ J.\ C73\ (2013)\ 2610,\ doi:10.1140/epjc/s10052-013-2610-8,\ arXiv:1306.1126\ [hep-ex]$
- S. Chatrchyan et al., Search for the standard model Higgs boson in the H to ZZ to 2 $\ell 2\nu$ channel in pp collisions at $\sqrt{s}=7$ TeV, JHEP.~03~(2012)~040,~doi:10.1007/JHEP03(2012)040,~arXiv:1202.3478~[hep-ex]
- S. Chatrchyan et al., Search for new physics with same-sign isolated dilepton events with jets and missing transverse energy, *Phys. Rev. Lett.* 109 (2012) 071803, doi:10.1103/PhysRevLett.109.071803, arXiv:1205.6615 [hep-ex]
- S. Chatrchyan et al., Search for electroweak production of charginos and neutralinos using leptonic final states in pp collisions at $\sqrt{s} = 7$ TeV, JHEP. 11 (2012) 147, doi:10.1007/JHEP11(2012)147, arXiv:1209.6620 [hep-ex]
- S. Chatrchyan et al., Search for physics beyond the standard model

- in events with a Z boson, jets, and missing transverse energy in pp collisions at $\sqrt{s}=7$ TeV, Phys. Lett. B716 (2012) 260–284, doi:10.1016/j.physletb.2012.08.026, arXiv:1204.3774 [hep-ex]
- S. Chatrchyan et al., Search for new physics in events with same-sign dileptons and b-tagged jets in pp collisions at $\sqrt{s} = 7$ TeV, JHEP. 08 (2012) 110, doi:10.1007/JHEP08(2012)110, arXiv:1205.3933 [hep-ex]
- S. Chatrchyan et al., Search for the standard model Higgs boson decaying to W^+W^- in the fully leptonic final state in pp collisions at $\sqrt{s}=7$ TeV, Phys. Lett. B710 (2012) 91–113, doi:10.1016/j.physletb.2012.02.076, arXiv:1202.1489 [hep-ex]
- S. Chatrchyan et al., **Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC**, *Phys. Lett.* B716 (2012) 30–61, doi:10.1016/j.physletb.2012.08.021, arXiv:1207.7235 [hep-ex]
- S. Chatrchyan et al., Search for heavy, top-like quark pair production in the dilepton final state in pp collisions at $\sqrt{s} = 7$ TeV, Phys. Lett. B716 (2012) 103–121, doi:10.1016/j.physletb.2012.07.059, arXiv:1203.5410 [hep-ex]
- S. Chatrchyan et al., Search for Physics Beyond the Standard Model in Opposite-Sign Dilepton Events at $\sqrt{s} = 7$ TeV, *JHEP*. 06 (2011) 026, doi:10.1007/JHEP06(2011)026, arXiv:1103.1348 [hep-ex]
- S. Chatrchyan et al., Search for Same-Sign Top-Quark Pair Production at $\sqrt{s}=7$ TeV and Limits on Flavour Changing Neutral Currents in the Top Sector, *JHEP*. 08 (2011) 005, doi:10.1007/JHEP08(2011)005, arXiv:1106.2142 [hep-ex]
- S. Chatrchyan et al., Measurement of the $t\bar{t}$ production cross section and the top quark mass in the dilepton channel in pp collisions at $\sqrt{s}=7$ TeV, JHEP.~07~(2011)~049,~doi:10.1007/JHEP07(2011)049,~arXiv:1105.5661~[hep-ex]
- S. Chatrchyan et al., Measurement of W^+W^- production and search for the Higgs boson in pp collisions at $\sqrt{s} = 7$ TeV, *Phys. Lett.* B699 (2011) 25–47, doi:10.1016/j.physletb.2011.03.056, arXiv:1102.5429 [hep-ex]
- S. Chatrchyan et al., Search for new physics with same-sign isolated dilepton events with jets and missing transverse energy at the LHC, *JHEP*. 06 (2011) 077, doi:10.1007/JHEP06(2011)077, arXiv:1104.3168 [hep-ex]
- V. Khachatryan et al., First Measurement of the Cross Section for Top-Quark Pair Production in Proton-Proton Collisions at $\sqrt{s}=7$ TeV, Phys. Lett. B695 (2011) 424–443, doi:10.1016/j.physletb.2010.11.058, arXiv:1010.5994 [hep-ex]
- S. Chekanov et al., Measurement of beauty production from dimuon events at HERA, JHEP.~02~(2009)~032, doi:10.1088/1126-6708/2009/02/032, arXiv:0811.0894 [hep-ex]

- O. Gutsche, Measurement of Beauty Quark Cross Sections in Photoproduction with the ZEUS Experiment at the Electron Proton Collider HERA, PhD thesis, Hamburg U., 2005, doi:10.3204/DESY-THESIS-2005-010
- O. Gutsche, Development of the trigger algorithm for the MONOLITH experiment, (2001), DESY report: DESY-THESIS-2001-020