As a member of the CMS Collaboration, I am an author of hundreds of peer-reviewed articles. Selected publications, reports, book chapters, and conference proceedings to which I made a substantial contribution are listed in teal.

A. PRIMARY PUBLISHED OR CREATIVE WORK

I. Original Peer-Reviewed Work or Listing of Creative Endeavors

[1] CMS Collaboration, "Measurement of the Drell-Yan cross section in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **10**, 007 (2011), doi:10.1007/JHEP10(2011)007, arXiv:1108.0566.

[2] CMS Collaboration, "Search for Supersymmetry at the LHC in Events with Jets and Missing Transverse Energy", Phys. Rev. Lett. **107**, 221804 (2011), doi:10.1103/PhysRevLett.107.221804, arXiv:1109.2352.

[3] CMS Collaboration, "Measurement of the weak mixing angle with the Drell-Yan process in proton-proton collisions at the LHC", Phys. Rev. D **84**, 112002 (2011), doi:10.1103/PhysRevD.84.112002, arXiv:1110.2682.

[4] CMS Collaboration, "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**, 271802 (2011), doi:10.1103/PhysRevLett.107.271802, arXiv:1109.4985.

[5] CMS Collaboration, "Exclusive photon-photon production of muon pairs in proton-proton collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **01**, 052 (2012), doi:10.1007/JHEP01(2012)052, arXiv:1111.5536.

[6] CMS Collaboration, "Jet Production Rates in Association with W and Z Bosons in pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **01**, 010 (2012), doi:10.1007/JHEP01(2012)010, arXiv:1110.3226.

[7] CMS Collaboration, "Measurement of the Production Cross Section for Pairs of Isolated Photons in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **01**, 133 (2012), doi:10.1007/JHEP01(2012)133, arXiv:1110.6461.

[8] CMS Collaboration, "Performance of tau-lepton reconstruction and identification in CMS", J. Instrum. **7**, P01001 (2012), doi:10.1088/1748-0221/7/01/P01001, arXiv:1109.6034.

[9] CMS Collaboration, "J/ψ and ψ_{2S} production in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **02**, 011 (2012), doi:10.1007/JHEP02(2012)011, arXiv:1111.1557.

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

[11] CMS Collaboration, "Combined results of searches for the standard model Higgs boson in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **710**, 26 (2012), doi:10.1016/j.physletb.2012.02.064, arXiv:1202.1488.

[12] CMS Collaboration, "Measurement of the charge asymmetry in top-quark pair production in proton-proton collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **709**, 28 (2012), doi:10.1016/j.physletb.2012.01.078, arXiv:1112.5100.

[13] CMS Collaboration, "Search for signatures of extra dimensions in the diphoton mass spectrum at the Large Hadron Collider", Phys. Rev. Lett. **108**, 111801 (2012), doi:10.1103/PhysRevLett.108.111801, arXiv:1112.0688.

[14] CMS Collaboration, "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. B **710**, 91 (2012), doi:10.1016/j.physletb.2012.02.076, arXiv:1202.1489.

[15] CMS Collaboration, "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", J. High Energy Phys. **03**, 081 (2012), doi:10.1007/JHEP03(2012)081, arXiv:1202.3617.

[16] CMS Collaboration, "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", J. High Energy Phys. **03**, 040 (2012), doi:10.1007/JHEP03(2012)040, arXiv:1202.3478.

[17] CMS Collaboration, "Search for the standard model Higgs boson in the decay channel $H \to ZZ \to 4\ell$ in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. Lett. **108**, 111804 (2012), doi:10.1103/PhysRevLett.108.111804, arXiv:1202.1997.

[18] CMS Collaboration, "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**, 1945 (2012), doi:10.1140/epjc/s10052-012-1945-x, arXiv:1202.2554.

[19] CMS Collaboration, "Inclusive b-jet production in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **04**, 084 (2012), doi:10.1007/JHEP04(2012)084, arXiv:1202.4617.

[20] CMS Collaboration, "Measurement of isolated photon production in pp and PbPb collisions at $\sqrt{s_{NN}} = 2.76$ TeV", Phys. Lett. B **710**, 256 (2012), doi:10.1016/j.physletb.2012.02.077, arXiv:1201.3093.

[21] CMS Collaboration, "Search for $B_s^0 \to \mu^+\mu^-$ and $B^0 \to \mu^+\mu^-$ decays", J. High Energy Phys. **04**, 033 (2012), doi:10.1007/JHEP04(2012)033, arXiv:1203.3976.

[22] CMS Collaboration, "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", J. High Energy Phys. **04**, 036 (2012), doi:10.1007/JHEP04(2012)036, arXiv:1202.1416.

[23] CMS Collaboration, "Search for microscopic black holes in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **04**, 061 (2012), doi:10.1007/JHEP04(2012)061, arXiv:1202.6396.

[24] CMS Collaboration, "Search for the standard model Higgs boson decaying into two photons in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **710**, 403 (2012), doi:10.1016/j.physletb.2012.03.003, arXiv:1202.1487.

[25] CMS Collaboration, "Search for the standard model Higgs boson decaying to bottom quarks in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **710**, 284 (2012), doi:10.1016/j.physletb.2012.02.085, arXiv:1202.4195.

[26] CMS Collaboration, "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.

[27] CMS Collaboration, "Search for heavy bottom-like quarks in 4.9 inverse femtobarns of pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **05**, 123 (2012), doi:10.1007/JHEP05(2012)123, arXiv:1204.1088.

[28] CMS Collaboration, "Search for large extra dimensions in dimuon and dielectron events in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **711**, 15 (2012), doi:10.1016/j.physletb.2012.03.029, arXiv:1202.3827.

[29] CMS Collaboration, "Search for quark compositeness in dijet angular distributions from pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **05**, 055 (2012), doi:10.1007/JHEP05(2012)055, arXiv:1202.5535.

[30] CMS Collaboration, "Suppression of non-prompt J/ψ, prompt J/ψ, and Υ(1S) in PbPb collisions at $\sqrt{s_{\rm NN}} = 2.76$ TeV", J. High Energy Phys. **05**, 063 (2012), doi:10.1007/JHEP05(2012)063, arXiv:1201.5069.

[31] CMS Collaboration, "Jet momentum dependence of jet quenching in PbPb collisions at $\sqrt{s_{\rm NN}} = 2.76$ TeV", Phys. Lett. B **712**, 176 (2012), doi:10.1016/j.physletb.2012.04.058, arXiv:1202.5022.

[32] CMS Collaboration, "Measurement of the $\mathrm{Z}/\gamma^* + \mathrm{b}$-jet cross section in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **06**, 126 (2012), doi:10.1007/JHEP06(2012)126, arXiv:1204.1643.

[33] CMS Collaboration, "Measurement of the cross section for production of $\mathrm{b\bar{b}}X$, decaying to muons in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **06**, 110 (2012), doi:10.1007/JHEP06(2012)110, arXiv:1203.3458.

[34] CMS Collaboration, "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", J. High Energy Phys. **06**, 036 (2012), doi:10.1007/JHEP06(2012)036, arXiv:1202.0704.

[35] CMS Collaboration, "Measurement of the mass difference between top and antitop quarks", J. High Energy Phys. **06**, 109 (2012), doi:10.1007/JHEP06(2012)109, arXiv:1204.2807.

[36] CMS Collaboration, "Measurement of the top quark pair production cross section in pp collisions at $\sqrt{s} = 7$ TeV in dilepton final states containing a τ", Phys. Rev. D **85**, 112007 (2012), doi:10.1103/PhysRevD.85.112007, arXiv:1203.6810.

[37] CMS Collaboration, "Observation of a new Xi(b) baryon", Phys. Rev. Lett. **108**, 252002 (2012), doi:10.1103/PhysRevLett.108.252002, arXiv:1204.5955.

[38] CMS Collaboration, "Search for anomalous production of multilepton events in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **06**, 169 (2012), doi:10.1007/JHEP06(2012)169, arXiv:1204.5341.

[39] CMS Collaboration, "Search for Dark Matter and Large Extra Dimensions in pp Collisions Yielding a Photon and Missing Transverse Energy", Phys. Rev. Lett. **108**, 261803 (2012), doi:10.1103/PhysRevLett.108.261803, arXiv:1204.0821.

[40] CMS Collaboration, "Search for neutral Higgs bosons decaying to tau pairs in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **713**, 68 (2012), doi:10.1016/j.physletb.2012.05.028, arXiv:1202.4083.

[41] CMS Collaboration, "Shape, Transverse Size, and Charged Hadron Multiplicity of Jets in pp Collisions at 7 TeV", J. High Energy Phys. **06**, 160 (2012), doi:10.1007/JHEP06(2012)160, arXiv:1204.3170.

[42] CMS Collaboration, "Azimuthal anisotropy of charged particles at high transverse momenta in PbPb collisions at $\sqrt{s_{\rm NN}} = 2.76$ TeV", Phys. Rev. Lett. **109**, 022301 (2012), doi:10.1103/PhysRevLett.109.022301, arXiv:1204.1850.

[43] CMS Collaboration, "Search for a light charged Higgs boson in top quark decays in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **07**, 143 (2012), doi:10.1007/JHEP07(2012)143, arXiv:1205.5736.

[44] CMS Collaboration, "Search for heavy long-lived charged particles in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **713**, 408 (2012), doi:10.1016/j.physletb.2012.06.023, arXiv:1205.0272.

[45] CMS Collaboration, "Measurement of the Λ_b cross section and the $\bar{\Lambda}_b$ to Λ_b ratio with $J/\Psi\Lambda$ decays in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **714**, 136 (2012), doi:10.1016/j.physletb.2012.05.063, arXiv:1205.0594.

[46] CMS Collaboration, "Measurement of the Underlying Event Activity in pp Collisions at $\sqrt{s} = 0.9$ and 7 TeV with the Novel Jet-Area/Median Approach", J. High Energy Phys. **08**, 130 (2012), doi:10.1007/JHEP08(2012)130, arXiv:1207.2392.

[47] CMS Collaboration, "Search for leptonic decays of W′ bosons in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **08**, 023 (2012), doi:10.1007/JHEP08(2012)023, arXiv:1204.4764.

[48] CMS Collaboration, "Search for Narrow Resonances in Dilepton Mass Spectra in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **714**, 158 (2012), doi:10.1016/j.physletb.2012.06.051, arXiv:1206.1849.

[49] CMS Collaboration, "Search for new physics in events with same-sign dileptons and b-tagged jets in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **08**, 110 (2012), doi:10.1007/JHEP08(2012)110, arXiv:1205.3933.

[50] CMS Collaboration, "Search for new physics with same-sign isolated dilepton events with jets and missing transverse energy", Phys. Rev. Lett. **109**, 071803 (2012), doi:10.1103/PhysRevLett.109.071803, arXiv:1205.6615.

[51] CMS Collaboration, "Search for Stopped Long-Lived Particles Produced in pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **08**, 026 (2012), doi:10.1007/JHEP08(2012)026, arXiv:1207.0106.

[52] CMS Collaboration, "Study of W′ boson production in PbPb and pp collisions at $\sqrt{s_{\rm NN}} = 2.76$ TeV", Phys. Lett. B **715**, 66 (2012), doi:10.1016/j.physletb.2012.07.025, arXiv:1205.6334.

[53] CMS Collaboration, "Measurement of the Electron Charge Asymmetry in Inclusive W Production in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. Lett. **109**, 111806 (2012), doi:10.1103/PhysRevLett.109.111806, arXiv:1206.2598.

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

[55] CMS Collaboration, "Observation of a New Boson at a Mass of 125 GeV with the CMS Experiment at the LHC", Phys. Lett. B **716**, 30 (2012), doi:10.1016/j.physletb.2012.08.021, arXiv:1207.7235.

[56] CMS Collaboration, "Search for a Fermiophobic Higgs Boson in pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **09**, 111 (2012), doi:10.1007/JHEP09(2012)111, arXiv:1207.1130.

[57] CMS Collaboration, "Search for a Light Pseudoscalar Higgs Boson in the Dimuon Decay Channel in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. Lett. **109**, 121801 (2012), doi:10.1103/PhysRevLett.109.121801, arXiv:1206.6326.

[58] CMS Collaboration, "Search for Anomalous $\mathrm{t\bar{t}}$ Production in the Highly-Boosted All-Hadronic Final State", J. High Energy Phys. **09**, 029 (2012), doi:10.1007/JHEP09(2012)029, arXiv:1204.2488, [Erratum: J. High Energy Phys. 03, 132 (2014)].

[59] CMS Collaboration, "Search for Dark Matter and Large Extra Dimensions in Monojet Events in pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **09**, 094 (2012), doi:10.1007/JHEP09(2012)094, arXiv:1206.5663.

[60] CMS Collaboration, "Search for heavy, top-like quark pair production in the dilepton final state in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **716**, 103 (2012), doi:10.1016/j.physletb.2012.07.059, arXiv:1203.5410.

[61] CMS Collaboration, "Search for High-Mass Resonances Decaying into τ-Lepton Pairs in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **716**, 82 (2012), doi:10.1016/j.physletb.2012.07.062, arXiv:1206.1725.

[62] CMS Collaboration, "Search for Pair Production of First- and Second-Generation Scalar Leptoquarks in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. D **86**, 052013 (2012), doi:10.1103/PhysRevD.86.052013, arXiv:1207.5406.

[63] CMS Collaboration, "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. B **716**, 260 (2012), doi:10.1016/j.physletb.2012.08.026, arXiv:1204.3774.

[64] CMS Collaboration, "Inclusive and Differential Measurements of the $t\bar{t}$ Charge Asymmetry in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **717**, 129 (2012), doi:10.1016/j.physletb.2012.09.028, arXiv:1207.0065.

[65] CMS Collaboration, "Measurement of jet fragmentation into charged particles in pp and PbPb collisions at $\sqrt{s_{NN}} = 2.76$ TeV", J. High Energy Phys. **10**, 087 (2012), doi:10.1007/JHEP10(2012)087, arXiv:1205.5872.

[66] CMS Collaboration, "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**, 152303 (2012), doi:10.1103/PhysRevLett.109.152303, arXiv:1205.2488.

[67] CMS Collaboration, "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**, 2202 (2012), doi:10.1140/epjc/s10052-012-2202-z, arXiv:1209.2393.

[68] CMS Collaboration, "Performance of CMS Muon Reconstruction in pp Collision Events at $\sqrt{s} = 7$ TeV", J. Instrum. **7**, P10002 (2012), doi:10.1088/1748-0221/7/10/P10002, arXiv:1206.4071.

[69] CMS Collaboration, "Search for a W$'$ or Techni-ρ Decaying into WZ in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. Lett. **109**, 141801 (2012), doi:10.1103/PhysRevLett.109.141801, arXiv:1206.0433.

[70] CMS Collaboration, "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**, 351 (2012), doi:10.1016/j.physletb.2012.09.048, arXiv:1206.3921.

[71] CMS Collaboration, "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**, 109 (2012), doi:10.1016/j.physletb.2012.09.012, arXiv:1207.6079.

[72] CMS Collaboration, "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**, 171803 (2012), doi:10.1103/PhysRevLett.109.171803, arXiv:1207.1898.

[73] CMS Collaboration, "Search for Supersymmetry in Events with b-Quark Jets and Missing Transverse Energy in pp Collisions at 7 TeV", Phys. Rev. D **86**, 072010 (2012), doi:10.1103/PhysRevD.86.072010, arXiv:1208.4859.

[74] CMS Collaboration, "Search for Supersymmetry in Hadronic Final States using MT2 in pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **10**, 018 (2012), doi:10.1007/JHEP10(2012)018, arXiv:1207.1798.

[75] CMS Collaboration, "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**, 2164 (2012), doi:10.1140/epjc/s10052-012-2164-1, arXiv:1207.4724.

[76] CMS Collaboration, "A Search for a Doubly-Charged Higgs Boson in pp Collisions at $\sqrt{s} = 7$ TeV", Eur. Phys. J. C **72**, 2189 (2012), doi:10.1140/epjc/s10052-012-2189-5, arXiv:1207.2666.

[77] CMS Collaboration, "Measurement of the $\mathrm{t\bar{t}}$ Production Cross Section in the Dilepton Channel in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **11**, 067 (2012), doi:10.1007/JHEP11(2012)067, arXiv:1208.2671.

[78] CMS Collaboration, "Observation of Sequential Upsilon Suppression in PbPb Collisions", Phys. Rev. Lett. **109**, 222301 (2012), doi:10.1103/PhysRevLett.109.222301, arXiv:1208.2826, [Erratum: Phys. Rev. Lett. 120, 199903 (2018)].

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

[80] CMS Collaboration, "Search for electroweak production of charginos and neutralinos using leptonic final states in pp collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **11**, 147 (2012), doi:10.1007/JHEP11(2012)147, arXiv:1209.6620.

[81] CMS Collaboration, "Search for Exclusive or Semi-Exclusive Photon Pair Production and Observation of Exclusive and Semi-Exclusive Electron Pair Production in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **11**, 080 (2012), doi:10.1007/JHEP11(2012)080, arXiv:1209.1666.

[82] CMS Collaboration, "Search for New Physics with Long-Lived Particles Decaying to Photons and Missing Energy in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **11**, 172 (2012), doi:10.1007/JHEP11(2012)172, arXiv:1207.0627.

[83] CMS Collaboration, "Search for the Standard Model Higgs Boson Produced in Association with W and Z Bosons in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **11**, 088 (2012), doi:10.1007/JHEP11(2012)088, arXiv:1209.3937.

[84] CMS Collaboration, "A New Boson with a Mass of 125 GeV Observed with the CMS Experiment at the Large Hadron Collider", Science **338**, 1569 (2012), doi:10.1126/science.1230816.

[85] CMS Collaboration, "Combined Search for the Quarks of a Sequential Fourth Generation", Phys. Rev. D **86**, 112003 (2012), doi:10.1103/PhysRevD.86.112003, arXiv:1209.1062.

[86] CMS Collaboration, "Measurement of the Relative Prompt Production Rate of χ_{c2} and χ_{c1} in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Eur. Phys. J. C **72**, 2251 (2012), doi:10.1140/epjc/s10052-012-2251-3, arXiv:1210.0875.

[87] CMS Collaboration, "Measurement of the Single-Top-Quark t-Channel Cross Section in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **12**, 035 (2012), doi:10.1007/JHEP12(2012)035, arXiv:1209.4533.

[88] CMS Collaboration, "Measurement of the Top-Quark Mass in $\mathrm{t\bar{t}}$ Events with Lepton+Jets Final States in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **12**, 105 (2012), doi:10.1007/JHEP12(2012)105, arXiv:1209.2319.

[89] CMS Collaboration, "Observation of Z Decays to Four Leptons with the CMS Detector at the LHC", J. High Energy Phys. **12**, 034 (2012), doi:10.1007/JHEP12(2012)034, arXiv:1210.3844.

[90] CMS Collaboration, "Search for Heavy Lepton Partners of Neutrinos in Proton-Proton Collisions in the Context of the Type III Seesaw Mechanism", Phys. Lett. B **718**, 348 (2012), doi:10.1016/j.physletb.2012.10.070, arXiv:1210.1797.

[91] CMS Collaboration, "Search for Heavy Neutrinos and W_R Bosons with Right-Handed Couplings in a Left-Right Symmetric Model in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Rev. Lett. **109**, 261802 (2012), doi:10.1103/PhysRevLett.109.261802, arXiv:1210.2402.

[92] CMS Collaboration, "Search for Pair Produced Fourth-Generation Up-Type Quarks in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$ with a Lepton in the Final State", Phys. Lett. B **718**, 307 (2012), doi:10.1016/j.physletb.2012.10.038, arXiv:1209.0471.

[93] CMS Collaboration, "Search for Resonant $t\bar{t}$ Production in Lepton+Jets Events in pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **12**, 015 (2012), doi:10.1007/JHEP12(2012)015, arXiv:1209.4397.

[94] CMS Collaboration, "Search for Third-Generation Leptoquarks and Scalar Bottom Quarks in pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **12**, 055 (2012), doi:10.1007/JHEP12(2012)055, arXiv:1210.5627.

[95] CMS Collaboration, "Search for Three-Jet Resonances in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **718**, 329 (2012), doi:10.1016/j.physletb.2012.10.048, arXiv:1208.2931.

[96] CMS Collaboration, "Study of the Dijet Mass Spectrum in $pp \to W+$ Jets Events at $\sqrt{s} = 7$ TeV", Phys. Rev. Lett. **109**, 251801 (2012), doi:10.1103/PhysRevLett.109.251801, arXiv:1208.3477.

[97] CMS Collaboration, "Evidence for Associated Production of a Single Top Quark and W Boson in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. Lett. **110**, 022003 (2013), doi:10.1103/PhysRevLett.110.022003, arXiv:1209.3489.

[98] CMS Collaboration, "Forward-Backward Asymmetry of Drell-Yan Lepton Pairs in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **718**, 752 (2013), doi:10.1016/j.physletb.2012.10.082, arXiv:1207.3973.

[99] CMS Collaboration, "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", J. High Energy Phys. **01**, 063 (2013), doi:10.1007/JHEP01(2013)063, arXiv:1211.4890.

[100] CMS Collaboration, "Measurement of the Azimuthal Anisotropy of Neutral Pions in PbPb cCllisions at $\sqrt{s_{_{\rm NN}}} = 2.76$ TeV", Phys. Rev. Lett. **110**, 042301 (2013), doi:10.1103/PhysRevLett.110.042301, arXiv:1208.2470.

[101] CMS Collaboration, "Measurement of the elliptic anisotropy of charged particles produced in PbPb collisions at $\sqrt{s}_{NN}$=2.76 TeV", Phys. Rev. C **87**, 014902 (2013), doi:10.1103/PhysRevC.87.014902, arXiv:1204.1409.

[102] CMS Collaboration, "Observation of a Diffractive Contribution to Dijet Production in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. D **87**, 012006 (2013), doi:10.1103/PhysRevD.87.012006, arXiv:1209.1805.

[103] CMS Collaboration, "Observation of Long-Range Near-Side Angular Correlations in Proton-Lead Collisions at the LHC", Phys. Lett. B **718**, 795 (2013), doi:10.1016/j.physletb.2012.11.025, arXiv:1210.5482.

[104] CMS Collaboration, "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**, 1229 (2013), doi:10.1016/j.physletb.2012.12.008, arXiv:1208.0956.

[105] CMS Collaboration, "Search for a narrow spin-2 resonance decaying to a pair of Z vector bosons in the semileptonic final state", Phys. Lett. B **718**, 1208 (2013), doi:10.1016/j.physletb.2012.11.063, arXiv:1209.3807.

[106] CMS Collaboration, "Search for Flavor Changing Neutral Currents in Top Quark Decays in pp Collisions at 7 TeV", Phys. Lett. B **718**, 1252 (2013), doi:10.1016/j.physletb.2012.12.045, arXiv:1208.0957.

[107] CMS Collaboration, "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", J. High Energy Phys. **01**, 154 (2013), doi:10.1007/JHEP01(2013)154, arXiv:1210.7471.

[108] CMS Collaboration, "Search for Narrow Resonances and Quantum Black Holes in Inclusive and b-Tagged Dijet Mass Spectra from pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **01**, 013 (2013), doi:10.1007/JHEP01(2013)013, arXiv:1210.2387.

[109] CMS Collaboration, "Search for New Physics in Events with Opposite-Sign Leptons, Jets, and Missing Transverse Energy in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Lett. B **718**, 815 (2013), doi:10.1016/j.physletb.2012.11.036, arXiv:1206.3949.

[110] CMS Collaboration, "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 α_T", J. High Energy Phys. **01**, 077 (2013), doi:10.1007/JHEP01(2013)077, arXiv:1210.8115.

[111] CMS Collaboration, "Studies of jet quenching using isolated-photon+jet correlations in PbPb and pp collisions at $\sqrt{s_{\text{NN}}} = 2.76\,\text{TeV}$", Phys. Lett. B **718**, 773 (2013), doi:10.1016/j.physletb.2012.11.003, arXiv:1205.0206.

[112] CMS Collaboration, "Measurement of the $\Upsilon(1S)$, $\Upsilon(2S)$ and $\Upsilon(3S)$ Polarizations in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Rev. Lett. **110**, 081802 (2013), doi:10.1103/PhysRevLett.110.081802, arXiv:1209.2922.

[113] CMS Collaboration, "Measurement of the Sum of WW and WZ Production with W+Dijet Events in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Eur. Phys. J. C **73**, 2283 (2013), doi:10.1140/epjc/s10052-013-2283-3, arXiv:1210.7544.

[114] CMS Collaboration, "Search for Contact Interactions in $\mu^+\mu^-$ Events in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Rev. D **87**, 032001 (2013), doi:10.1103/PhysRevD.87.032001, arXiv:1212.4563.

[115] CMS Collaboration, "Search for Exotic Resonances Decaying into WZ/ZZ in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **02**, 036 (2013), doi:10.1007/JHEP02(2013)036, arXiv:1211.5779.

[116] CMS Collaboration, "Search for Pair Production of Third-Generation Leptoquarks and Top Squarks in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Rev. Lett. **110**, 081801 (2013), doi:10.1103/PhysRevLett.110.081801, arXiv:1210.5629.

[117] CMS Collaboration, "Search for Supersymmetry in Events with Photons and Low Missing Transverse Energy in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Lett. B **719**, 42 (2013), doi:10.1016/j.physletb.2012.12.055, arXiv:1210.2052.

[118] CMS Collaboration, "Search in Leptonic Channels for Heavy Resonances Decaying to Long-Lived Neutral Particles", J. High Energy Phys. **02**, 085 (2013), doi:10.1007/JHEP02(2013)085, arXiv:1211.2472.

[119] CMS Collaboration, "Study of the Mass and Spin-Parity of the Higgs Boson Candidate Via Its Decays to Z Boson Pairs", Phys. Rev. Lett. **110**, 081803 (2013), doi:10.1103/PhysRevLett.110.081803, arXiv:1212.6639.

[120] CMS Collaboration, "Measurement of Differential Top-Quark Pair Production Cross Sections in pp collisions at $\sqrt{s} = 7\,\text{TeV}$", Eur. Phys. J. C **73**, 2339 (2013), doi:10.1140/epjc/s10052-013-2339-4, arXiv:1211.2220.

[121] CMS Collaboration, "Measurement of the $\text{t}\bar{\text{t}}$ Production Cross Section in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$ with Lepton + Jets Final States", Phys. Lett. B **720**, 83 (2013), doi:10.1016/j.physletb.2013.02.021, arXiv:1212.6682.

[122] CMS Collaboration, "Search for Contact Interactions Using the Inclusive Jet p_{T} Spectrum in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Rev. D **87**, 052017 (2013), doi:10.1103/PhysRevD.87.052017, arXiv:1301.5023.

[123] CMS Collaboration, "Search for excited leptons in pp collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Lett. B **720**, 309 (2013), doi:10.1016/j.physletb.2013.02.031, arXiv:1210.2422.

[124] CMS Collaboration, "Search for Heavy Narrow Dilepton Resonances in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$ and $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **720**, 63 (2013), doi:10.1016/j.physletb.2013.02.003, arXiv:1212.6175.

[125] CMS Collaboration, "Search for New Physics in Events with Photons, Jets, and Missing Transverse Energy in pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **03**, 111 (2013), doi:10.1007/JHEP03(2013)111, arXiv:1211.4784.

[126] CMS Collaboration, "Search for New Physics in Events with Same-Sign Dileptons and b Jets in pp Collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **03**, 037 (2013), doi:10.1007/JHEP03(2013)037, arXiv:1212.6194, [Erratum: J. High Energy Phys. 07, 041 (2013)].

[127] CMS Collaboration, "Search for Supersymmetry in Final States with a Single Lepton, b-Quark Jets, and Missing Transverse Energy in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. D **87**, 052006 (2013), doi:10.1103/PhysRevD.87.052006, arXiv:1211.3143.

[128] CMS Collaboration, "Identification of b-Quark Jets with the CMS Experiment", J. Instrum. **8**, P04013 (2013), doi:10.1088/1748-0221/8/04/P04013, arXiv:1211.4462.

[129] CMS Collaboration, "Measurement of W^+W^- and ZZ Production Cross Sections in pp Collisions at $\sqrt{s} = 8TeV$", Phys. Lett. B **721**, 190 (2013), doi:10.1016/j.physletb.2013.03.027, arXiv:1301.4698.

[130] CMS Collaboration, "Measurement of associated production of vector bosons and top quark-antiquark pairs at sqrt(s) = 7 TeV", Phys. Rev. Lett. **110**, 172002 (2013), doi:10.1103/PhysRevLett.110.172002, arXiv:1303.3239.

[131] CMS Collaboration, "Measurement of the $t\bar{t}$ Production Cross Section in the τ +Jets Channel in pp Collisions at $\sqrt{s} = 7$ TeV", Eur. Phys. J. C **73**, 2386 (2013), doi:10.1140/epjc/s10052-013-2386-x, arXiv:1301.5755.

[132] CMS Collaboration, "Measurement of the $X(3872)$ Production Cross Section Via Decays to $J/\psi\pi^+\pi^-$ in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **04**, 154 (2013), doi:10.1007/JHEP04(2013)154, arXiv:1302.3968.

[133] CMS Collaboration, "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**, 072002 (2013), doi:10.1103/PhysRevD.87.072002, arXiv:1211.3338.

[134] CMS Collaboration, "Search for New Physics in Final States with a Lepton and Missing Transverse Energy in pp Collisions at the LHC", Phys. Rev. D **87**, 072005 (2013), doi:10.1103/PhysRevD.87.072005, arXiv:1302.2812.

[135] CMS Collaboration, "Search for Pair-Produced Dijet Resonances in Four-Jet Final States in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. Lett. **110**, 141802 (2013), doi:10.1103/PhysRevLett.110.141802, arXiv:1302.0531.

[136] CMS Collaboration, "Search for Supersymmetry in Events with Opposite-Sign Dileptons and Missing Transverse Energy Using an Artificial Neural Network", Phys. Rev. D **87**, 072001 (2013), doi:10.1103/PhysRevD.87.072001, arXiv:1301.0916.

[137] CMS Collaboration, "Study of the Underlying Event at Forward Rapidity in pp Collisions at $\sqrt{s} =$ 0.9, 2.76, and 7 TeV", J. High Energy Phys. **04**, 072 (2013), doi:10.1007/JHEP04(2013)072, arXiv:1302.2394.

[138] CMS Collaboration, "Event Shapes and Azimuthal Correlations in Z + Jets Events in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **722**, 238 (2013), doi:10.1016/j.physletb.2013.04.025, arXiv:1301.1646.

[139] CMS Collaboration, "Measurement of the $t\bar{t}$ Production Cross Section in the All-Jet Final State in pp Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **05**, 065 (2013), doi:10.1007/JHEP05(2013)065, arXiv:1302.0508.

[140] CMS Collaboration, "Measurement of the Inelastic Proton-Proton Cross Section at $\sqrt{s} = 7$ TeV", Phys. Lett. B **722**, 5 (2013), doi:10.1016/j.physletb.2013.03.024, arXiv:1210.6718.

[141] CMS Collaboration, "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. B **722**, 207 (2013), doi:10.1016/j.physletb.2013.04.017, arXiv:1302.2892.

[142] CMS Collaboration, "Search for Anomalous Production of Highly Boosted Z Bosons Decaying to $\mu^+\mu^-$ in Proton-Proton Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Lett. B **722**, 28 (2013), doi:10.1016/j.physletb.2013.03.037, arXiv:1210.0867.

[143] CMS Collaboration, "Search for Fractionally Charged Particles in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Rev. D **87**, 092008 (2013), doi:10.1103/PhysRevD.87.092008, arXiv:1210.2311.

[144] CMS Collaboration, "Search for Long-Lived Particles Decaying to Photons and Missing Energy in Proton-Proton Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Lett. B **722**, 273 (2013), doi:10.1016/j.physletb.2013.04.027, arXiv:1212.1838.

[145] CMS Collaboration, "Search for Supersymmetry in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$ in Events with a Single Lepton, Jets, and Missing Transverse Momentum", Eur. Phys. J. C **73**, 2404 (2013), doi:10.1140/epjc/s10052-013-2404-z, arXiv:1212.6428.

[146] CMS Collaboration, "Search for the Standard Model Higgs Boson Produced in Association with a Top-Quark Pair in pp Collisions at the LHC", J. High Energy Phys. **05**, 145 (2013), doi:10.1007/JHEP05(2013)145, arXiv:1303.0763.

[147] CMS Collaboration, "Studies of Jet Mass in Dijet and W/Z + Jet Events", J. High Energy Phys. **05**, 090 (2013), doi:10.1007/JHEP05(2013)090, arXiv:1303.4811.

[148] CMS Collaboration, "Measurements of Differential Jet Cross Sections in Proton-Proton Collisions at $\sqrt{s} = 7\,\text{TeV}$ with the CMS Detector", Phys. Rev. D **87**, 112002 (2013), doi:10.1103/PhysRevD.87.112002, arXiv:1212.6660, [Erratum: Phys. Rev. D 87, 119902 (2013)].

[149] CMS Collaboration, "Observation of a New Boson with Mass Near 125 GeV in pp Collisions at $\sqrt{s}$ = 7 and 8 TeV", J. High Energy Phys. **06**, 081 (2013), doi:10.1007/JHEP06(2013)081, arXiv:1303.4571.

[150] CMS Collaboration, "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**, 2469 (2013), doi:10.1140/epjc/s10052-013-2469-8, arXiv:1304.0213.

[151] CMS Collaboration, "Search for Heavy Resonances in the W/Z-Tagged Dijet Mass Spectrum in pp Collisions at 7 TeV", Phys. Lett. B **723**, 280 (2013), doi:10.1016/j.physletb.2013.05.040, arXiv:1212.1910.

[152] CMS Collaboration, "Search for Narrow Resonances Using the Dijet Mass Spectrum in pp Collisions at $\sqrt{s}$=8 TeV", Phys. Rev. D **87**, 114015 (2013), doi:10.1103/PhysRevD.87.114015, arXiv:1302.4794.

[153] CMS Collaboration, "Measurement of Masses in the $t\bar{t}$ System by Kinematic Endpoints in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Eur. Phys. J. C **73**, 2494 (2013), doi:10.1140/epjc/s10052-013-2494-7, arXiv:1304.5783.

[154] CMS Collaboration, "Measurement of the Λ_b^0 Lifetime in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **07**, 163 (2013), doi:10.1007/JHEP07(2013)163, arXiv:1304.7495.

[155] CMS Collaboration, "Multiplicity and Transverse Momentum Dependence of Two- and Four-Particle Correlations in pPb and PbPb Collisions", Phys. Lett. B **724**, 213 (2013), doi:10.1016/j.physletb.2013.06.028, arXiv:1305.0609.

[156] CMS Collaboration, "Search for Microscopic Black Holes in pp Collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **07**, 178 (2013), doi:10.1007/JHEP07(2013)178, arXiv:1303.5338.

[157] CMS Collaboration, "Search for Physics Beyond the Standard Model in Events with τ Leptons, Jets, and Large Transverse Momentum Imbalance in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Eur. Phys. J. C **73**, 2493 (2013), doi:10.1140/epjc/s10052-013-2493-8, arXiv:1301.3792.

[158] CMS Collaboration, "Searches for Long-Lived Charged Particles in pp Collisions at $\sqrt{s}$=7 and 8 TeV", J. High Energy Phys. **07**, 122 (2013), doi:10.1007/JHEP07(2013)122, arXiv:1305.0491.

[159] CMS Collaboration, "Study of Exclusive Two-Photon Production of W^+W^- in pp Collisions at $\sqrt{s} = 7$ TeV and Constraints on Anomalous Quartic Gauge Couplings", J. High Energy Phys. **07**, 116 (2013), doi:10.1007/JHEP07(2013)116, arXiv:1305.5596.

[160] CMS Collaboration, "Inclusive Search for Supersymmetry Using the Razor Variables in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. Lett. **111**, 081802 (2013), doi:10.1103/PhysRevLett.111.081802, arXiv:1212.6961.

[161] CMS Collaboration, "Searches for Higgs Bosons in pp Collisions at $\sqrt{s} = 7$ and 8 TeV in the Context of Four-Generation and Fermiophobic Models", Phys. Lett. B **725**, 36 (2013), doi:10.1016/j.physletb.2013.06.043, arXiv:1302.1764.

[162] CMS Collaboration, "Energy Calibration and Resolution of the CMS Electromagnetic Calorimeter in pp Collisions at $\sqrt{s} = 7$ TeV", J. Instrum. **8**, 9009 (2013), doi:10.1088/1748-0221/8/09/P09009, arXiv:1306.2016.

[163] CMS Collaboration, "Interpretation of Searches for Supersymmetry with Simplified Models", Phys. Rev. D **88**, 052017 (2013), doi:10.1103/PhysRevD.88.052017, arXiv:1301.2175.

[164] CMS Collaboration, "Measurement of Neutral Strange Particle Production in the Underlying Event in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. D **88**, 052001 (2013), doi:10.1103/PhysRevD.88.052001, arXiv:1305.6016.

[165] CMS Collaboration, "Measurement of the $B_s^0 \to \mu^+\mu^-$ Branching Fraction and Search for $B^0 \to \mu^+\mu^-$ with the CMS Experiment", Phys. Rev. Lett. **111**, 101804 (2013), doi:10.1103/PhysRevLett.111.101804, arXiv:1307.5025.

[166] CMS Collaboration, "Search for Supersymmetry in Hadronic Final States with Missing Transverse Energy Using the Variables α_T and b-Quark Multiplicity in pp collisions at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **73**, 2568 (2013), doi:10.1140/epjc/s10052-013-2568-6, arXiv:1303.2985.

[167] CMS Collaboration, "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. C **73**, 2610 (2013), doi:10.1140/epjc/s10052-013-2610-8, arXiv:1306.1126.

[168] CMS Collaboration, "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", J. High Energy Phys. **10**, 062 (2013), doi:10.1007/JHEP10(2013)062, arXiv:1305.7389.

[169] CMS Collaboration, "Measurement of the Production Cross Section for $Z\gamma \to \nu\bar{\nu}\gamma$ in pp Collisions at $\sqrt{s} = 7$ TeV and Limits on $ZZ\gamma$ and $Z\gamma\gamma$ Triple Gauge Boson Couplings", J. High Energy Phys. **10**, 164 (2013), doi:10.1007/JHEP10(2013)164, arXiv:1309.1117.

[170] CMS Collaboration, "Measurement of the Ratio of the Inclusive 3-Jet Cross Section to the Inclusive 2-Jet Cross Section in pp Collisions at $\sqrt{s} = 7$ TeV and First Determination of the Strong Coupling Constant in the TeV Range", Eur. Phys. J. C **73**, 2604 (2013), doi:10.1140/epjc/s10052-013-2604-6, arXiv:1304.7498.

[171] CMS Collaboration, "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", J. High Energy Phys. **10**, 167 (2013), doi:10.1007/JHEP10(2013)167, arXiv:1308.3879.

[172] CMS Collaboration, "Search for Gluino Mediated Bottom- and Top-Squark Production in Multijet Final States in pp Collisions at 8 TeV", Phys. Lett. B **725**, 243 (2013), doi:10.1016/j.physletb.2013.06.058, arXiv:1305.2390.

[173] CMS Collaboration, "Angular Analysis and Branching Fraction Measurement of the Decay $B^0 \to K^{*0}\mu^+\mu^-$", Phys. Lett. B **727**, 77 (2013), doi:10.1016/j.physletb.2013.10.017, arXiv:1308.3409.

[174] CMS Collaboration, "Measurement of the $\Upsilon(1S)$, $\Upsilon(2S)$, and $\Upsilon(3S)$ Cross Sections in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **727**, 101 (2013), doi:10.1016/j.physletb.2013.10.033, arXiv:1303.5900.

[175] CMS Collaboration, "Search for a Higgs Boson Decaying into a Z and a Photon in pp Collisions at $\sqrt{s}$ = 7 and 8 TeV", Phys. Lett. B **726**, 587 (2013), doi:10.1016/j.physletb.2013.09.057, arXiv:1307.5515.

[176] CMS Collaboration, "Search for a New Bottomonium State Decaying to $\Upsilon(1S)\pi^+\pi^-$ in pp Collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **727**, 57 (2013), doi:10.1016/j.physletb.2013.10.016, arXiv:1309.0250.

[177] CMS Collaboration, "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**, 564 (2013), doi:10.1016/j.physletb.2013.09.009, arXiv:1210.7619.

[178] CMS Collaboration, "Search for Top Squarks in R-Parity-Violating Supersymmetry using Three or More Leptons and B-Tagged Jets", Phys. Rev. Lett. **111**, 221801 (2013), doi:10.1103/PhysRevLett.111.221801, arXiv:1306.6643.

[179] CMS Collaboration, "Searches for New Physics using the $\mathrm{t\bar{t}}$ Invariant Mass Distribution in pp Collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. Lett. **111**, 211804 (2013), doi:10.1103/PhysRevLett.111.211804, arXiv:1309.2030, [Erratum: Phys. Rev. Lett. 112, 119903 (2014)].

[180] CMS Collaboration, "The Performance of the CMS Muon Detector in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV at the LHC", J. Instrum. **8**, P11002 (2013), doi:10.1088/1748-0221/8/11/P11002, arXiv:1306.6905.

[181] CMS Collaboration, "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**, 2674 (2013), doi:10.1140/epjc/s10052-013-2674-5, arXiv:1310.4554.

[182] CMS Collaboration, "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", J. High Energy Phys. **12**, 039 (2013), doi:10.1007/JHEP12(2013)039, arXiv:1310.1349.

[183] CMS Collaboration, "Measurement of the Differential and Double-Differential Drell-Yan Cross Sections in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **12**, 030 (2013), doi:10.1007/JHEP12(2013)030, arXiv:1310.7291.

[184] CMS Collaboration, "Measurement of the Prompt J/ψ and ψ(2S) Polarizations in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **727**, 381 (2013), doi:10.1016/j.physletb.2013.10.055, arXiv:1307.6070.

[185] CMS Collaboration, "Rapidity Distributions in Exclusive Z + Jet and γ + Jet Events in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. D **88**, 112009 (2013), doi:10.1103/PhysRevD.88.112009, arXiv:1310.3082.

[186] CMS Collaboration, "Search for Top-Squark Pair Production in the Single-Lepton Final State in pp Collisions at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **73**, 2677 (2013), doi:10.1140/epjc/s10052-013-2677-2, arXiv:1308.1586.

[187] CMS Collaboration, "Determination of the Top-Quark Pole Mass and Strong Coupling Constant from the $\mathrm{t\bar{t}}$ Production Cross Section in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **728**, 496 (2014), doi:10.1016/j.physletb.2013.12.009, arXiv:1307.1907, [Erratum: Phys. Lett. B 738, 526 (2014)].

[188] CMS Collaboration, "Measurement of Higgs Boson Production and Properties in the WW Decay Channel with Leptonic Final States", J. High Energy Phys. **01**, 096 (2014), doi:10.1007/JHEP01(2014)096, arXiv:1312.1129.

[189] CMS Collaboration, "Search for New Physics in Events with Same-Sign Dileptons and Jets in pp Collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **01**, 163 (2014), doi:10.1007/JHEP01(2014)163, arXiv:1311.6736, [Erratum: J. High Energy Phys. 01, 014 (2015)].

[190] CMS Collaboration, "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**, 012003 (2014), doi:10.1103/PhysRevD.89.012003, arXiv:1310.3687.

[191] CMS Collaboration, "Inclusive Search for a Vector-Like T Quark with Charge $\frac{2}{3}$ in pp Collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **729**, 149 (2014), doi:10.1016/j.physletb.2014.01.006, arXiv:1311.7667.

[192] CMS Collaboration, "Measurement of Associated W + Charm Production in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **02**, 013 (2014), doi:10.1007/JHEP02(2014)013, arXiv:1310.1138.

[193] CMS Collaboration, "Measurement of the $\mathrm{t\bar{t}}$ production cross section in the dilepton channel in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **02**, 024 (2014), doi:10.1007/JHEP02(2014)024, arXiv:1312.7582, [Erratum: J. High Energy Phys. 02, 102 (2014)].

[194] CMS Collaboration, "Studies of Azimuthal Dihadron Correlations in Ultra-Central PbPb Collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76\,\text{TeV}$", J. High Energy Phys. **02**, 088 (2014), doi:10.1007/JHEP02(2014)088, arXiv:1312.1845.

[195] CMS Collaboration, "Modification of Jet Shapes in PbPb Collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76\,\text{TeV}$", Phys. Lett. B **730**, 243 (2014), doi:10.1016/j.physletb.2014.01.042, arXiv:1310.0878.

[196] CMS Collaboration, "Searches for Light- and Heavy-Flavour Three-Jet Resonances in pp Collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **730**, 193 (2014), doi:10.1016/j.physletb.2014.01.049, arXiv:1311.1799.

[197] CMS Collaboration, "Study of Double Parton Scattering Using W + 2-Jet Events in Proton-Proton Collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **03**, 032 (2014), doi:10.1007/JHEP03(2014)032, arXiv:1312.5729.

[198] CMS Collaboration, "Event Activity Dependence of Y(nS) Production in $\sqrt{s_{\mathrm{NN}}} = 5.02\,\text{TeV}$ pPb and $\sqrt{s} = 2.76\,\text{TeV}$ pp Collisions", J. High Energy Phys. **04**, 103 (2014), doi:10.1007/JHEP04(2014)103, arXiv:1312.6300.

[199] CMS Collaboration, "Measurement of Higher-Order Harmonic Azimuthal Anisotropy in PbPb Collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76\,\text{TeV}$", Phys. Rev. C **89**, 044906 (2014), doi:10.1103/PhysRevC.89.044906, arXiv:1310.8651.

[200] CMS Collaboration, "Measurement of the Top-Quark Mass in All-Jets $\mathrm{t\bar{t}}$ Events in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Eur. Phys. J. C **74**, 2758 (2014), doi:10.1140/epjc/s10052-014-2758-x, arXiv:1307.4617.

[201] CMS Collaboration, "Measurements of the $\mathrm{t\bar{t}}$ charge asymmetry using the dilepton decay channel in pp collisions at $\sqrt{s} = 7\,\text{TeV}$", J. High Energy Phys. **04**, 191 (2014), doi:10.1007/JHEP04(2014)191, arXiv:1402.3803.

[202] CMS Collaboration, "Search for Baryon Number Violation in Top-Quark Decays", Phys. Lett. B **731**, 173 (2014), doi:10.1016/j.physletb.2014.02.033, arXiv:1310.1618.

[203] CMS Collaboration, "Search for Top Squark and Higgsino Production using Diphoton Higgs Boson Decays", Phys. Rev. Lett. **112**, 161802 (2014), doi:10.1103/PhysRevLett.112.161802, arXiv:1312.3310.

[204] CMS Collaboration, "Search for Top-Quark Partners with Charge 5/3 in the Same-Sign Dilepton Final State", Phys. Rev. Lett. **112**, 171801 (2014), doi:10.1103/PhysRevLett.112.171801, arXiv:1312.2391.

[205] CMS Collaboration, "Evidence for the 125 GeV Higgs boson decaying to a pair of τ leptons", J. High Energy Phys. **05**, 104 (2014), doi:10.1007/JHEP05(2014)104, arXiv:1401.5041.

[206] CMS Collaboration, "Measurement of Four-Jet Production in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. D **89**, 092010 (2014), doi:10.1103/PhysRevD.89.092010, arXiv:1312.6440.

[207] CMS Collaboration, "Measurement of inclusive W and Z boson production cross sections in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. Lett. **112**, 191802 (2014), doi:10.1103/PhysRevLett.112.191802, arXiv:1402.0923.

[208] CMS Collaboration, "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**, 092005 (2014), doi:10.1103/PhysRevD.89.092005, arXiv:1308.6832.

[209] CMS Collaboration, "Measurement of the Properties of a Higgs Boson in the Four-Lepton Final State", Phys. Rev. D **89**, 092007 (2014), doi:10.1103/PhysRevD.89.092007, arXiv:1312.5353.

[210] CMS Collaboration, "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**, 182001 (2014), doi:10.1103/PhysRevLett.112.182001, arXiv:1311.3924.

[211] CMS Collaboration, "Search for Flavor-Changing Neutral Currents in Top-Quark Decays $t \to Zq$ in pp Collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. Lett. **112**, 171802 (2014), doi:10.1103/PhysRevLett.112.171802, arXiv:1312.4194.

[212] CMS Collaboration, "Search for W' $\to$ tb decays in the lepton + jets final state in pp collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **05**, 108 (2014), doi:10.1007/JHEP05(2014)108, arXiv:1402.2176.

[213] CMS Collaboration, "Alignment of the CMS tracker with LHC and cosmic ray data", J. Instrum. **9**, P06009 (2014), doi:10.1088/1748-0221/9/06/P06009, arXiv:1403.2286.

[214] CMS Collaboration, "Evidence for the direct decay of the 125 GeV Higgs boson to fermions", Nat. Phys. **10**, 557 (2014), doi:10.1038/nphys3005, arXiv:1401.6527.

[215] CMS Collaboration, "Measurement of the production cross sections for a Z boson and one or more b jets in pp collisions at sqrt(s) = 7 TeV", J. High Energy Phys. **06**, 120 (2014), doi:10.1007/JHEP06(2014)120, arXiv:1402.1521.

[216] CMS Collaboration, "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", J. High Energy Phys. **06**, 090 (2014), doi:10.1007/JHEP06(2014)090, arXiv:1403.7366.

[217] CMS Collaboration, "Measurement of the Triple-Differential Cross Section for Photon+Jets Production in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **06**, 009 (2014), doi:10.1007/JHEP06(2014)009, arXiv:1311.6141.

[218] CMS Collaboration, "Observation of a Peaking Structure in the $J/\psi\phi$ Mass Spectrum from $B^{\pm} \to J/\psi\phi K^{\pm}$ Decays", Phys. Lett. B **734**, 261 (2014), doi:10.1016/j.physletb.2014.05.055, arXiv:1309.6920.

[219] CMS Collaboration, "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**, 231802 (2014), doi:10.1103/PhysRevLett.112.231802, arXiv:1401.2942.

[220] CMS Collaboration, "Probing Color Coherence Effects in pp Collisions at $\sqrt{s} = 7$ TeV", Eur. Phys. J. C **74**, 2901 (2014), doi:10.1140/epjc/s10052-014-2901-8, arXiv:1311.5815.

[221] CMS Collaboration, "Search for new physics in the multijet and missing transverse momentum final state in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **06**, 055 (2014), doi:10.1007/JHEP06(2014)055, arXiv:1402.4770.

[222] CMS Collaboration, "Search for Pair Production of Excited Top Quarks in the Lepton + Jets Final State", J. High Energy Phys. **06**, 125 (2014), doi:10.1007/JHEP06(2014)125, arXiv:1311.5357.

[223] CMS Collaboration, "Search for Supersymmetry in pp Collisions at $\sqrt{s} = 8\,\text{TeV}$ in Events with a Single Lepton, Large Jet Multiplicity, and Multiple b Jets", Phys. Lett. B **733**, 328 (2014), doi:10.1016/j.physletb.2014.04.023, arXiv:1311.4937.

[224] CMS Collaboration, "Study of the Production of Charged Pions, Kaons, and Protons in pPb Collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Eur. Phys. J. C **74**, 2847 (2014), doi:10.1140/epjc/s10052-014-2847-x, arXiv:1307.3442.

[225] CMS Collaboration, "Measurement of the Production Cross Section for a W Boson and Two b Jets in pp Collisions at $\sqrt{s} = 7\,\text{TeV}$", Phys. Lett. B **735**, 204 (2014), doi:10.1016/j.physletb.2014.06.041, arXiv:1312.6608.

[226] CMS Collaboration, "Studies of dijet transverse momentum balance and pseudorapidity distributions in pPb collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Eur. Phys. J. C **74**, 2951 (2014), doi:10.1140/epjc/s10052-014-2951-y, arXiv:1401.4433.

[227] CMS Collaboration, "Measurement of Jet Fragmentation in PbPb and pp Collisions at $\sqrt{s_{\text{NN}}} = 2.76\,\text{TeV}$", Phys. Rev. C **90**, 024908 (2014), doi:10.1103/PhysRevC.90.024908, arXiv:1406.0932.

[228] CMS Collaboration, "Measurement of jet multiplicity distributions in $\text{t}\bar{\text{t}}$ production in pp collisions at $\sqrt{s} = 7\,\text{TeV}$", Eur. Phys. J. C **74**, 3014 (2014), doi:10.1140/epjc/s10052-014-3014-0, arXiv:1404.3171, [Erratum: Eur. Phys. J. C 75, 216 (2015)].

[229] CMS Collaboration, "Measurement of the Muon Charge Asymmetry in Inclusive $pp \to W + X$ Production at $\sqrt{s} = 7\,\text{TeV}$ and an Improved Determination of Light Parton Distribution Functions", Phys. Rev. D **90**, 032004 (2014), doi:10.1103/PhysRevD.90.032004, arXiv:1312.6283.

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

[231] CMS Collaboration, "Search for $\text{WW}\gamma$ and $\text{WZ}\gamma$ production and constraints on anomalous quartic gauge couplings in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Rev. D **90**, 032008 (2014), doi:10.1103/PhysRevD.90.032008, arXiv:1404.4619.

[232] CMS Collaboration, "Search for anomalous production of events with three or more leptons in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Rev. D **90**, 032006 (2014), doi:10.1103/PhysRevD.90.032006, arXiv:1404.5801.

[233] CMS Collaboration, "Search for invisible decays of Higgs bosons in the vector boson fusion and associated ZH production modes", Eur. Phys. J. C **74**, 2980 (2014), doi:10.1140/epjc/s10052-014-2980-6, arXiv:1404.1344.

[234] CMS Collaboration, "Search for jet extinction in the inclusive jet-p_{T} spectrum from proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Rev. D **90**, 032005 (2014), doi:10.1103/PhysRevD.90.032005, arXiv:1405.7653.

[235] CMS Collaboration, "Search for massive resonances decaying into pairs of boosted bosons in semileptonic final states at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **08**, 174 (2014), doi:10.1007/JHEP08(2014)174, arXiv:1405.3447.

[236] CMS Collaboration, "Search for massive resonances in dijet systems containing jets tagged as W or Z boson decays in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **08**, 173 (2014), doi:10.1007/JHEP08(2014)173, arXiv:1405.1994.

[237] CMS Collaboration, "Constraints on the Higgs boson width from off-shell production and decay to Z-boson pairs", Phys. Lett. B **736**, 64 (2014), doi:10.1016/j.physletb.2014.06.077, arXiv:1405.3455.

[238] CMS Collaboration, "Evidence of b-Jet Quenching in PbPb Collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76\,\mathrm{TeV}$", Phys. Rev. Lett. **113**, 132301 (2014), doi:10.1103/PhysRevLett.113.132301, arXiv:1312.4198, [Erratum: Phys. Rev. Lett. 115, 029903 (2015)].

[239] CMS Collaboration, "Measurement of Prompt J/ψ Pair Production in pp Collisions at $\sqrt{s} = 7$ Tev", J. High Energy Phys. **09**, 094 (2014), doi:10.1007/JHEP09(2014)094, arXiv:1406.0484.

[240] CMS Collaboration, "Measurement of the ratio $\mathcal{B}(\mathrm{t} \to \mathrm{Wb})/\mathcal{B}(\mathrm{t} \to \mathrm{Wq})$ in pp collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", Phys. Lett. B **736**, 33 (2014), doi:10.1016/j.physletb.2014.06.076, arXiv:1404.2292.

[241] CMS Collaboration, "Measurement of Top Quark-Antiquark Pair Production in Association with a W or Z Boson in pp Collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", Eur. Phys. J. C **74**, 3060 (2014), doi:10.1140/epjc/s10052-014-3060-7, arXiv:1406.7830.

[242] CMS Collaboration, "Search for the associated production of the Higgs boson with a top-quark pair", J. High Energy Phys. **09**, 087 (2014), doi:10.1007/JHEP09(2014)087, arXiv:1408.1682, [Erratum: J. High Energy Phys. 10, 106 (2014)].

[243] CMS Collaboration, "Search for top-squark pairs decaying into Higgs or Z bosons in pp collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", Phys. Lett. B **736**, 371 (2014), doi:10.1016/j.physletb.2014.07.053, arXiv:1405.3886.

[244] CMS Collaboration, "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. C **74**, 3036 (2014), doi:10.1140/epjc/s10052-014-3036-7, arXiv:1405.7570.

[245] CMS Collaboration, "Description and performance of track and primary-vertex reconstruction with the CMS tracker", J. Instrum. **9**, P10009 (2014), doi:10.1088/1748-0221/9/10/P10009, arXiv:1405.6569.

[246] CMS, TOTEM Collaboration, "Measurement of pseudorapidity distributions of charged particles in proton-proton collisions at $\sqrt{s} = 8\,\mathrm{TeV}$ by the CMS and TOTEM experiments", Eur. Phys. J. C **74**, 3053 (2014), doi:10.1140/epjc/s10052-014-3053-6, arXiv:1405.0722.

[247] CMS Collaboration, "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**, 072006 (2014), doi:10.1103/PhysRevD.90.072006, arXiv:1406.0324.

[248] CMS Collaboration, "Observation of the Diphoton Decay of the Higgs Boson and Measurement of Its Properties", Eur. Phys. J. C **74**, 3076 (2014), doi:10.1140/epjc/s10052-014-3076-z, arXiv:1407.0558.

[249] CMS Collaboration, "Search for neutral MSSM Higgs bosons decaying to a pair of tau leptons in pp collisions", J. High Energy Phys. **10**, 160 (2014), doi:10.1007/JHEP10(2014)160, arXiv:1408.3316.

[250] CMS Collaboration, "Study of Hadronic Event-Shape Variables in Multijet Final States in pp Collisions at $\sqrt{s} = 7\,\mathrm{TeV}$", J. High Energy Phys. **10**, 087 (2014), doi:10.1007/JHEP10(2014)087, arXiv:1407.2856.

[251] CMS Collaboration, "Measurement of differential cross sections for the production of a pair of isolated photons in pp collisions at $\sqrt{s} = 7\,\mathrm{TeV}$", Eur. Phys. J. C **74**, 3129 (2014), doi:10.1140/epjc/s10052-014-3129-3, arXiv:1405.7225.

[252] CMS Collaboration, "Search for Excited Quarks in the $\gamma+$ Jet Final State in Proton–Proton Collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", Phys. Lett. B **738**, 274 (2014), doi:10.1016/j.physletb.2014.09.048, arXiv:1406.5171.

[253] CMS Collaboration, "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**, 3149 (2014), doi:10.1140/epjc/s10052-014-3149-z, arXiv:1407.3683.

[254] CMS Collaboration, "Search for Standard Model Production of Four Top Quarks in the Lepton + Jets Channel in pp Collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **11**, 154 (2014), doi:10.1007/JHEP11(2014)154, arXiv:1409.7339.

[255] CMS Collaboration, "Searches for electroweak neutralino and chargino production in channels with Higgs, Z, and W bosons in pp collisions at 8 TeV", Phys. Rev. D **90**, 092007 (2014), doi:10.1103/PhysRevD.90.092007, arXiv:1409.3168.

[256] CMS Collaboration, "Identification techniques for highly boosted W bosons that decay into hadrons", J. High Energy Phys. **12**, 017 (2014), doi:10.1007/JHEP12(2014)017, arXiv:1410.4227.

[257] CMS Collaboration, "Measurement of Prompt $\psi(2S) \to J/\psi$ Yield Ratios in PbPb and pp Collisions at $\sqrt{s_{NN}} = 2.76$ TeV", Phys. Rev. Lett. **113**, 262301 (2014), doi:10.1103/PhysRevLett.113.262301, arXiv:1410.1804.

[258] CMS Collaboration, "Measurement of the $t\bar{t}$ Production Cross Section in pp Collisions at $\sqrt{s} = 8$ TeV in Dilepton Final States Containing One τ Lepton", Phys. Lett. B **739**, 23 (2014), doi:10.1016/j.physletb.2014.10.032, arXiv:1407.6643.

[259] CMS Collaboration, "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**, 229 (2014), doi:10.1016/j.physletb.2014.10.063, arXiv:1408.0806.

[260] CMS Collaboration, "Search for supersymmetry with razor variables in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. D **90**, 112001 (2014), doi:10.1103/PhysRevD.90.112001, arXiv:1405.3961.

[261] CMS Collaboration, "Searches for heavy Higgs bosons in two-Higgs-doublet models and for $t \to ch$ decay using multilepton and diphoton final states in pp collisions at 8 TeV", Phys. Rev. D **90**, 112013 (2014), doi:10.1103/PhysRevD.90.112013, arXiv:1410.2751.

[262] CMS Collaboration, "Measurement of the ratio of the production cross sections times branching fractions of $B_c^{\pm} \to J/\psi\pi^{\pm}$ and $B^{\pm} \to J/\psi K^{\pm}$ and $\mathcal{B}(B_c^{\pm} \to J/\psi\pi^{\pm}\pi^{\pm}\pi^{\mp})/\mathcal{B}(B_c^{\pm} \to J/\psi\pi^{\pm})$ in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **01**, 063 (2015), doi:10.1007/JHEP01(2015)063, arXiv:1410.5729.

[263] CMS Collaboration, "Measurement of the W boson helicity in events with a single reconstructed top quark in pp collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **01**, 053 (2015), doi:10.1007/JHEP01(2015)053, arXiv:1410.1154.

[264] CMS Collaboration, "Search for disappearing tracks in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **01**, 096 (2015), doi:10.1007/JHEP01(2015)096, arXiv:1411.6006.

[265] CMS Collaboration, "Search for Long-Lived Neutral Particles Decaying to Quark-Antiquark Pairs in Proton-Proton Collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. D **91**, 012007 (2015), doi:10.1103/PhysRevD.91.012007, arXiv:1411.6530.

[266] CMS Collaboration, "Search for New Resonances Decaying via WZ to Leptons in Proton-Proton Collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **740**, 83 (2015), doi:10.1016/j.physletb.2014.11.026, arXiv:1407.3476.

[267] CMS Collaboration, "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. B **741**, 12 (2015), doi:10.1016/j.physletb.2014.12.003, arXiv:1406.7533.

[268] CMS Collaboration, "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**, 66 (2015), doi:10.1140/epjc/s10052-014-3232-5, arXiv:1410.3153.

[269] CMS Collaboration, "Performance of the CMS missing transverse momentum reconstruction in pp data at $\sqrt{s} = 8$ TeV", J. Instrum. **10**, P02006 (2015), doi:10.1088/1748-0221/10/02/P02006, arXiv:1411.0511.

[270] CMS Collaboration, "Search for Displaced Supersymmetry in events with an electron and a muon with large impact parameters", Phys. Rev. Lett. **114**, 061801 (2015), doi:10.1103/PhysRevLett.114.061801, arXiv:1409.4789.

[271] CMS Collaboration, "Study of vector boson scattering and search for new physics in events with two same-sign leptons and two jets", Phys. Rev. Lett. **114**, 051801 (2015), doi:10.1103/PhysRevLett.114.051801, arXiv:1410.6315.

[272] CMS Collaboration, "Long-range two-particle correlations of strange hadrons with charged particles in pPb and PbPb collisions at LHC energies", Phys. Lett. B **742**, 200 (2015), doi:10.1016/j.physletb.2015.01.034, arXiv:1409.3392.

[273] CMS Collaboration, "Measurements of jet multiplicity and differential production cross sections of Z+ jets events in proton-proton collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. D **91**, 052008 (2015), doi:10.1103/PhysRevD.91.052008, arXiv:1408.3104.

[274] CMS Collaboration, "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**, 052012 (2015), doi:10.1103/PhysRevD.91.052012, arXiv:1411.6977.

[275] CMS Collaboration, "Search for Monotop Signatures in Proton-Proton Collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. Lett. **114**, 101801 (2015), doi:10.1103/PhysRevLett.114.101801, arXiv:1410.1149.

[276] CMS Collaboration, "Search for resonances and quantum black holes using dijet mass spectra in proton-proton collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. D **91**, 052009 (2015), doi:10.1103/PhysRevD.91.052009, arXiv:1501.04198.

[277] CMS Collaboration, "Search for supersymmetry using razor variables in events with b-tagged jets in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. D **91**, 052018 (2015), doi:10.1103/PhysRevD.91.052018, arXiv:1502.00300.

[278] CMS Collaboration, "Study of Z production in PbPb and pp collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76$ TeV in the dimuon and dielectron decay channels", J. High Energy Phys. **03**, 022 (2015), doi:10.1007/JHEP03(2015)022, arXiv:1410.4825.

[279] CMS Collaboration, "Measurement of the $Z\gamma$ Production Cross Section in pp Collisions at 8 TeV and Search for Anomalous Triple Gauge Boson Couplings", J. High Energy Phys. **04**, 164 (2015), doi:10.1007/JHEP04(2015)164, arXiv:1502.05664.

[280] CMS Collaboration, "Measurement of the production cross section ratio $\sigma(\chi_{b2}(1P))/\sigma(\chi_{b1}(1P))$ in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **743**, 383 (2015), doi:10.1016/j.physletb.2015.02.048, arXiv:1409.5761.

[281] CMS Collaboration, "Measurements of differential and double-differential Drell-Yan cross sections in proton-proton collisions at 8 TeV", Eur. Phys. J. C **75**, 147 (2015), doi:10.1140/epjc/s10052-015-3364-2, arXiv:1412.1115.

[282] CMS Collaboration, "Search for Decays of Stopped Long-Lived Particles Produced in Proton–Proton Collisions at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **75**, 151 (2015), doi:10.1140/epjc/s10052-015-3367-z, arXiv:1501.05603.

[283] CMS Collaboration, "Search for physics beyond the standard model in dilepton mass spectra in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **04**, 025 (2015), doi:10.1007/JHEP04(2015)025, arXiv:1412.6302.

[284] CMS Collaboration, "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", J. High Energy Phys. **04**, 124 (2015), doi:10.1007/JHEP04(2015)124, arXiv:1502.06031.

[285] CMS Collaboration, "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**, 503 (2015), doi:10.1016/j.physletb.2015.03.017, arXiv:1411.7255.

[286] ATLAS, CMS Collaboration, "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**, 191803 (2015), doi:10.1103/PhysRevLett.114.191803, arXiv:1503.07589.

[287] CMS Collaboration, "Measurement of J/ψ and ψ(2S) Prompt Double-Differential Cross Sections in pp Collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. Lett. **114**, 191802 (2015), doi:10.1103/PhysRevLett.114.191802, arXiv:1502.04155.

[288] CMS Collaboration, "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**, 186 (2015), doi:10.1140/epjc/s10052-015-3376-y, arXiv:1412.1633.

[289] CMS Collaboration, "Nuclear Effects on the Transverse Momentum Spectra of Charged Particles in pPb Collisions at $\sqrt{s_{\rm NN}} = 5.02$ TeV", Eur. Phys. J. C **75**, 237 (2015), doi:10.1140/epjc/s10052-015-3435-4, arXiv:1502.05387.

[290] CMS, LHCb Collaboration, "Observation of the rare $B_s^0 \to \mu^+\mu^-$ decay from the combined analysis of CMS and LHCb data", Nature **522**, 68 (2015), doi:10.1038/nature14474, arXiv:1411.4413.

[291] CMS Collaboration, "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**, 212 (2015), doi:10.1140/epjc/s10052-015-3351-7, arXiv:1412.8662.

[292] CMS Collaboration, "Search for a standard model-like Higgs boson in the $\mu^+\mu^-$ and e^+e^- decay channels at the LHC", Phys. Lett. B **744**, 184 (2015), doi:10.1016/j.physletb.2015.03.048, arXiv:1410.6679.

[293] CMS Collaboration, "Search for dark matter, extra dimensions, and unparticles in monojet events in proton–proton collisions at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **75**, 235 (2015), doi:10.1140/epjc/s10052-015-3451-4, arXiv:1408.3583.

[294] CMS Collaboration, "Search for physics beyond the standard model in final states with a lepton and missing transverse energy in proton-proton collisions at sqrt(s) = 8 TeV", Phys. Rev. D **91**, 092005 (2015), doi:10.1103/PhysRevD.91.092005, arXiv:1408.2745.

[295] CMS Collaboration, "Searches for supersymmetry based on events with b jets and four W bosons in pp collisions at 8 TeV", Phys. Lett. B **745**, 5 (2015), doi:10.1016/j.physletb.2015.04.002, arXiv:1412.4109.

[296] CMS Collaboration, "Searches for Supersymmetry using the M_{T2} Variable in Hadronic Events Produced in pp Collisions at 8 TeV", J. High Energy Phys. **05**, 078 (2015), doi:10.1007/JHEP05(2015)078, arXiv:1502.04358.

[297] CMS Collaboration, "Study of Final-State Radiation in Decays of Z Bosons Produced in pp Collisions at 7 TeV", Phys. Rev. D **91**, 092012 (2015), doi:10.1103/PhysRevD.91.092012, arXiv:1502.07940.

[298] CMS Collaboration, "Constraints on parton distribution functions and extraction of the strong coupling constant from the inclusive jet cross section in pp collisions at $\sqrt{s} = 7$ TeV", Eur. Phys. J. C **75**, 288 (2015), doi:10.1140/epjc/s10052-015-3499-1, arXiv:1410.6765.

[299] CMS Collaboration, "Evidence for Collective Multiparticle Correlations in p-Pb Collisions", Phys. Rev. Lett. **115**, 012301 (2015), doi:10.1103/PhysRevLett.115.012301, arXiv:1502.05382.

[300] CMS Collaboration, "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**, 132 (2015), doi:10.1016/j.physletb.2015.04.060, arXiv:1411.5621.

[301] CMS Collaboration, "Performance of Electron Reconstruction and Selection with the CMS Detector in Proton-Proton Collisions at $\sqrt{s} = 8$ TeV", J. Instrum. **10**, P06005 (2015), doi:10.1088/1748-0221/10/06/P06005, arXiv:1502.02701.

[302] CMS Collaboration, "Search for a Standard Model Higgs Boson Produced in Association with a Top-Quark Pair and Decaying to Bottom Quarks Using a Matrix Element Method", Eur. Phys. J. C **75**, 251 (2015), doi:10.1140/epjc/s10052-015-3454-1, arXiv:1502.02485.

[303] CMS Collaboration, "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**, 79 (2015), doi:10.1016/j.physletb.2015.04.042, arXiv:1411.2646.

[304] CMS Collaboration, "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", J. High Energy Phys. **06**, 121 (2015), doi:10.1007/JHEP06(2015)121, arXiv:1504.03198.

[305] CMS Collaboration, "Search for vector-like T quarks decaying to top quarks and Higgs bosons in the all-hadronic channel using jet substructure", J. High Energy Phys. **06**, 080 (2015), doi:10.1007/JHEP06(2015)080, arXiv:1503.01952.

[306] CMS Collaboration, "Searches for third-generation squark production in fully hadronic final states in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **06**, 116 (2015), doi:10.1007/JHEP06(2015)116, arXiv:1503.08037.

[307] CMS Collaboration, "Constraints on the pMSSM, AMSB model and on other models from the search for long-lived charged particles in proton-proton collisions at *sqrts* $= 8$ TeV", Eur. Phys. J. C **75**, 325 (2015), doi:10.1140/epjc/s10052-015-3533-3, arXiv:1502.02522.

[308] CMS Collaboration, "Constraints on the spin-parity and anomalous HVV couplings of the Higgs boson in proton collisions at 7 and 8 TeV", Phys. Rev. D **92**, 012004 (2015), doi:10.1103/PhysRevD.92.012004, arXiv:1411.3441.

[309] CMS Collaboration, "Distributions of Topological Observables in Inclusive Three- and Four-Jet Events in pp Collisions at $\sqrt{s} = 7$ TeV", Eur. Phys. J. C **75**, 302 (2015), doi:10.1140/epjc/s10052-015-3491-9, arXiv:1502.04785.

[310] CMS Collaboration, "Measurement of diffraction dissociation cross sections in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Rev. D **92**, 012003 (2015), doi:10.1103/PhysRevD.92.012003, arXiv:1503.08689.

[311] D. Anderson et al., "Precision timing measurements for high energy photons", Nucl. Instrum. Methods Phys. Res. A **787**, 94 (2015), doi:10.1016/j.nima.2014.11.041.

[312] CMS Collaboration, "Search for pair-produced resonances decaying to jet pairs in proton–proton collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **747**, 98 (2015), doi:10.1016/j.physletb.2015.04.045, arXiv:1412.7706.

[313] CMS Collaboration, "Performance of Photon Reconstruction and Identification with the CMS Detector in Proton-Proton Collisions at sqrt(s) = 8 TeV", J. Instrum. **10**, P08010 (2015), doi:10.1088/1748-0221/10/08/P08010, arXiv:1502.02702.

[314] CMS Collaboration, "Search for the standard model Higgs boson produced through vector boson fusion and decaying to $b\bar{b}$", Phys. Rev. D **92**, 032008 (2015), doi:10.1103/PhysRevD.92.032008, arXiv:1506.01010.

[315] CMS Collaboration, "Evidence for transverse momentum and pseudorapidity dependent event plane fluctuations in PbPb and pPb collisions", Phys. Rev. C **92**, 034911 (2015), doi:10.1103/PhysRevC.92.034911, arXiv:1503.01692.

[316] CMS Collaboration, "Measurement of the underlying event activity using charged-particle jets in proton-proton collisions at sqrt(s) = 2.76 TeV", J. High Energy Phys. **09**, 137 (2015), doi:10.1007/JHEP09(2015)137, arXiv:1507.07229.

[317] D. Anderson et al., "On timing properties of LYSO-based calorimeters", Nucl. Instrum. Methods Phys. Res. A **794**, 7 (2015), doi:10.1016/j.nima.2015.04.013.

[318] CMS Collaboration, "Search for a pseudoscalar boson decaying into a Z boson and the 125 GeV Higgs boson in $\ell^+\ell^-\mathrm{b\bar{b}}$ final states", Phys. Lett. B **748**, 221 (2015), doi:10.1016/j.physletb.2015.07.010, arXiv:1504.04710.

[319] CMS Collaboration, "Search for heavy Majorana neutrinos in $\mu^\pm\mu^\pm$+ jets events in proton-proton collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **748**, 144 (2015), doi:10.1016/j.physletb.2015.06.070, arXiv:1501.05566.

[320] CMS Collaboration, "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**, 255 (2015), doi:10.1016/j.physletb.2015.07.011, arXiv:1502.04994.

[321] CMS Collaboration, "Search for neutral color-octet weak-triplet scalar particles in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **09**, 201 (2015), doi:10.1007/JHEP09(2015)201, arXiv:1505.08118.

[322] CMS Collaboration, "Limits on the Higgs boson lifetime and width from its decay to four charged leptons", Phys. Rev. D **92**, 072010 (2015), doi:10.1103/PhysRevD.92.072010, arXiv:1507.06656.

[323] CMS Collaboration, "Measurement of the Z boson differential cross section in transverse momentum and rapidity in proton–proton collisions at 8 TeV", Phys. Lett. B **749**, 187 (2015), doi:10.1016/j.physletb.2015.07.065, arXiv:1504.03511.

[324] CMS Collaboration, "Measurements of the Y(1S), Y(2S), and Y(3S) differential cross sections in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **749**, 14 (2015), doi:10.1016/j.physletb.2015.07.037, arXiv:1501.07750.

[325] CMS Collaboration, "Measurements of the Z Z production cross sections in the 2l2ν channel in proton–proton collisions at $\sqrt{s} = 7$ and 8 TeV and combined constraints on triple gauge couplings", Eur. Phys. J. C **75**, 511 (2015), doi:10.1140/epjc/s10052-015-3706-0, arXiv:1503.05467.

[326] CMS Collaboration, "Search for a Higgs boson in the mass range from 145 to 1000 GeV decaying to a pair of W or Z bosons", J. High Energy Phys. **10**, 144 (2015), doi:10.1007/JHEP10(2015)144, arXiv:1504.00936.

[327] CMS Collaboration, "Search for Lepton-Flavour-Violating Decays of the Higgs Boson", Phys. Lett. B **749**, 337 (2015), doi:10.1016/j.physletb.2015.07.053, arXiv:1502.07400.

[328] CMS Collaboration, "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**, 560 (2015), doi:10.1016/j.physletb.2015.08.047, arXiv:1503.04114.

[329] CMS Collaboration, "Search for supersymmetry with photons in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. D **92**, 072006 (2015), doi:10.1103/PhysRevD.92.072006, arXiv:1507.02898.

[330] CMS Collaboration, "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**, 154 (2015), doi:10.1016/j.physletb.2015.08.061, arXiv:1504.03512.

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

[332] CMS Collaboration, "Search for a charged Higgs boson in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **11**, 018 (2015), doi:10.1007/JHEP11(2015)018, arXiv:1508.07774.

[333] CMS Collaboration, "Search for diphoton resonances in the mass range from 150 to 850 GeV in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **750**, 494 (2015), doi:10.1016/j.physletb.2015.09.062, arXiv:1506.02301.

[334] CMS Collaboration, "Search for neutral MSSM Higgs bosons decaying into a pair of bottom quarks", J. High Energy Phys. **11**, 071 (2015), doi:10.1007/JHEP11(2015)071, arXiv:1506.08329.

[335] CMS Collaboration, "Search for supersymmetry in the vector-boson fusion topology in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **11**, 189 (2015), doi:10.1007/JHEP11(2015)189, arXiv:1508.07628.

[336] CMS Collaboration, "Study of W boson production in pPb collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Lett. B **750**, 565 (2015), doi:10.1016/j.physletb.2015.09.057, arXiv:1503.05825.

[337] CMS Collaboration, "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**, 112001 (2015), doi:10.1103/PhysRevD.92.112001, arXiv:1507.00233.

[338] CMS Collaboration, "Pseudorapidity distribution of charged hadrons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **751**, 143 (2015), doi:10.1016/j.physletb.2015.10.004, arXiv:1507.05915.

[339] CMS Collaboration, "Search for a light charged Higgs boson decaying to $\text{c}\bar{\text{s}}$ in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **12**, 178 (2015), doi:10.1007/JHEP12(2015)178, arXiv:1510.04252.

[340] CMS Collaboration, "A search for pair production of new light bosons decaying into muons", Phys. Lett. B **752**, 146 (2016), doi:10.1016/j.physletb.2015.10.067, arXiv:1506.00424.

[341] CMS Collaboration, "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**, 13 (2016), doi:10.1140/epjc/s10052-015-3853-3, arXiv:1508.07819.

[342] CMS Collaboration, "Measurement of transverse momentum relative to dijet systems in PbPb and pp collisions at $\sqrt{s_{\text{NN}}} = 2.76\,\text{TeV}$", J. High Energy Phys. **01**, 006 (2016), doi:10.1007/JHEP01(2016)006, arXiv:1509.09029.

[343] CMS Collaboration, "Observation of top quark pairs produced in association with a vector boson in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **01**, 096 (2016), doi:10.1007/JHEP01(2016)096, arXiv:1510.01131.

[344] CMS Collaboration, "Reconstruction and identification of τ lepton decays to hadrons and ν_τ at CMS", J. Instrum. **11**, P01019 (2016), doi:10.1088/1748-0221/11/01/P01019, arXiv:1510.07488.

[345] CMS Collaboration, "Search for a very light NMSSM Higgs boson produced in decays of the 125 GeV scalar boson and decaying into τ leptons in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **01**, 079 (2016), doi:10.1007/JHEP01(2016)079, arXiv:1510.06534.

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

[347] CMS Collaboration, "Search for resonant $t\bar{t}$ production in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Rev. D **93**, 012001 (2016), doi:10.1103/PhysRevD.93.012001, arXiv:1506.03062.

[348] CMS Collaboration, "Search for the production of an excited bottom quark decaying to tW in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **01**, 166 (2016), doi:10.1007/JHEP01(2016)166, arXiv:1509.08141.

[349] CMS Collaboration, "Search for vector-like charge 2/3 T quarks in proton-proton collisions at $\sqrt{s} =$ 8 TeV", Phys. Rev. D **93**, 012003 (2016), doi:10.1103/PhysRevD.93.012003, arXiv:1509.04177.

[350] CMS Collaboration, "Study of B Meson Production in p+Pb Collisions at $\sqrt{s_{\rm NN}} = 5.02$ TeV Using Exclusive Hadronic Decays", Phys. Rev. Lett. **116**, 032301 (2016), doi:10.1103/PhysRevLett.116.032301, arXiv:1508.06678.

[351] CMS Collaboration, "Angular analysis of the decay $B^0 \to K^{*0}\mu^+\mu^-$ from pp collisions at $\sqrt{s} =$ 8 TeV", Phys. Lett. B **753**, 424 (2016), doi:10.1016/j.physletb.2015.12.020, arXiv:1507.08126.

[352] CMS Collaboration, "Correlations between jets and charged particles in PbPb and pp collisions at $\sqrt{s_{\rm NN}} = 2.76$ TeV", J. High Energy Phys. **02**, 156 (2016), doi:10.1007/JHEP02(2016)156, arXiv:1601.00079.

[353] CMS Collaboration, "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**, 034014 (2016), doi:10.1103/PhysRevD.93.034014, arXiv:1508.03862.

[354] CMS Collaboration, "Measurement of the top quark pair production cross section in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **116**, 052002 (2016), doi:10.1103/PhysRevLett.116.052002, arXiv:1510.05302.

[355] CMS Collaboration, "Search for $W' \to$ tb in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **02**, 122 (2016), doi:10.1007/JHEP02(2016)122, arXiv:1509.06051.

[356] CMS Collaboration, "Search for a Higgs boson decaying into $\gamma^*\gamma \to \ell\ell\gamma$ with low dilepton mass in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **753**, 341 (2016), doi:10.1016/j.physletb.2015.12.039, arXiv:1507.03031.

[357] CMS Collaboration, "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", J. High Energy Phys. **02**, 145 (2016), doi:10.1007/JHEP02(2016)145, arXiv:1506.01443.

[358] CMS Collaboration, "Search for exotic decays of a Higgs boson into undetectable particles and one or more photons", Phys. Lett. B **753**, 363 (2016), doi:10.1016/j.physletb.2015.12.017, arXiv:1507.00359.

[359] CMS Collaboration, "Search for narrow resonances decaying to dijets in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **116**, 071801 (2016), doi:10.1103/PhysRevLett.116.071801, arXiv:1512.01224.

[360] CMS Collaboration, "Search for pair production of first and second generation leptoquarks in proton-proton collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. D **93**, 032004 (2016), doi:10.1103/PhysRevD.93.032004, arXiv:1509.03744.

[361] CMS Collaboration, "Search for single production of scalar leptoquarks in proton-proton collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. D **93**, 032005 (2016), doi:10.1103/PhysRevD.93.032005, arXiv:1509.03750, [Erratum: Phys. Rev. D 95, 039906 (2017)].

[362] CMS Collaboration, "Event generator tunes obtained from underlying event and multiparton scattering measurements", Eur. Phys. J. C **76**, 155 (2016), doi:10.1140/epjc/s10052-016-3988-x, arXiv:1512.00815.

[363] CMS Collaboration, "Measurement of the $t\bar{t}$ production cross section in the all-jets final state in pp collisions at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **76**, 128 (2016), doi:10.1140/epjc/s10052-016-3956-5, arXiv:1509.06076.

[364] CMS Collaboration, "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. D **93**, 052007 (2016), doi:10.1103/PhysRevD.93.052007, arXiv:1601.01107.

[365] CMS Collaboration, "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**, 052011 (2016), doi:10.1103/PhysRevD.93.052011, arXiv:1511.09375, [Erratum: Phys. Rev. D 97, 099903 (2018)].

[366] CMS Collaboration, "Search for Excited Leptons in Proton-Proton Collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **03**, 125 (2016), doi:10.1007/JHEP03(2016)125, arXiv:1511.01407.

[367] CMS Collaboration, "Transverse momentum spectra of inclusive b jets in pPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", Phys. Lett. B **754**, 59 (2016), doi:10.1016/j.physletb.2016.01.010, arXiv:1510.03373.

[368] CMS Collaboration, "Comparison of the Z/γ^* + jets to γ + jets cross sections in pp collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **10**, 128 (2016), doi:10.1007/JHEP04(2016)010, arXiv:1505.06520, [Erratum: J. High Energy Phys. 04, 010 (2016)].

[369] CMS Collaboration, "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", J. High Energy Phys. **04**, 005 (2016), doi:10.1007/JHEP04(2016)005, arXiv:1512.08377.

[370] CMS Collaboration, "Measurement of long-range near-side two-particle angular correlations in pp collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **116**, 172302 (2016), doi:10.1103/PhysRevLett.116.172302, arXiv:1510.03068.

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

[372] CMS Collaboration, "Measurement of Top Quark Polarisation in t-Channel Single Top Quark Production", J. High Energy Phys. **04**, 073 (2016), doi:10.1007/JHEP04(2016)073, arXiv:1511.02138.

[373] D. Anderson and others, "Precision timing calorimeter for high energy physics", IEEE Trans. Nucl. Sci. **63**, 591 (2016), doi:10.1109/TNS.2016.2528166.

[374] CMS Collaboration, "Search for Anomalous Single Top Quark Production in Association with a Photon in pp Collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **04**, 035 (2016), doi:10.1007/JHEP04(2016)035, arXiv:1511.03951.

[375] CMS Collaboration, "Search for heavy Majorana neutrinos in $\mathrm{e}^{\pm}\mathrm{e}^{\pm}$+ jets and $\mathrm{e}^{\pm}\ \mu^{\pm}$+ jets events in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **04**, 169 (2016), doi:10.1007/JHEP04(2016)169, arXiv:1603.02248.

[376] CMS Collaboration, "Search for massive WH resonances decaying into the $\ell\nu\mathrm{b}\overline{\mathrm{b}}$ final state at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **76**, 237 (2016), doi:10.1140/epjc/s10052-016-4067-z, arXiv:1601.06431.

[377] CMS Collaboration, "Search for new phenomena in monophoton final states in proton-proton collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **755**, 102 (2016), doi:10.1016/j.physletb.2016.01.057, arXiv:1410.8812.

[378] CMS Collaboration, "Search for W′ decaying to tau lepton and neutrino in proton-proton collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **755**, 196 (2016), doi:10.1016/j.physletb.2016.02.002, arXiv:1508.04308.

[379] CMS Collaboration, "Searches for a heavy scalar boson H decaying to a pair of 125 GeV Higgs bosons hh or for a heavy pseudoscalar boson A decaying to Zh, in the final states with $h \to \tau\tau$", Phys. Lett. B **755**, 217 (2016), doi:10.1016/j.physletb.2016.01.056, arXiv:1510.01181.

[380] CMS Collaboration, "Measurement of the inclusive jet cross section in pp collisions at $\sqrt{s} = 2.76$ TeV", Eur. Phys. J. C **76**, 265 (2016), doi:10.1140/epjc/s10052-016-4083-z, arXiv:1512.06212.

[381] CMS Collaboration, "Measurement of the ratio $\mathcal{B}(B_s^0 \to J/\psi f_0(980))$ / $\mathcal{B}(B_s^0 \to J/\psi\phi(1020))$ in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **756**, 84 (2016), doi:10.1016/j.physletb.2016.02.047, arXiv:1501.06089.

[382] CMS Collaboration, "Measurement of the top quark mass using charged particles in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. D **93**, 092006 (2016), doi:10.1103/PhysRevD.93.092006, arXiv:1603.06536.

[383] CMS Collaboration, "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**, 092009 (2016), doi:10.1103/PhysRevD.93.092009, arXiv:1602.02917.

[384] CMS Collaboration, "Forward–backward asymmetry of Drell–Yan lepton pairs in pp collisions at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **76**, 325 (2016), doi:10.1140/epjc/s10052-016-4156-z, arXiv:1601.04768.

[385] CMS Collaboration, "Inclusive and differential measurements of the $t\bar{t}$ charge asymmetry in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **757**, 154 (2016), doi:10.1016/j.physletb.2016.03.060, arXiv:1507.03119.

[386] CMS Collaboration, "Measurement of the pp $\to$ ZZ Production Cross Section and Constraints on Anomalous Triple Gauge Couplings in Four-Lepton Final States at $\sqrt{s} = 8$ TeV", Phys. Lett. B **740**, 250 (2016), doi:10.1016/j.physletb.2016.04.010, arXiv:1406.0113, [Erratum: Phys. Lett. B 757, 569 (2016)].

[387] CMS Collaboration, "Measurement of the CP-violating weak phase ϕ_s and the decay width difference $\Delta\Gamma_s$ using the $B_s^0 \to J/\psi\phi(1020)$ decay channel in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **757**, 97 (2016), doi:10.1016/j.physletb.2016.03.046, arXiv:1507.07527.

[388] CMS Collaboration, "Search for lepton flavour violating decays of heavy resonances and quantum black holes to an eμ pair in proton-proton collisions at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **76**, 317 (2016), doi:10.1140/epjc/s10052-016-4149-y, arXiv:1604.05239.

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

[390] CMS Collaboration, "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**, 6 (2016), doi:10.1016/j.physletb.2016.03.039, arXiv:1508.01218.

[391] CMS Collaboration, "Search for the associated production of a Higgs boson with a single top quark in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **06**, 177 (2016), doi:10.1007/JHEP06(2016)177, arXiv:1509.08159.

[392] CMS Collaboration, "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**, 379 (2016), doi:10.1140/epjc/s10052-016-4105-x, arXiv:1510.03072.

[393] CMS Collaboration, "Measurement of inclusive jet production and nuclear modifications in pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV", Eur. Phys. J. C **76**, 372 (2016), doi:10.1140/epjc/s10052-016-4205-7, arXiv:1601.02001.

[394] CMS Collaboration, "Measurement of Spin Correlations in $t\bar{t}$ Production using the Matrix Element Method in the Muon+Jets Final State in pp Collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **758**, 321 (2016), doi:10.1016/j.physletb.2016.05.005, arXiv:1511.06170.

[395] CMS Collaboration, "Measurement of the W^+W^- cross section in pp collisions at $\sqrt{s} = 8$ TeV and limits on anomalous gauge couplings", Eur. Phys. J. C **76**, 401 (2016), doi:10.1140/epjc/s10052-016-4219-1, arXiv:1507.03268.

[396] D. Anderson et al., "Precision timing calorimeter for high energy physics", Nucl. Instrum. Methods Phys. Res. A **824**, 670 (2016), doi:10.1016/j.nima.2015.11.129.

[397] CMS Collaboration, "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**, 296 (2016), doi:10.1016/j.physletb.2016.05.003, arXiv:1511.03610.

[398] CMS Collaboration, "Search for direct pair production of scalar top quarks in the single- and dilepton channels in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **07**, 027 (2016), doi:10.1007/JHEP07(2016)027, arXiv:1602.03169, [Erratum: J. High Energy Phys. 09, 056 (2016)].

[399] CMS Collaboration, "Search for heavy resonances decaying to two Higgs bosons in final states containing four b quarks", Eur. Phys. J. C **76**, 371 (2016), doi:10.1140/epjc/s10052-016-4206-6, arXiv:1602.08762.

[400] CMS Collaboration, "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**, 031802 (2016), doi:10.1103/PhysRevLett.117.031802, arXiv:1604.08907.

[401] CMS Collaboration, "Search for Resonant Production of High-Mass Photon Pairs in Proton-Proton Collisions at $\sqrt{s} = 8$ and 13 TeV", Phys. Rev. Lett. **117**, 051802 (2016), doi:10.1103/PhysRevLett.117.051802, arXiv:1606.04093.

[402] CMS Collaboration, "Search for supersymmetry in the multijet and missing transverse momentum final state in pp collisions at 13 TeV", Phys. Lett. B **758**, 152 (2016), doi:10.1016/j.physletb.2016.05.002, arXiv:1602.06581.

[403] CMS Collaboration, "Azimuthal decorrelation of jets widely separated in rapidity in pp collisions at $\sqrt{s} = 7$ TeV", J. High Energy Phys. **08**, 139 (2016), doi:10.1007/JHEP08(2016)139, arXiv:1601.06713.

[404] CMS Collaboration, "Combined search for anomalous pseudoscalar HVV couplings in VH(H $\to b\bar{b}$) production and H $\to$ VV decay", Phys. Lett. B **759**, 672 (2016), doi:10.1016/j.physletb.2016.06.004, arXiv:1602.04305.

[405] CMS Collaboration, "Evidence for exclusive $\gamma\gamma \to W^+W^-$ production and constraints on anomalous quartic gauge couplings in pp collisions at $\sqrt{s} = 7$ and 8 TeV", J. High Energy Phys. **08**, 119 (2016), doi:10.1007/JHEP08(2016)119, arXiv:1604.04464.

[406] CMS Collaboration, "Measurement of the differential cross section and charge asymmetry for inclusive pp $\to W^{\pm} + X$ production at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **76**, 469 (2016), doi:10.1140/epjc/s10052-016-4293-4, arXiv:1603.01803.

[407] CMS Collaboration, "Measurement of the double-differential inclusive jet cross section in proton–proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **76**, 451 (2016), doi:10.1140/epjc/s10052-016-4286-3, arXiv:1605.04436.

[408] CMS Collaboration, "Measurement of the inelastic cross section in proton–lead collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", Phys. Lett. B **759**, 641 (2016), doi:10.1016/j.physletb.2016.06.027, arXiv:1509.03893.

[409] CMS Collaboration, "Measurement of the t-tbar production cross section in the e-mu channel in proton-proton collisions at sqrt(s) = 7 and 8 TeV", J. High Energy Phys. **08**, 029 (2016), doi:10.1007/JHEP08(2016)029, arXiv:1603.02303.

[410] ATLAS, CMS Collaboration, "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", J. High Energy Phys. **08**, 045 (2016), doi:10.1007/JHEP08(2016)045, arXiv:1606.02266.

[411] CMS Collaboration, "Search for direct pair production of supersymmetric top quarks decaying to all-hadronic final states in pp collisions at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **76**, 460 (2016), doi:10.1140/epjc/s10052-016-4292-5, arXiv:1603.00765.

[412] CMS Collaboration, "Search for neutral resonances decaying into a Z boson and a pair of b jets or τ leptons", Phys. Lett. B **759**, 369 (2016), doi:10.1016/j.physletb.2016.05.087, arXiv:1603.02991.

[413] CMS Collaboration, "Search for new physics in same-sign dilepton events in proton–proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **76**, 439 (2016), doi:10.1140/epjc/s10052-016-4261-z, arXiv:1605.03171.

[414] CMS Collaboration, "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", J. High Energy Phys. **08**, 122 (2016), doi:10.1007/JHEP08(2016)122, arXiv:1605.04608.

[415] CMS Collaboration, "Search for supersymmetry in electroweak production with photons and large missing transverse energy in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **759**, 479 (2016), doi:10.1016/j.physletb.2016.05.088, arXiv:1602.08772.

[416] CMS Collaboration, "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**, 9 (2016), doi:10.1016/j.physletb.2016.05.033, arXiv:1512.08002.

[417] CMS Collaboration, "Study of Z boson production in pPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", Phys. Lett. B **759**, 36 (2016), doi:10.1016/j.physletb.2016.05.044, arXiv:1512.06461.

[418] CMS Collaboration, "Measurement of dijet azimuthal decorrelation in pp collisions at $\sqrt{s} = 8$ TeV", Eur. Phys. J. C **76**, 536 (2016), doi:10.1140/epjc/s10052-016-4346-8, arXiv:1602.04384.

[419] CMS Collaboration, "Measurement of the $Z\gamma \to \nu\bar{\nu}\gamma$ production cross section in pp collisions at $\sqrt{s} = 8$ TeV and limits on anomalous $ZZ\gamma$ and $Z\gamma\gamma$ trilinear gauge boson couplings", Phys. Lett. B **760**, 448 (2016), doi:10.1016/j.physletb.2016.06.080, arXiv:1602.07152.

[420] CMS Collaboration, "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**, 052006 (2016), doi:10.1103/PhysRevD.94.052006, arXiv:1607.00837.

[421] CMS Collaboration, "Measurements of $t\bar{t}$ charge asymmetry using dilepton final states in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **760**, 365 (2016), doi:10.1016/j.physletb.2016.07.006, arXiv:1603.06221.

[422] CMS Collaboration, "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", J. High Energy Phys. **09**, 051 (2016), doi:10.1007/JHEP09(2016)051, arXiv:1605.02329.

[423] CMS Collaboration, "Search for R-parity violating decays of a top squark in proton-proton collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **760**, 178 (2016), doi:10.1016/j.physletb.2016.06.039, arXiv:1602.04334.

[424] CMS Collaboration, "Search for s channel single top quark production in pp collisions at $\sqrt{s} = 7$ and 8 TeV", J. High Energy Phys. **09**, 027 (2016), doi:10.1007/JHEP09(2016)027, arXiv:1603.02555.

[425] CMS Collaboration, "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**, 052012 (2016), doi:10.1103/PhysRevD.94.052012, arXiv:1603.06896.

[426] CMS Collaboration, "Υ(nS) polarizations versus particle multiplicity in pp collisions at $\sqrt{s} = 7$ TeV", Phys. Lett. B **761**, 31 (2016), doi:10.1016/j.physletb.2016.07.065, arXiv:1603.02913.

[427] CMS HCAL Collaboration, "Dose rate effects in the radiation damage of the plastic scintillators of the CMS Hadron Endcap Calorimeter", J. Instrum. **11**, T10004 (2016), doi:10.1088/1748-0221/11/10/T10004, arXiv:1608.07267.

[428] CMS Collaboration, "Measurement of the integrated and differential $t\bar{t}$ production cross sections for high-p_{T} top quarks in pp collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", Phys. Rev. D **94**, 072002 (2016), doi:10.1103/PhysRevD.94.072002, arXiv:1605.00116.

[429] CMS Collaboration, "Phenomenological MSSM interpretation of CMS searches in pp collisions at sqrt(s) = 7 and 8 TeV", J. High Energy Phys. **10**, 129 (2016), doi:10.1007/JHEP10(2016)129, arXiv:1606.03577.

[430] CMS Collaboration, "Search for new physics with the M_{T2} variable in all-jets final states produced in pp collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **10**, 006 (2016), doi:10.1007/JHEP10(2016)006, arXiv:1603.04053.

[431] CMS Collaboration, "Decomposing transverse momentum balance contributions for quenched jets in PbPb collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76\,\mathrm{TeV}$", J. High Energy Phys. **11**, 055 (2016), doi:10.1007/JHEP11(2016)055, arXiv:1609.02466.

[432] CMS Collaboration, "Measurement of electroweak production of a W boson and two forward jets in proton-proton collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", J. High Energy Phys. **11**, 147 (2016), doi:10.1007/JHEP11(2016)147, arXiv:1607.06975.

[433] CMS Collaboration, "Measurement of the W boson helicity fractions in the decays of top quark pairs to lepton + jets final states produced in pp collisions at $\sqrt{s} = 8\mathrm{TeV}$", Phys. Lett. B **762**, 512 (2016), doi:10.1016/j.physletb.2016.10.007, arXiv:1605.09047.

[434] CMS Collaboration, "Search for Third-Generation Scalar Leptoquarks in the $\mathrm{t}\tau$ Channel in Proton-Proton Collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", J. High Energy Phys. **07**, 042 (2016), doi:10.1007/JHEP11(2016)056, arXiv:1503.09049, [Erratum: J. High Energy Phys. 11, 056 (2016)].

[435] CMS Collaboration, "Measurement of the mass of the top quark in decays with a J/ψ meson in pp collisions at 8 TeV", J. High Energy Phys. **12**, 123 (2016), doi:10.1007/JHEP12(2016)123, arXiv:1608.03560.

[436] CMS Collaboration, "Measurement of the ZZ production cross section and $\mathrm{Z} \to \ell^+\ell^-\ell'^+\ell'^-$ branching fraction in pp collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Lett. B **763**, 280 (2016), doi:10.1016/j.physletb.2016.10.054, arXiv:1607.08834, [Erratum: Phys. Lett. B 772, 884 (2017)].

[437] CMS Collaboration, "Search for dark matter in proton-proton collisions at 8 TeV with missing transverse momentum and vector boson tagged jets", J. High Energy Phys. **12**, 083 (2016), doi:10.1007/JHEP12(2016)083, arXiv:1607.05764, [Erratum: J. High Energy Phys. 08, 035 (2017)].

[438] CMS Collaboration, "Search for dark matter particles in proton-proton collisions at $\sqrt{s} = 8\,\mathrm{TeV}$ using the razor variables", J. High Energy Phys. **12**, 088 (2016), doi:10.1007/JHEP12(2016)088, arXiv:1603.08914.

[439] CMS Collaboration, "Search for lepton flavour violating decays of the Higgs boson to $e\tau$ and $e\mu$ in proton–proton collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", Phys. Lett. B **763**, 472 (2016), doi:10.1016/j.physletb.2016.09.062, arXiv:1607.03561.

[440] CMS Collaboration, "Search for long-lived charged particles in proton-proton collisions at $\sqrt{s} =$ 13 TeV", Phys. Rev. D **94**, 112004 (2016), doi:10.1103/PhysRevD.94.112004, arXiv:1609.08382.

[441] CMS Collaboration, "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", J. High Energy Phys. **12**, 013 (2016), doi:10.1007/JHEP12(2016)013, arXiv:1607.00915.

[442] CMS Collaboration, "Searches for R-parity-violating supersymmetry in pp collisions at $\sqrt{s} = 8$ TeV in final states with 0–4 leptons", Phys. Rev. D **94**, 112009 (2016), doi:10.1103/PhysRevD.94.112009, arXiv:1606.08076.

[443] CMS Collaboration, "Studies of inclusive four-jet production with two b-tagged jets in proton-proton collisions at 7 TeV", Phys. Rev. D **94**, 112005 (2016), doi:10.1103/PhysRevD.94.112005, arXiv:1609.03489.

[444] CMS Collaboration, "Inclusive search for supersymmetry using razor variables in pp collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **95**, 012003 (2017), doi:10.1103/PhysRevD.95.012003, arXiv:1609.07658.

[445] CMS Collaboration, "Measurements of the $\mathrm{t\bar{t}}$ 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**, 15 (2017), doi:10.1140/epjc/s10052-016-4504-z, arXiv:1602.09024.

[446] CMS Collaboration, "Observation of the decay $B^+ \to \psi(2S)\phi(1020)K^+$ in pp collisions at $\sqrt{s} = 8$ TeV", Phys. Lett. B **764**, 66 (2017), doi:10.1016/j.physletb.2016.11.001, arXiv:1607.02638.

[447] CMS Collaboration, "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**, 021802 (2017), doi:10.1103/PhysRevLett.118.021802, arXiv:1605.09305.

[448] CMS Collaboration, "Search for high-mass $Z\gamma$ resonances in $\mathrm{e^+e^-}\gamma$ and $\mu^+\mu^-\gamma$ final states in proton-proton collisions at $\sqrt{s} = 8$ and 13 TeV", J. High Energy Phys. **01**, 076 (2017), doi:10.1007/JHEP01(2017)076, arXiv:1610.02960.

[449] CMS Collaboration, "Search for R-parity violating supersymmetry with displaced vertices in proton-proton collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. D **95**, 012009 (2017), doi:10.1103/PhysRevD.95.012009, arXiv:1610.05133.

[450] CMS Collaboration, "Search for supersymmetry in events with one lepton and multiple jets in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **95**, 012011 (2017), doi:10.1103/PhysRevD.95.012011, arXiv:1609.09386.

[451] CMS Collaboration, "The CMS trigger system", J. Instrum. **12**, P01020 (2017), doi:10.1088/1748-0221/12/01/P01020, arXiv:1609.02366.

[452] CMS Collaboration, "Evidence for collectivity in pp collisions at the LHC", Phys. Lett. B **765**, 193 (2017), doi:10.1016/j.physletb.2016.12.009, arXiv:1606.06198.

[453] CMS Collaboration, "Jet energy scale and resolution in the CMS experiment in pp collisions at 8 TeV", J. Instrum. **12**, P02014 (2017), doi:10.1088/1748-0221/12/02/P02014, arXiv:1607.03663.

[454] CMS Collaboration, "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**, 92 (2017), doi:10.1140/epjc/s10052-016-4573-z, arXiv:1608.07561.

[455] CMS Collaboration, "Measurement of the transverse momentum spectra of weak vector bosons produced in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **02**, 096 (2017), doi:10.1007/JHEP02(2017)096, arXiv:1606.05864.

[456] CMS Collaboration, "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", J. High Energy Phys. **02**, 028 (2017), doi:10.1007/JHEP02(2017)028, arXiv:1610.03545.

[457] CMS Collaboration, "Search for heavy resonances decaying to tau lepton pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **02**, 048 (2017), doi:10.1007/JHEP02(2017)048, arXiv:1611.06594.

[458] CMS Collaboration, "Search for top quark decays via Higgs-boson-mediated flavor-changing neutral currents in pp collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **02**, 079 (2017), doi:10.1007/JHEP02(2017)079, arXiv:1610.04857.

[459] CMS Collaboration, "Searches for invisible decays of the Higgs boson in pp collisions at $\sqrt{s} = 7$, 8, and 13 TeV", J. High Energy Phys. **02**, 135 (2017), doi:10.1007/JHEP02(2017)135, arXiv:1610.09218.

[460] CMS Collaboration, "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", J. High Energy Phys. **03**, 156 (2017), doi:10.1007/JHEP03(2017)156, arXiv:1609.05331.

[461] CMS Collaboration, "Measurement of the $\mathrm{t\bar{t}}$ production cross section using events in the eμ final state in pp collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **77**, 172 (2017), doi:10.1140/epjc/s10052-017-4718-8, arXiv:1611.04040.

[462] CMS Collaboration, "Measurement of the transverse momentum spectrum of the Higgs boson produced in pp collisions at $\sqrt{s} = 8$ TeV using $H \to WW$ decays", J. High Energy Phys. **03**, 032 (2017), doi:10.1007/JHEP03(2017)032, arXiv:1606.01522.

[463] CMS Collaboration, "Measurement of the WZ production cross section in pp collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **766**, 268 (2017), doi:10.1016/j.physletb.2017.01.011, arXiv:1607.06943.

[464] CMS Collaboration, "Measurements of differential cross sections for associated production of a W boson and jets in proton-proton collisions at $\sqrt{s} = 8$ TeV", Phys. Rev. D **95**, 052002 (2017), doi:10.1103/PhysRevD.95.052002, arXiv:1610.04222.

[465] CMS Collaboration, "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**, 122301 (2017), doi:10.1103/PhysRevLett.118.122301, arXiv:1610.00263.

[466] CMS Collaboration, "Search for CP violation in $\mathrm{t\bar{t}}$ production and decay in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **03**, 101 (2017), doi:10.1007/JHEP03(2017)101, arXiv:1611.08931.

[467] CMS Collaboration, "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", J. High Energy Phys. **03**, 061 (2017), doi:10.1007/JHEP03(2017)061, arXiv:1701.02042, [Erratum: J. High Energy Phys. 09, 106 (2017)].

[468] CMS Collaboration, "Search for heavy neutrinos or third-generation leptoquarks in final states with two hadronically decaying τ leptons and two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **03**, 077 (2017), doi:10.1007/JHEP03(2017)077, arXiv:1612.01190.

[469] CMS Collaboration, "Search for massive resonances decaying into WW, WZ or ZZ bosons in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **03**, 162 (2017), doi:10.1007/JHEP03(2017)162, arXiv:1612.09159.

[470] CMS Collaboration, "Charged-particle nuclear modification factors in PbPb and pPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", J. High Energy Phys. **04**, 039 (2017), doi:10.1007/JHEP04(2017)039, arXiv:1611.01664.

[471] CMS Collaboration, "Measurement of prompt and nonprompt J/ψ production in pp and pPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", Eur. Phys. J. C **77**, 269 (2017), doi:10.1140/epjc/s10052-017-4828-3, arXiv:1702.01462.

[472] CMS Collaboration, "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**, 236 (2017), doi:10.1140/epjc/s10052-017-4730-z, arXiv:1609.05721.

[473] CMS Collaboration, "Measurements of differential production cross sections for a Z boson in association with jets in pp collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **04**, 022 (2017), doi:10.1007/JHEP04(2017)022, arXiv:1611.03844.

[474] CMS Collaboration, "Mechanical stability of the CMS strip tracker measured with a laser alignment system", J. Instrum. **12**, P04023 (2017), doi:10.1088/1748-0221/12/04/P04023, arXiv:1701.02022.

[475] CMS Collaboration, "Relative Modification of Prompt ψ(2S) and J/ψ Yields from pp to PbPb Collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", Phys. Rev. Lett. **118**, 162301 (2017), doi:10.1103/PhysRevLett.118.162301, arXiv:1611.01438.

[476] CMS Collaboration, "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", J. High Energy Phys. **04**, 136 (2017), doi:10.1007/JHEP04(2017)136, arXiv:1612.05336.

[477] CMS Collaboration, "Search for electroweak production of charginos in final states with two τ leptons in pp collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **04**, 018 (2017), doi:10.1007/JHEP04(2017)018, arXiv:1610.04870.

[478] CMS Collaboration, "Search for high-mass diphoton resonances in proton–proton collisions at 13 TeV and combination with 8 TeV search", Phys. Lett. B **767**, 147 (2017), doi:10.1016/j.physletb.2017.01.027, arXiv:1609.02507.

[479] CMS Collaboration, "Search for top squark pair production in compressed-mass-spectrum scenarios in proton-proton collisions at $\sqrt{s} = 8$ TeV using the α_T variable", Phys. Lett. B **767**, 403 (2017), doi:10.1016/j.physletb.2017.02.007, arXiv:1605.08993.

[480] CMS Collaboration, "Suppression and azimuthal anisotropy of prompt and nonprompt J/ψ production in PbPb collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76$ TeV", Eur. Phys. J. C **77**, 252 (2017), doi:10.1140/epjc/s10052-017-4781-1, arXiv:1610.00613.

[481] CMS Collaboration, "A search for new phenomena in pp collisions at $\sqrt{s} = 13$ TeV in final states with missing transverse momentum and at least one jet using the α_{T} variable", Eur. Phys. J. C **77**, 294 (2017), doi:10.1140/epjc/s10052-017-4787-8, arXiv:1611.00338.

[482] CMS Collaboration, "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**, 092001 (2017), doi:10.1103/PhysRevD.95.092001, arXiv:1610.04191.

[483] CMS Collaboration, "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**, 354 (2017), doi:10.1140/epjc/s10052-017-4912-8, arXiv:1703.02530.

[484] CMS Collaboration, "Multiplicity and rapidity dependence of strange hadron production in pp, pPb, and PbPb collisions at the LHC", Phys. Lett. B **768**, 103 (2017), doi:10.1016/j.physletb.2017.01.075, arXiv:1605.06699.

[485] CMS Collaboration, "Observation of Y(1S) pair production in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **05**, 013 (2017), doi:10.1007/JHEP05(2017)013, arXiv:1610.07095.

[486] CMS Collaboration, "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**, 137 (2017), doi:10.1016/j.physletb.2017.02.040, arXiv:1610.08066.

[487] CMS Collaboration, "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**, 57 (2017), doi:10.1016/j.physletb.2017.02.010, arXiv:1609.05391.

[488] CMS Collaboration, "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", J. High Energy Phys. **05**, 029 (2017), doi:10.1007/JHEP05(2017)029, arXiv:1701.07409.

[489] CMS Collaboration, "Searches for pair production of third-generation squarks in $\sqrt{s} = 13\,\text{TeV}$ pp collisions", Eur. Phys. J. C **77**, 327 (2017), doi:10.1140/epjc/s10052-017-4853-2, arXiv:1612.03877.

[490] CMS Collaboration, "Measurement of electroweak-induced production of Wγ with two jets in pp collisions at $\sqrt{s} = 8\,\text{TeV}$ and constraints on anomalous quartic gauge couplings", J. High Energy Phys. **06**, 106 (2017), doi:10.1007/JHEP06(2017)106, arXiv:1612.09256.

[491] CMS Collaboration, "Search for dijet resonances in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$ and constraints on dark matter and other models", Phys. Lett. B **769**, 520 (2017), doi:10.1016/j.physletb.2017.02.012, arXiv:1611.03568, [Erratum: Phys. Lett. B 772, 882 (2017)].

[492] CMS Collaboration, "Search for supersymmetry in events with photons and missing transverse energy in pp collisions at 13 TeV", Phys. Lett. B **769**, 391 (2017), doi:10.1016/j.physletb.2017.04.005, arXiv:1611.06604.

[493] CMS Collaboration, "Measurement of double-differential cross sections for top quark pair production in pp collisions at $\sqrt{s} = 8\,\text{TeV}$ and impact on parton distribution functions", Eur. Phys. J. C **77**, 459 (2017), doi:10.1140/epjc/s10052-017-4984-5, arXiv:1703.01630.

[494] CMS Collaboration, "Measurement of inclusive jet cross sections in pp and PbPb collisions at $\sqrt{s_{\text{NN}}} = 2.76\,\text{TeV}$", Phys. Rev. C **96**, 015202 (2017), doi:10.1103/PhysRevC.96.015202, arXiv:1609.05383.

[495] CMS Collaboration, "Measurement of the cross section for electroweak production of Zγ in association with two jets and constraints on anomalous quartic gauge couplings in proton–proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **770**, 380 (2017), doi:10.1016/j.physletb.2017.04.071, arXiv:1702.03025.

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

[497] CMS Collaboration, "Measurement of the mass difference between top quark and antiquark in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **770**, 50 (2017), doi:10.1016/j.physletb.2017.04.028, arXiv:1610.09551.

[498] CMS Collaboration, "Pseudorapidity dependence of long-range two-particle correlations in pPb collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Rev. C **96**, 014915 (2017), doi:10.1103/PhysRevC.96.014915, arXiv:1604.05347.

[499] CMS Collaboration, "Search for $\text{t}\bar{\text{t}}$ resonances in highly boosted lepton+jets and fully hadronic final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 001 (2017), doi:10.1007/JHEP07(2017)001, arXiv:1704.03366.

[500] CMS Collaboration, "Search for associated production of a Z boson with a single top quark and for tZ flavour-changing interactions in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **07**, 003 (2017), doi:10.1007/JHEP07(2017)003, arXiv:1702.01404.

[501] CMS Collaboration, "Search for dark matter produced with an energetic jet or a hadronically decaying W or Z boson at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 014 (2017), doi:10.1007/JHEP07(2017)014, arXiv:1703.01651.

[502] CMS Collaboration, "Search for heavy gauge W' boson in events with an energetic lepton and large missing transverse momentum at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **770**, 278 (2017), doi:10.1016/j.physletb.2017.04.043, arXiv:1612.09274.

[503] CMS Collaboration, "Search for new phenomena in events with high jet multiplicity and low missing transverse momentum in proton–proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **770**, 257 (2017), doi:10.1016/j.physletb.2017.01.073, arXiv:1608.01224.

[504] CMS Collaboration, "Search for new physics with dijet angular distributions in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 013 (2017), doi:10.1007/JHEP07(2017)013, arXiv:1703.09986.

[505] CMS Collaboration, "Search for supersymmetry in the all-hadronic final state using top quark tagging in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **96**, 012004 (2017), doi:10.1103/PhysRevD.96.012004, arXiv:1701.01954.

[506] CMS Collaboration, "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 $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 121 (2017), doi:10.1007/JHEP07(2017)121, arXiv:1703.03995.

[507] CMS Collaboration, "Suppression of $\Upsilon(1S)$, $\Upsilon(2S)$ and $\Upsilon(3S)$ production in PbPb collisions at $\sqrt{s_{\text{NN}}} = 2.76\,\text{TeV}$", Phys. Lett. B **770**, 357 (2017), doi:10.1016/j.physletb.2017.04.031, arXiv:1611.01510.

[508] CMS Collaboration, "Measurement of the inclusive energy spectrum in the very forward direction in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **08**, 046 (2017), doi:10.1007/JHEP08(2017)046, arXiv:1701.08695.

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

[510] CMS Collaboration, "Measurement of the total and differential inclusive B^+ hadron cross sections in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **771**, 435 (2017), doi:10.1016/j.physletb.2017.05.074, arXiv:1609.00873.

[511] CMS Collaboration, "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**, 80 (2017), doi:10.1016/j.physletb.2017.05.019, arXiv:1612.00999.

[512] CMS Collaboration, "Search for supersymmetry in multijet events with missing transverse momentum in proton-proton collisions at 13 TeV", Phys. Rev. D **96**, 032003 (2017), doi:10.1103/PhysRevD.96.032003, arXiv:1704.07781.

[513] CMS Collaboration, "Search for top quark partners with charge 5/3 in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **08**, 073 (2017), doi:10.1007/JHEP08(2017)073, arXiv:1705.10967.

[514] CMS Collaboration, "Searches for W' bosons decaying to a top quark and a bottom quark in proton-proton collisions at 13 TeV", J. High Energy Phys. **08**, 029 (2017), doi:10.1007/JHEP08(2017)029, arXiv:1706.04260.

[515] CMS Collaboration, "Study of Jet Quenching with Z + jet Correlations in Pb-Pb and pp Collisions at $\sqrt{s_{NN}} = 5.02$ TeV", Phys. Rev. Lett. **119**, 082301 (2017), doi:10.1103/PhysRevLett.119.082301, arXiv:1702.01060.

[516] CMS Collaboration, "Coherent J/ψ photoproduction in ultra-peripheral PbPb collisions at $\sqrt{s_{\text{NN}}} = 2.76\,\text{TeV}$ with the CMS experiment", Phys. Lett. B **772**, 489 (2017), doi:10.1016/j.physletb.2017.07.001, arXiv:1605.06966.

[517] CMS Collaboration, "Cross section measurement of t-channel single top quark production in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **772**, 752 (2017), doi:10.1016/j.physletb.2017.07.047, arXiv:1610.00678.

[518] CMS Collaboration, "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", J. High Energy Phys. **09**, 051 (2017), doi:10.1007/JHEP09(2017)051, arXiv:1701.06228.

[519] CMS Collaboration, "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**, 306 (2017), doi:10.1016/j.physletb.2017.06.053, arXiv:1612.08972.

[520] CMS Collaboration, "Search for a heavy resonance decaying to a top quark and a vector-like top quark at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 053 (2017), doi:10.1007/JHEP09(2017)053, arXiv:1703.06352.

[521] CMS Collaboration, "Search for anomalous couplings in boosted WW/WZ $\to \ell\nu\mathrm{q}\bar{\mathrm{q}}$ production in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **772**, 21 (2017), doi:10.1016/j.physletb.2017.06.009, arXiv:1703.06095.

[522] CMS Collaboration, "Search for heavy resonances that decay into a vector boson and a Higgs boson in hadronic final states at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **77**, 636 (2017), doi:10.1140/epjc/s10052-017-5192-z, arXiv:1707.01303.

[523] CMS Collaboration, "Search for high-mass $\mathrm{Z}\gamma$ resonances in proton-proton collisions at $\sqrt{s} = 8$ and 13 TeV using jet substructure techniques", Phys. Lett. B **772**, 363 (2017), doi:10.1016/j.physletb.2017.06.062, arXiv:1612.09516.

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

[525] CMS Collaboration, "Search for new phenomena with multiple charged leptons in proton–proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **77**, 635 (2017), doi:10.1140/epjc/s10052-017-5182-1, arXiv:1701.06940.

[526] CMS Collaboration, "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 $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **77**, 578 (2017), doi:10.1140/epjc/s10052-017-5079-z, arXiv:1704.07323.

[527] CMS Collaboration, "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. B **772**, 634 (2017), doi:10.1016/j.physletb.2017.07.022, arXiv:1701.08328.

[528] CMS Collaboration, "Search for standard model production of four top quarks in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **772**, 336 (2017), doi:10.1016/j.physletb.2017.06.064, arXiv:1702.06164.

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

[530] CMS Collaboration, "Measurement of the differential cross sections for the associated production of a W boson and jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **96**, 072005 (2017), doi:10.1103/PhysRevD.96.072005, arXiv:1707.05979.

[531] CMS Collaboration, "Measurement of the semileptonic $\mathrm{t\bar{t}} + \gamma$ production cross section in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **10**, 006 (2017), doi:10.1007/JHEP10(2017)006, arXiv:1706.08128.

[532] CMS Collaboration, "Measurements of jet charge with dijet events in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **10**, 131 (2017), doi:10.1007/JHEP10(2017)131, arXiv:1706.05868.

[533] CMS Collaboration, "Measurements of the $\mathrm{pp} \to W\gamma\gamma$ and $\mathrm{pp} \to Z\gamma\gamma$ cross sections and limits on anomalous quartic gauge couplings at $\sqrt{s} = 8\,\text{TeV}$", J. High Energy Phys. **10**, 072 (2017), doi:10.1007/JHEP10(2017)072, arXiv:1704.00366.

[534] CMS Collaboration, "Particle-flow reconstruction and global event description with the CMS detector", J. Instrum. **12**, P10003 (2017), doi:10.1088/1748-0221/12/10/P10003, arXiv:1706.04965.

[535] CMS Collaboration, "Search for associated production of dark matter with a Higgs boson decaying to $b\bar{b}$ or $\gamma\gamma$ at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **10**, 180 (2017), doi:10.1007/JHEP10(2017)180, arXiv:1703.05236.

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

[537] CMS Collaboration, "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", J. High Energy Phys. **10**, 005 (2017), doi:10.1007/JHEP10(2017)005, arXiv:1707.03316.

[538] CMS Collaboration, "Search for Higgs boson pair production in the $bb\tau\tau$ final state in proton-proton collisions at $\sqrt{(s)} = 8$ TeV", Phys. Rev. D **96**, 072004 (2017), doi:10.1103/PhysRevD.96.072004, arXiv:1707.00350.

[539] CMS Collaboration, "Search for leptophobic Z' bosons decaying into four-lepton final states in proton–proton collisions at $\sqrt{s}$ =8TeV", Phys. Lett. B **773**, 563 (2017), doi:10.1016/j.physletb.2017.08.069, arXiv:1701.01345.

[540] CMS Collaboration, "Search for light bosons in decays of the 125 GeV Higgs boson in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **10**, 076 (2017), doi:10.1007/JHEP10(2017)076, arXiv:1701.02032.

[541] CMS Collaboration, "Search for new phenomena with the M_{T2} variable in the all-hadronic final state produced in proton–proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **77**, 710 (2017), doi:10.1140/epjc/s10052-017-5267-x, arXiv:1705.04650.

[542] CMS Collaboration, "Search for new physics in the monophoton final state in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **10**, 073 (2017), doi:10.1007/JHEP10(2017)073, arXiv:1706.03794.

[543] CMS Collaboration, "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**, 151802 (2017), doi:10.1103/PhysRevLett.119.151802, arXiv:1705.04673.

[544] CMS Collaboration, "Search for top squark pair production in pp collisions at $\sqrt{s} = 13$ TeV using single lepton events", J. High Energy Phys. **10**, 019 (2017), doi:10.1007/JHEP10(2017)019, arXiv:1706.04402.

[545] CMS Collaboration, "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**, 533 (2017), doi:10.1016/j.physletb.2017.09.083, arXiv:1705.09171.

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

[547] CMS Collaboration, "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**, 682 (2017), doi:10.1016/j.physletb.2017.10.020, arXiv:1708.02812.

[548] CMS Collaboration, "Measurements of properties of the Higgs boson decaying into the four-lepton final state in pp collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **11**, 047 (2017), doi:10.1007/JHEP11(2017)047, arXiv:1706.09936.

[549] CMS Collaboration, "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**, 751 (2017), doi:10.1140/epjc/s10052-017-5140-y, arXiv:1611.06507.

[550] CMS Collaboration, "Search for a light pseudoscalar Higgs boson produced in association with bottom quarks in pp collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **11**, 010 (2017), doi:10.1007/JHEP11(2017)010, arXiv:1707.07283.

[551] CMS Collaboration, "Search for black holes in high-multiplicity final states in proton-proton collisions at $\sqrt{s}$ =13 TeV", Phys. Lett. B **774**, 279 (2017), doi:10.1016/j.physletb.2017.09.053, arXiv:1705.01403.

[552] CMS Collaboration, "Search for electroweak production of charginos and neutralinos in WH events in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **11**, 029 (2017), doi:10.1007/JHEP11(2017)029, arXiv:1706.09933.

[553] CMS Collaboration, "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", J. High Energy Phys. **11**, 085 (2017), doi:10.1007/JHEP11(2017)085, arXiv:1706.03408.

[554] CMS Collaboration, "Constraints on anomalous Higgs boson couplings using production and decay information in the four-lepton final state", Phys. Lett. B **775**, 1 (2017), doi:10.1016/j.physletb.2017.10.021, arXiv:1707.00541.

[555] CMS Collaboration, "Measurement of charged pion, kaon, and proton production in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **96**, 112003 (2017), doi:10.1103/PhysRevD.96.112003, arXiv:1706.10194.

[556] CMS Collaboration, "Observation of top quark production in proton-nucleus collisions", Phys. Rev. Lett. **119**, 242001 (2017), doi:10.1103/PhysRevLett.119.242001, arXiv:1709.07411.

[557] CMS Collaboration, "Principal-component analysis of two-particle azimuthal correlations in PbPb and pPb collisions at CMS", Phys. Rev. C **96**, 064902 (2017), doi:10.1103/PhysRevC.96.064902, arXiv:1708.07113.

[558] CMS HCAL Collaboration, "Radioactive source calibration test of the CMS Hadron Endcap Calorimeter test wedge with Phase I upgrade electronics", J. Instrum. **12**, P12034 (2017), doi:10.1088/1748-0221/12/12/P12034.

[559] CMS Collaboration, "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**, 315 (2017), doi:10.1016/j.physletb.2017.11.001, arXiv:1706.08578.

[560] CMS Collaboration, "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**, 845 (2017), doi:10.1140/epjc/s10052-017-5317-4, arXiv:1706.02581.

[561] CMS Collaboration, "Search for Evidence of the Type-III Seesaw Mechanism in Multilepton Final States in Proton-Proton Collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **119**, 221802 (2017), doi:10.1103/PhysRevLett.119.221802, arXiv:1708.07962.

[562] CMS Collaboration, "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", J. High Energy Phys. **12**, 142 (2017), doi:10.1007/JHEP12(2017)142, arXiv:1707.06193.

[563] CMS Collaboration, "Azimuthal anisotropy of charged particles with transverse momentum up to 100 GeV/c in PbPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", Phys. Lett. B **776**, 195 (2018), doi:10.1016/j.physletb.2017.11.041, arXiv:1702.00630.

[564] CMS HCAL Collaboration, "Brightness and uniformity measurements of plastic scintillator tiles at the CERN H2 test beam", J. Instrum. **13**, P01002 (2018), doi:10.1088/1748-0221/13/01/P01002, arXiv:1709.08672.

[565] CMS Collaboration, "Measurements of $\mathrm{t\bar{t}}$ 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**, 355 (2018), doi:10.1016/j.physletb.2017.11.043, arXiv:1705.10141.

[566] CMS Collaboration, "Pseudorapidity distributions of charged hadrons in proton-lead collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ and 8.16 TeV", J. High Energy Phys. **01**, 045 (2018), doi:10.1007/JHEP01(2018)045, arXiv:1710.09355.

[567] CMS Collaboration, "Search for low mass vector resonances decaying into quark-antiquark pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **01**, 097 (2018), doi:10.1007/JHEP01(2018)097, arXiv:1710.00159.

[568] CMS Collaboration, "Search for resonant and nonresonant Higgs boson pair production in the $\mathrm{b\bar{b}}\ell^{\circ}\ell^{\circ}$ final state in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **01**, 054 (2018), doi:10.1007/JHEP01(2018)054, arXiv:1708.04188.

[569] CMS Collaboration, "Search for supersymmetry in proton-proton collisions at 13 TeV using identified top quarks", Phys. Rev. D **97**, 012007 (2018), doi:10.1103/PhysRevD.97.012007, arXiv:1710.11188.

[570] CMS Collaboration, "Constraints on the double-parton scattering cross section from same-sign W boson pair production in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **02**, 032 (2018), doi:10.1007/JHEP02(2018)032, arXiv:1712.02280.

[571] CMS Collaboration, "Inclusive search for a highly boosted Higgs boson decaying to a bottom quark-antiquark pair", Phys. Rev. Lett. **120**, 071802 (2018), doi:10.1103/PhysRevLett.120.071802, arXiv:1709.05543.

[572] CMS Collaboration, "Measurements of the $\mathrm{pp} \to \mathrm{ZZ}$ production cross section and the $\mathrm{Z} \to 4\ell$ branching fraction, and constraints on anomalous triple gauge couplings at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **78**, 165 (2018), doi:10.1140/epjc/s10052-018-5567-9, arXiv:1709.08601, [Erratum: Eur. Phys. J. C 78, 515 (2018)].

[573] CMS Collaboration, "Observation of Correlated Azimuthal Anisotropy Fourier Harmonics in pp and $p+Pb$ Collisions at the LHC", Phys. Rev. Lett. **120**, 092301 (2018), doi:10.1103/PhysRevLett.120.092301, arXiv:1709.09189.

[574] CMS Collaboration, "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**, 081801 (2018), doi:10.1103/PhysRevLett.120.081801, arXiv:1709.05822.

[575] CMS Collaboration, "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**, 39 (2018), doi:10.1016/j.physletb.2017.12.006, arXiv:1708.08539.

[576] CMS Collaboration, "Search for Higgsino pair production in pp collisions at $\sqrt{s} = 13$ TeV in final states with large missing transverse momentum and two Higgs bosons decaying via $H \to b\bar{b}$", Phys. Rev. D **97**, 032007 (2018), doi:10.1103/PhysRevD.97.032007, arXiv:1709.04896.

[577] CMS Collaboration, "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. C **78**, 140 (2018), doi:10.1140/epjc/s10052-018-5607-5, arXiv:1710.10614.

[578] CMS Collaboration, "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", J. High Energy Phys. **02**, 067 (2018), doi:10.1007/JHEP02(2018)067, arXiv:1710.09154.

[579] CMS Collaboration, "Search for top squarks and dark matter particles in opposite-charge dilepton final states at $\sqrt{s} = 13$ TeV", Phys. Rev. D **97**, 032009 (2018), doi:10.1103/PhysRevD.97.032009, arXiv:1711.00752.

[580] CMS Collaboration, "Combined search for electroweak production of charginos and neutralinos in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **03**, 160 (2018), doi:10.1007/JHEP03(2018)160, arXiv:1801.03957.

[581] CMS Collaboration, "Comparing transverse momentum balance of b jet pairs in pp and PbPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02\,\mathrm{TeV}$", J. High Energy Phys. **03**, 181 (2018), doi:10.1007/JHEP03(2018)181, arXiv:1802.00707.

[582] CMS Collaboration, "Measurement of differential cross sections in the kinematic angular variable ϕ^* for inclusive Z boson production in pp collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", J. High Energy Phys. **03**, 172 (2018), doi:10.1007/JHEP03(2018)172, arXiv:1710.07955.

[583] CMS Collaboration, "Measurement of the inclusive $\mathrm{t\bar{t}}$ cross section in pp collisions at $\sqrt{s} = 5.02\,\mathrm{TeV}$ using final states with at least one charged lepton", J. High Energy Phys. **03**, 115 (2018), doi:10.1007/JHEP03(2018)115, arXiv:1711.03143.

[584] CMS Collaboration, "Search for electroweak production of charginos and neutralinos in multilepton final states in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **03**, 166 (2018), doi:10.1007/JHEP03(2018)166, arXiv:1709.05406.

[585] CMS Collaboration, "Search for Higgs boson pair production in events with two bottom quarks and two tau leptons in proton–proton collisions at $\sqrt{s}$ =13TeV", Phys. Lett. B **778**, 101 (2018), doi:10.1016/j.physletb.2018.01.001, arXiv:1707.02909.

[586] CMS Collaboration, "Search for natural supersymmetry in events with top quark pairs and photons in pp collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", J. High Energy Phys. **03**, 167 (2018), doi:10.1007/JHEP03(2018)167, arXiv:1707.03325.

[587] CMS Collaboration, "Search for new phenomena in final states with two opposite-charge, same-flavor leptons, jets, and missing transverse momentum in pp collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **03**, 076 (2018), doi:10.1007/JHEP03(2018)076, arXiv:1709.08908.

[588] CMS Collaboration, "Search for pair production of excited top quarks in the lepton + jets final state", Phys. Lett. B **778**, 349 (2018), doi:10.1016/j.physletb.2018.01.049, arXiv:1711.10949.

[589] CMS Collaboration, "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 $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Lett. B **778**, 263 (2018), doi:10.1016/j.physletb.2018.01.012, arXiv:1707.07274.

[590] CMS Collaboration, "Search for ZZ resonances in the $2\ell 2\nu$ final state in proton-proton collisions at 13 TeV", J. High Energy Phys. **03**, 003 (2018), doi:10.1007/JHEP03(2018)003, arXiv:1711.04370.

[591] CMS Collaboration, "Study of dijet events with a large rapidity gap between the two leading jets in pp collisions at $\sqrt{s}$ = 7 TeV", Eur. Phys. J. C **78**, 242 (2018), doi:10.1140/epjc/s10052-018-5691-6, arXiv:1710.02586, [Erratum: Eur. Phys. J. C 80, 441 (2020)].

[592] ATLAS, CMS Collaboration, "Combination of inclusive and differential $\mathrm{t\bar{t}}$ charge asymmetry measurements using ATLAS and CMS data at $\sqrt{s} = 7$ and 8 TeV", J. High Energy Phys. **04**, 033 (2018), doi:10.1007/JHEP04(2018)033, arXiv:1709.05327.

[593] CMS Collaboration, "Constraints on the chiral magnetic effect using charge-dependent azimuthal correlations in *p*Pb and PbPb collisions at the CERN Large Hadron Collider", Phys. Rev. C **97**, 044912 (2018), doi:10.1103/PhysRevC.97.044912, arXiv:1708.01602.

[594] CMS Collaboration, "Measurement of associated Z + charm production in proton-proton collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", Eur. Phys. J. C **78**, 287 (2018), doi:10.1140/epjc/s10052-018-5752-x, arXiv:1711.02143.

[595] CMS Collaboration, "Measurement of normalized differential $\mathrm{t\bar{t}}$ cross sections in the dilepton channel from pp collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **04**, 060 (2018), doi:10.1007/JHEP04(2018)060, arXiv:1708.07638.

[596] CMS Collaboration, "Measurement of the Λ_b polarization and angular parameters in $\Lambda_b \to J/\psi\,\Lambda$ decays from pp collisions at $\sqrt{s} = 7$ and 8 TeV", Phys. Rev. D **97**, 072010 (2018), doi:10.1103/PhysRevD.97.072010, arXiv:1802.04867.

[597] CMS Collaboration, "Measurement of the associated production of a single top quark and a Z boson in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **779**, 358 (2018), doi:10.1016/j.physletb.2018.02.025, arXiv:1712.02825.

[598] CMS Collaboration, "Measurement of the Splitting Function in pp and Pb-Pb Collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Rev. Lett. **120**, 142302 (2018), doi:10.1103/PhysRevLett.120.142302, arXiv:1708.09429.

[599] CMS Collaboration, "Observation of the Higgs boson decay to a pair of τ leptons with the CMS detector", Phys. Lett. B **779**, 283 (2018), doi:10.1016/j.physletb.2018.02.004, arXiv:1708.00373.

[600] CMS Collaboration, "Search for lepton-flavor violating decays of heavy resonances and quantum black holes to $e\mu$ final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **04**, 073 (2018), doi:10.1007/JHEP04(2018)073, arXiv:1802.01122.

[601] CMS Collaboration, "Search for massive resonances decaying into WW, WZ, ZZ, qW, and qZ with dijet final states at $\sqrt{s} = 13$ TeV", Phys. Rev. D **97**, 072006 (2018), doi:10.1103/PhysRevD.97.072006, arXiv:1708.05379.

[602] CMS Collaboration, "Search for new physics in events with a leptonically decaying Z boson and a large transverse momentum imbalance in proton–proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **78**, 291 (2018), doi:10.1140/epjc/s10052-018-5740-1, arXiv:1711.00431.

[603] CMS Collaboration, "Search for pair production of vector-like quarks in the bW$\bar{\text{b}}$W channel from proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **779**, 82 (2018), doi:10.1016/j.physletb.2018.01.077, arXiv:1710.01539.

[604] CMS Collaboration, "Search for supersymmetry with Higgs boson to diphoton decays using the razor variables at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **779**, 166 (2018), doi:10.1016/j.physletb.2017.12.069, arXiv:1709.00384.

[605] CMS Collaboration, "Suppression of Excited Y States Relative to the Ground State in Pb-Pb Collisions at $\sqrt{s_{\text{NN}}}$=5.02 TeV", Phys. Rev. Lett. **120**, 142301 (2018), doi:10.1103/PhysRevLett.120.142301, arXiv:1706.05984.

[606] CMS Collaboration, "Evidence for the Higgs boson decay to a bottom quark–antiquark pair", Phys. Lett. B **780**, 501 (2018), doi:10.1016/j.physletb.2018.02.050, arXiv:1709.07497.

[607] CMS Collaboration, "Identification of heavy-flavour jets with the CMS detector in pp collisions at 13 TeV", J. Instrum. **13**, P05011 (2018), doi:10.1088/1748-0221/13/05/P05011, arXiv:1712.07158.

[608] CMS Collaboration, "Jet properties in PbPb and pp collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", J. High Energy Phys. **05**, 006 (2018), doi:10.1007/JHEP05(2018)006, arXiv:1803.00042.

[609] CMS Collaboration, "Measurement of prompt D^0 meson azimuthal anisotropy in Pb-Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV", Phys. Rev. Lett. **120**, 202301 (2018), doi:10.1103/PhysRevLett.120.202301, arXiv:1708.03497.

[610] CMS Collaboration, "Measurement of quarkonium production cross sections in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **780**, 251 (2018), doi:10.1016/j.physletb.2018.02.033, arXiv:1710.11002.

[611] CMS Collaboration, "Search for a heavy resonance decaying to a pair of vector bosons in the lepton plus merged jet final state at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **05**, 088 (2018), doi:10.1007/JHEP05(2018)088, arXiv:1802.09407.

[612] CMS Collaboration, "Search for a heavy right-handed W boson and a heavy neutrino in events with two same-flavor leptons and two jets at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **05**, 148 (2018), doi:10.1007/JHEP05(2018)148, arXiv:1803.11116.

[613] CMS Collaboration, "Search for decays of stopped exotic long-lived particles produced in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **05**, 127 (2018), doi:10.1007/JHEP05(2018)127, arXiv:1801.00359.

[614] CMS Collaboration, "Search for gauge-mediated supersymmetry in events with at least one photon and missing transverse momentum in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **780**, 118 (2018), doi:10.1016/j.physletb.2018.02.045, arXiv:1711.08008.

[615] CMS Collaboration, "Search for heavy neutral leptons in events with three charged leptons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **120**, 221801 (2018), doi:10.1103/PhysRevLett.120.221801, arXiv:1802.02965.

[616] CMS Collaboration, "Search for narrow resonances in the b-tagged dijet mass spectrum in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Rev. Lett. **120**, 201801 (2018), doi:10.1103/PhysRevLett.120.201801, arXiv:1802.06149.

[617] CMS Collaboration, "Search for natural and split supersymmetry in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$ in final states with jets and missing transverse momentum", J. High Energy Phys. **05**, 025 (2018), doi:10.1007/JHEP05(2018)025, arXiv:1802.02110.

[618] CMS Collaboration, "Search for new long-lived particles at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **780**, 432 (2018), doi:10.1016/j.physletb.2018.03.019, arXiv:1711.09120.

[619] CMS Collaboration, "Search for new physics in final states with an energetic jet or a hadronically decaying W or Z boson and transverse momentum imbalance at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **97**, 092005 (2018), doi:10.1103/PhysRevD.97.092005, arXiv:1712.02345.

[620] CMS Collaboration, "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 $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **780**, 384 (2018), doi:10.1016/j.physletb.2018.03.028, arXiv:1709.09814.

[621] CMS Collaboration, "Search for the X(5568) state decaying into $\mathrm{B}_\mathrm{s}^0\pi^\pm$ in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Rev. Lett. **120**, 202005 (2018), doi:10.1103/PhysRevLett.120.202005, arXiv:1712.06144.

[622] CMS Collaboration, "Bose-Einstein correlations in pp, pPb, and PbPb collisions at $\sqrt{s_{\mathrm{NN}}} = 0.9$–$7\,\text{TeV}$", Phys. Rev. C **97**, 064912 (2018), doi:10.1103/PhysRevC.97.064912, arXiv:1712.07198.

[623] CMS Collaboration, "Measurement of angular parameters from the decay $\mathrm{B}^0 \to \mathrm{K}^{*0}\mu^+\mu^-$ in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **781**, 517 (2018), doi:10.1016/j.physletb.2018.04.030, arXiv:1710.02846.

[624] CMS Collaboration, "Measurement of b hadron lifetimes in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", Eur. Phys. J. C **78**, 457 (2018), doi:10.1140/epjc/s10052-018-5929-3, arXiv:1710.08949, [Erratum: Eur. Phys. J. C 78, 561 (2018)].

[625] CMS Collaboration, "Measurement of differential cross sections for the production of top quark pairs and of additional jets in lepton+jets events from pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **97**, 112003 (2018), doi:10.1103/PhysRevD.97.112003, arXiv:1803.08856.

[626] CMS Collaboration, "Measurement of prompt and nonprompt charmonium suppression in PbPb collisions at 5.02 TeV", Eur. Phys. J. C **78**, 509 (2018), doi:10.1140/epjc/s10052-018-5950-6, arXiv:1712.08959.

[627] CMS Collaboration, "Measurements of differential cross sections of top quark pair production as a function of kinematic event variables in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **06**, 002 (2018), doi:10.1007/JHEP06(2018)002, arXiv:1803.03991.

[628] CMS Collaboration, "Observation of $\mathrm{t\bar{t}H}$ production", Phys. Rev. Lett. **120**, 231801 (2018), doi:10.1103/PhysRevLett.120.231801, arXiv:1804.02610.

[629] CMS Collaboration, "Performance of the CMS muon detector and muon reconstruction with proton-proton collisions at $\sqrt{s} = 13$ TeV", J. Instrum. **13**, P06015 (2018), doi:10.1088/1748-0221/13/06/P06015, arXiv:1804.04528.

[630] CMS Collaboration, "Search for $t\bar{t}H$ production in the all-jet final state in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **06**, 101 (2018), doi:10.1007/JHEP06(2018)101, arXiv:1803.06986.

[631] CMS Collaboration, "Search for a massive resonance decaying to a pair of Higgs bosons in the four b quark final state in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **781**, 244 (2018), doi:10.1016/j.physletb.2018.03.084, arXiv:1710.04960.

[632] CMS Collaboration, "Search for a new scalar resonance decaying to a pair of Z bosons in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **06**, 127 (2018), doi:10.1007/JHEP06(2018)127, arXiv:1804.01939, [Erratum: J. High Energy Phys. 03, 128 (2019)].

[633] CMS Collaboration, "Search for dark matter in events with energetic, hadronically decaying top quarks and missing transverse momentum at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **06**, 027 (2018), doi:10.1007/JHEP06(2018)027, arXiv:1801.08427.

[634] CMS Collaboration, "Search for excited quarks of light and heavy flavor in $\gamma+$ jet final states in proton–proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **781**, 390 (2018), doi:10.1016/j.physletb.2018.04.007, arXiv:1711.04652.

[635] CMS Collaboration, "Search for high-mass resonances in dilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **06**, 120 (2018), doi:10.1007/JHEP06(2018)120, arXiv:1803.06292.

[636] CMS Collaboration, "Search for high-mass resonances in final states with a lepton and missing transverse momentum at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **06**, 128 (2018), doi:10.1007/JHEP06(2018)128, arXiv:1803.11133.

[637] CMS Collaboration, "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", J. High Energy Phys. **06**, 001 (2018), doi:10.1007/JHEP06(2018)001, arXiv:1712.07173.

[638] CMS Collaboration, "Search for Physics Beyond the Standard Model in Events with High-Momentum Higgs Bosons and Missing Transverse Momentum in Proton-Proton Collisions at 13 TeV", Phys. Rev. Lett. **120**, 241801 (2018), doi:10.1103/PhysRevLett.120.241801, arXiv:1712.08501.

[639] CMS Collaboration, "Search for single production of a vector-like T quark decaying to a Z boson and a top quark in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **781**, 574 (2018), doi:10.1016/j.physletb.2018.04.036, arXiv:1708.01062.

[640] CMS Collaboration, "Search for single production of vector-like quarks decaying to a b quark and a Higgs boson", J. High Energy Phys. **06**, 031 (2018), doi:10.1007/JHEP06(2018)031, arXiv:1802.01486.

[641] CMS Collaboration, "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", J. High Energy Phys. **06**, 102 (2018), doi:10.1007/JHEP06(2018)102, arXiv:1712.02399.

[642] CMS Collaboration, "Azimuthal correlations for inclusive 2-jet, 3-jet, and 4-jet events in pp collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **78**, 566 (2018), doi:10.1140/epjc/s10052-018-6033-4, arXiv:1712.05471.

[643] CMS Collaboration, "Electroweak production of two jets in association with a Z boson in proton–proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **78**, 589 (2018), doi:10.1140/epjc/s10052-018-6049-9, arXiv:1712.09814.

[644] J. Duarte et al., "Fast inference of deep neural networks in FPGAs for particle physics", J. Instrum. **13**, P07027 (2018), doi:10.1088/1748-0221/13/07/P07027, arXiv:1804.06913.

[645] CMS Collaboration, "Measurement of the inelastic proton-proton cross section at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 161 (2018), doi:10.1007/JHEP07(2018)161, arXiv:1802.02613.

[646] CMS Collaboration, "Measurement of the underlying event activity in inclusive Z boson production in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 032 (2018), doi:10.1007/JHEP07(2018)032, arXiv:1711.04299.

[647] CMS Collaboration, "Nuclear modification factor of D^0 mesons in PbPb collisions at $\sqrt{s_{NN}} = 5.02\,\text{TeV}$", Phys. Lett. B **782**, 474 (2018), doi:10.1016/j.physletb.2018.05.074, arXiv:1708.04962.

[648] CMS, TOTEM Collaboration, "Observation of proton-tagged, central (semi)exclusive production of high-mass lepton pairs in pp collisions at 13 TeV with the CMS-TOTEM precision proton spectrometer", J. High Energy Phys. **07**, 153 (2018), doi:10.1007/JHEP07(2018)153, arXiv:1803.04496.

[649] CMS Collaboration, "Search for a heavy resonance decaying into a Z boson and a vector boson in the $\nu\bar{\nu}q\bar{q}$ final state", J. High Energy Phys. **07**, 075 (2018), doi:10.1007/JHEP07(2018)075, arXiv:1803.03838.

[650] CMS Collaboration, "Search for a singly produced third-generation scalar leptoquark decaying to a τ lepton and a bottom quark in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 115 (2018), doi:10.1007/JHEP07(2018)115, arXiv:1806.03472.

[651] CMS Collaboration, "Search for new physics in events with two soft oppositely charged leptons and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **782**, 440 (2018), doi:10.1016/j.physletb.2018.05.062, arXiv:1801.01846.

[652] CMS Collaboration, "Constraining gluon distributions in nuclei using dijets in proton-proton and proton-lead collisions at $\sqrt{s_{NN}} = 5.02\,\text{TeV}$", Phys. Rev. Lett. **121**, 062002 (2018), doi:10.1103/PhysRevLett.121.062002, arXiv:1805.04736.

[653] CMS Collaboration, "Constraints on models of scalar and vector leptoquarks decaying to a quark and a neutrino at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **98**, 032005 (2018), doi:10.1103/PhysRevD.98.032005, arXiv:1805.10228.

[654] CMS Collaboration, "Elliptic flow of charm and strange hadrons in high-multiplicity pPb collisions at $\sqrt{s_{NN}} = 8.16\,\text{TeV}$", Phys. Rev. Lett. **121**, 082301 (2018), doi:10.1103/PhysRevLett.121.082301, arXiv:1804.09767.

[655] CMS Collaboration, "Evidence for associated production of a Higgs boson with a top quark pair in final states with electrons, muons, and hadronically decaying τ leptons at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **08**, 066 (2018), doi:10.1007/JHEP08(2018)066, arXiv:1803.05485.

[656] CMS Collaboration, "Measurement of charged particle spectra in minimum-bias events from proton–proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **78**, 697 (2018), doi:10.1140/epjc/s10052-018-6144-y, arXiv:1806.11245.

[657] CMS Collaboration, "Measurement of the cross section for top quark pair production in association with a W or Z boson in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **08**, 011 (2018), doi:10.1007/JHEP08(2018)011, arXiv:1711.02547.

[658] CMS Collaboration, "Observation of the $\chi_{b1}(3P)$ and $\chi_{b2}(3P)$ and measurement of their masses", Phys. Rev. Lett. **121**, 092002 (2018), doi:10.1103/PhysRevLett.121.092002, arXiv:1805.11192.

[659] CMS Collaboration, "Search for R-parity violating supersymmetry in pp collisions at $\sqrt{s} = 13\,\text{TeV}$ using b jets in a final state with a single lepton, many jets, and high sum of large-radius jet masses", Phys. Lett. B **783**, 114 (2018), doi:10.1016/j.physletb.2018.06.028, arXiv:1712.08920.

[660] CMS Collaboration, "Search for beyond the standard model Higgs bosons decaying into a $\mathrm{b\bar{b}}$ pair in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **08**, 113 (2018), doi:10.1007/JHEP08(2018)113, arXiv:1805.12191.

[661] CMS Collaboration, "Search for disappearing tracks as a signature of new long-lived particles in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **08**, 016 (2018), doi:10.1007/JHEP08(2018)016, arXiv:1804.07321.

[662] CMS Collaboration, "Search for narrow and broad dijet resonances in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$ and constraints on dark matter mediators and other new particles", J. High Energy Phys. **08**, 130 (2018), doi:10.1007/JHEP08(2018)130, arXiv:1806.00843.

[663] CMS Collaboration, "Search for resonant pair production of Higgs bosons decaying to bottom quark-antiquark pairs in proton-proton collisions at 13 TeV", J. High Energy Phys. **08**, 152 (2018), doi:10.1007/JHEP08(2018)152, arXiv:1806.03548.

[664] CMS Collaboration, "Search for vector-like T and B quark pairs in final states with leptons at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **08**, 177 (2018), doi:10.1007/JHEP08(2018)177, arXiv:1805.04758.

[665] CMS Collaboration, "Measurement of the $\mathrm{Z}\gamma^* \to \tau\tau$ cross section in pp collisions at $\sqrt{s} = 13\,\text{TeV}$ and validation of τ lepton analysis techniques", Eur. Phys. J. C **78**, 708 (2018), doi:10.1140/epjc/s10052-018-6146-9, arXiv:1801.03535.

[666] CMS Collaboration, "Measurement of the weak mixing angle using the forward-backward asymmetry of Drell-Yan events in pp collisions at 8 TeV", Eur. Phys. J. C **78**, 701 (2018), doi:10.1140/epjc/s10052-018-6148-7, arXiv:1806.00863.

[667] CMS Collaboration, "Observation of Higgs boson decay to bottom quarks", Phys. Rev. Lett. **121**, 121801 (2018), doi:10.1103/PhysRevLett.121.121801, arXiv:1808.08242.

[668] CMS Collaboration, "Search for a heavy resonance decaying into a Z boson and a Z or W boson in $2\ell 2q$ final states at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 101 (2018), doi:10.1007/JHEP09(2018)101, arXiv:1803.10093.

[669] CMS Collaboration, "Search for additional neutral MSSM Higgs bosons in the $\tau\tau$ final state in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 007 (2018), doi:10.1007/JHEP09(2018)007, arXiv:1803.06553.

[670] CMS Collaboration, "Search for dark matter produced in association with a Higgs boson decaying to $\gamma\gamma$ or $\tau^+\tau^-$ at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 046 (2018), doi:10.1007/JHEP09(2018)046, arXiv:1806.04771.

[671] CMS Collaboration, "Search for new physics in dijet angular distributions using proton–proton collisions at $\sqrt{s} = 13\,\text{TeV}$ and constraints on dark matter and other models", Eur. Phys. J. C **78**, 789 (2018), doi:10.1140/epjc/s10052-018-6242-x, arXiv:1803.08030.

[672] CMS Collaboration, "Search for third-generation scalar leptoquarks decaying to a top quark and a τ lepton at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **78**, 707 (2018), doi:10.1140/epjc/s10052-018-6143-z, arXiv:1803.02864.

[673] CMS Collaboration, "Search for top squarks decaying via four-body or chargino-mediated modes in single-lepton final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 065 (2018), doi:10.1007/JHEP09(2018)065, arXiv:1805.05784.

[674] CMS Collaboration, "Search for $\mathrm{Z}\gamma$ resonances using leptonic and hadronic final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 148 (2018), doi:10.1007/JHEP09(2018)148, arXiv:1712.03143.

[675] CMS Collaboration, "Charged-particle nuclear modification factors in XeXe collisions at $\sqrt{s_{\mathrm{NN}}} = 5.44\,\text{TeV}$", J. High Energy Phys. **10**, 138 (2018), doi:10.1007/JHEP10(2018)138, arXiv:1809.00201.

[676] CMS Collaboration, "Measurement of the groomed jet mass in PbPb and pp collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02\,\mathrm{TeV}$", J. High Energy Phys. **10**, 161 (2018), doi:10.1007/JHEP10(2018)161, arXiv:1805.05145.

[677] CMS Collaboration, "Measurement of the production cross section for single top quarks in association with W bosons in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **10**, 117 (2018), doi:10.1007/JHEP10(2018)117, arXiv:1805.07399.

[678] CMS Collaboration, "Observation of the Z$\to \psi\ell^+\ell^-$ decay in pp collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Rev. Lett. **121**, 141801 (2018), doi:10.1103/PhysRevLett.121.141801, arXiv:1806.04213.

[679] CMS Collaboration, "Performance of reconstruction and identification of τ leptons decaying to hadrons and ν_τ in pp collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. Instrum. **13**, P10005 (2018), doi:10.1088/1748-0221/13/10/P10005, arXiv:1809.02816.

[680] CMS Collaboration, "Precision measurement of the structure of the CMS inner tracking system using nuclear interactions", J. Instrum. **13**, P10034 (2018), doi:10.1088/1748-0221/13/10/P10034, arXiv:1807.03289.

[681] CMS Collaboration, "Pseudorapidity and transverse momentum dependence of flow harmonics in pPb and PbPb collisions", Phys. Rev. C **98**, 044902 (2018), doi:10.1103/PhysRevC.98.044902, arXiv:1710.07864.

[682] CMS Collaboration, "Search for an exotic decay of the Higgs boson to a pair of light pseudoscalars in the final state with two b quarks and two τ leptons in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Lett. B **785**, 462 (2018), doi:10.1016/j.physletb.2018.08.057, arXiv:1805.10191.

[683] CMS Collaboration, "Search for pair-produced resonances each decaying into at least four quarks in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Rev. Lett. **121**, 141802 (2018), doi:10.1103/PhysRevLett.121.141802, arXiv:1806.01058.

[684] CMS Collaboration, "Study of jet quenching with isolated-photon+jet correlations in PbPb and pp collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02\,\mathrm{TeV}$", Phys. Lett. B **785**, 14 (2018), doi:10.1016/j.physletb.2018.07.061, arXiv:1711.09738.

[685] CMS Collaboration, "Evidence for the associated production of a single top quark and a photon in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Rev. Lett. **121**, 221802 (2018), doi:10.1103/PhysRevLett.121.221802, arXiv:1808.02913.

[686] CMS Collaboration, "Measurement of differential cross sections for Z boson production in association with jets in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Eur. Phys. J. C **78**, 965 (2018), doi:10.1140/epjc/s10052-018-6373-0, arXiv:1804.05252.

[687] CMS Collaboration, "Measurement of jet substructure observables in $\mathrm{t\bar{t}}$ events from proton-proton collisions at $\sqrt{s} = 13\mathrm{TeV}$", Phys. Rev. D **98**, 092014 (2018), doi:10.1103/PhysRevD.98.092014, arXiv:1808.07340.

[688] CMS Collaboration, "Measurement of the top quark mass with lepton+jets final states using p p collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Eur. Phys. J. C **78**, 891 (2018), doi:10.1140/epjc/s10052-018-6332-9, arXiv:1805.01428.

[689] CMS Collaboration, "Measurements of Higgs boson properties in the diphoton decay channel in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **11**, 185 (2018), doi:10.1007/JHEP11(2018)185, arXiv:1804.02716.

[690] CMS Collaboration, "Measurements of the differential jet cross section as a function of the jet mass in dijet events from proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **11**, 113 (2018), doi:10.1007/JHEP11(2018)113, arXiv:1807.05974.

[691] CMS Collaboration, "Search for a charged Higgs boson decaying to charm and bottom quarks in proton-proton collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", J. High Energy Phys. **11**, 115 (2018), doi:10.1007/JHEP11(2018)115, arXiv:1808.06575.

[692] CMS Collaboration, "Search for an exotic decay of the Higgs boson to a pair of light pseudoscalars in the final state of two muons and two τ leptons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **11**, 018 (2018), doi:10.1007/JHEP11(2018)018, arXiv:1805.04865.

[693] CMS Collaboration, "Search for black holes and sphalerons in high-multiplicity final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **11**, 042 (2018), doi:10.1007/JHEP11(2018)042, arXiv:1805.06013.

[694] CMS Collaboration, "Search for heavy resonances decaying into a vector boson and a Higgs boson in final states with charged leptons, neutrinos and b quarks at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **11**, 172 (2018), doi:10.1007/JHEP11(2018)172, arXiv:1807.02826.

[695] CMS Collaboration, "Search for long-lived particles with displaced vertices in multijet events in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **98**, 092011 (2018), doi:10.1103/PhysRevD.98.092011, arXiv:1808.03078.

[696] CMS Collaboration, "Search for physics beyond the standard model in high-mass diphoton events from proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **98**, 092001 (2018), doi:10.1103/PhysRevD.98.092001, arXiv:1809.00327.

[697] CMS Collaboration, "Search for resonances in the mass spectrum of muon pairs produced in association with b quark jets in proton-proton collisions at $\sqrt{s} = 8$ and 13 TeV", J. High Energy Phys. **11**, 161 (2018), doi:10.1007/JHEP11(2018)161, arXiv:1808.01890.

[698] CMS Collaboration, "Search for supersymmetry in events with a τ lepton pair and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **11**, 151 (2018), doi:10.1007/JHEP11(2018)151, arXiv:1807.02048.

[699] CMS Collaboration, "Search for the decay of a Higgs boson in the $\ell\ell\gamma$ channel in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **11**, 152 (2018), doi:10.1007/JHEP11(2018)152, arXiv:1806.05996.

[700] CMS Collaboration, "Searches for pair production of charginos and top squarks in final states with two oppositely charged leptons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **11**, 079 (2018), doi:10.1007/JHEP11(2018)079, arXiv:1807.07799.

[701] CMS Collaboration, "Studies of $\mathrm{B}^{*s2}(5840)^0$ and $\mathrm{B}_{s1}(5830)^0$ mesons including the observation of the $\mathrm{B}^{*s2}(5840)^0 \to \mathrm{B}^0\mathrm{K}^0_\mathrm{S}$ decay in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Eur. Phys. J. C **78**, 939 (2018), doi:10.1140/epjc/s10052-018-6390-z, arXiv:1809.03578.

[702] CMS Collaboration, "Angular analysis of the decay $\mathrm{B}^+ \to \mathrm{K}^+\mu^+\mu^-$ in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Rev. D **98**, 112011 (2018), doi:10.1103/PhysRevD.98.112011, arXiv:1806.00636.

[703] CMS Collaboration, "Event shape variables measured using multijet final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **12**, 117 (2018), doi:10.1007/JHEP12(2018)117, arXiv:1811.00588.

[704] CMS Collaboration, "Observation of Medium-Induced Modifications of Jet Fragmentation in Pb-Pb Collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV Using Isolated Photon-Tagged Jets", Phys. Rev. Lett. **121**, 242301 (2018), doi:10.1103/PhysRevLett.121.242301, arXiv:1801.04895.

[705] CMS Collaboration, "Search for leptoquarks coupled to third-generation quarks in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **121**, 241802 (2018), doi:10.1103/PhysRevLett.121.241802, arXiv:1809.05558.

[706] CMS Collaboration, "Search for pair-produced resonances decaying to quark pairs in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **98**, 112014 (2018), doi:10.1103/PhysRevD.98.112014, arXiv:1808.03124.

[707] CMS Collaboration, "Measurement of differential cross sections for inclusive isolated-photon and photon+jets production in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 20 (2019), doi:10.1140/epjc/s10052-018-6482-9, arXiv:1807.00782.

[708] CMS Collaboration, "Measurement of inclusive and differential Higgs boson production cross sections in the diphoton decay channel in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **01**, 183 (2019), doi:10.1007/JHEP01(2019)183, arXiv:1807.03825.

[709] CMS Collaboration, "Search for dark matter particles produced in association with a top quark pair at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **122**, 011803 (2019), doi:10.1103/PhysRevLett.122.011803, arXiv:1807.06522.

[710] CMS Collaboration, "Search for heavy Majorana neutrinos in same-sign dilepton channels in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **01**, 122 (2019), doi:10.1007/JHEP01(2019)122, arXiv:1806.10905.

[711] CMS Collaboration, "Search for heavy resonances decaying into two Higgs bosons or into a Higgs boson and a W or Z boson in proton-proton collisions at 13 TeV", J. High Energy Phys. **01**, 051 (2019), doi:10.1007/JHEP01(2019)051, arXiv:1808.01365.

[712] CMS Collaboration, "Search for Higgs boson pair production in the $\gamma\gamma b\bar{b}$ final state in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **788**, 7 (2019), doi:10.1016/j.physletb.2018.10.056, arXiv:1806.00408.

[713] CMS Collaboration, "Search for low-mass resonances decaying into bottom quark-antiquark pairs in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **99**, 012005 (2019), doi:10.1103/PhysRevD.99.012005, arXiv:1810.11822.

[714] CMS Collaboration, "Search for pair-produced three-jet resonances in proton-proton collisions at $\sqrt{s}$ =13 TeV", Phys. Rev. D **99**, 012010 (2019), doi:10.1103/PhysRevD.99.012010, arXiv:1810.10092.

[715] CMS Collaboration, "Search for production of Higgs boson pairs in the four b quark final state using large-area jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **01**, 040 (2019), doi:10.1007/JHEP01(2019)040, arXiv:1808.01473.

[716] CMS Collaboration, "Search for rare decays of Z and Higgs bosons to J/ψ and a photon in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 94 (2019), doi:10.1140/epjc/s10052-019-6562-5, arXiv:1810.10056.

[717] CMS Collaboration, "Search for single production of vector-like quarks decaying to a top quark and a W boson in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 90 (2019), doi:10.1140/epjc/s10052-019-6556-3, arXiv:1809.08597.

[718] CMS Collaboration, "Search for supersymmetry in events with a photon, a lepton, and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **01**, 154 (2019), doi:10.1007/JHEP01(2019)154, arXiv:1812.04066.

[719] CMS Collaboration, "Search for the Higgs boson decaying to two muons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **122**, 021801 (2019), doi:10.1103/PhysRevLett.122.021801, arXiv:1807.06325.

[720] CMS Collaboration, "Measurement of differential cross sections for Z boson pair production in association with jets at $\sqrt{s} = 8$ and 13 TeV", Phys. Lett. B **789**, 19 (2019), doi:10.1016/j.physletb.2018.11.007, arXiv:1806.11073.

[721] CMS Collaboration, "Measurements of $t\bar{t}$ differential cross sections in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$ using events containing two leptons", J. High Energy Phys. **02**, 149 (2019), doi:10.1007/JHEP02(2019)149, arXiv:1811.06625.

[722] CMS Collaboration, "Non-Gaussian elliptic-flow fluctuations in PbPb collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Lett. B **789**, 643 (2019), doi:10.1016/j.physletb.2018.11.063, arXiv:1711.05594.

[723] CMS Collaboration, "Search for long-lived particles decaying into displaced jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **99**, 032011 (2019), doi:10.1103/PhysRevD.99.032011, arXiv:1811.07991.

[724] CMS Collaboration, "Search for new particles decaying to a jet and an emerging jet", J. High Energy Phys. **02**, 179 (2019), doi:10.1007/JHEP02(2019)179, arXiv:1810.10069.

[725] CMS Collaboration, "Search for new physics in final states with a single photon and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **02**, 074 (2019), doi:10.1007/JHEP02(2019)074, arXiv:1810.00196.

[726] CMS Collaboration, "Search for pair production of second-generation leptoquarks at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **99**, 032014 (2019), doi:10.1103/PhysRevD.99.032014, arXiv:1808.05082.

[727] CMS Collaboration, "Study of the underlying event in top quark pair production in pp collisions at 13 TeV", Eur. Phys. J. C **79**, 123 (2019), doi:10.1140/epjc/s10052-019-6620-z, arXiv:1807.02810.

[728] CMS Collaboration, "Combination of searches for Higgs boson pair production in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **122**, 121803 (2019), doi:10.1103/PhysRevLett.122.121803, arXiv:1811.09689.

[729] CMS Collaboration, "Inclusive search for supersymmetry in pp collisions at $\sqrt{s} = 13\,\text{TeV}$ using razor variables and boosted object identification in zero and one lepton final states", J. High Energy Phys. **03**, 031 (2019), doi:10.1007/JHEP03(2019)031, arXiv:1812.06302.

[730] CMS Collaboration, "Measurement of associated production of a W boson and a charm quark in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 269 (2019), doi:10.1140/epjc/s10052-019-6752-1, arXiv:1811.10021.

[731] CMS Collaboration, "Measurement of exclusive Υ photoproduction from protons in pPb collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Eur. Phys. J. C **79**, 277 (2019), doi:10.1140/epjc/s10052-019-6774-8, arXiv:1809.11080.

[732] CMS Collaboration, "Measurement of nuclear modification factors of Υ(1S), Υ(2S), and Υ(3S) mesons in PbPb collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Lett. B **790**, 270 (2019), doi:10.1016/j.physletb.2019.01.006, arXiv:1805.09215.

[733] CMS Collaboration, "Measurement of prompt ψ(2S) production cross sections in proton-lead and proton-proton collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Lett. B **790**, 509 (2019), doi:10.1016/j.physletb.2019.01.058, arXiv:1805.02248.

[734] CMS Collaboration, "Search for $\text{t}\bar{\text{t}}\text{H}$ production in the $\text{H} \to \text{b}\bar{\text{b}}$ decay channel with leptonic $\text{t}\bar{\text{t}}$ decays in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 026 (2019), doi:10.1007/JHEP03(2019)026, arXiv:1804.03682.

[735] CMS Collaboration, "Search for a heavy resonance decaying to a top quark and a vector-like top quark in the lepton+jets final state in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 208 (2019), doi:10.1140/epjc/s10052-019-6688-5, arXiv:1812.06489.

[736] CMS Collaboration, "Search for a W' boson decaying to a vector-like quark and a top or bottom quark in the all-jets final state", J. High Energy Phys. **03**, 127 (2019), doi:10.1007/JHEP03(2019)127, arXiv:1811.07010.

[737] CMS Collaboration, "Search for dark matter produced in association with a Higgs boson decaying to a pair of bottom quarks in proton–proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 280 (2019), doi:10.1140/epjc/s10052-019-6730-7, arXiv:1811.06562.

[738] CMS Collaboration, "Search for dark matter produced in association with a single top quark or a top quark pair in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 141 (2019), doi:10.1007/JHEP03(2019)141, arXiv:1901.01553.

[739] CMS Collaboration, "Search for heavy neutrinos and third-generation leptoquarks in hadronic states of two τ leptons and two jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 170 (2019), doi:10.1007/JHEP03(2019)170, arXiv:1811.00806.

[740] CMS Collaboration, "Search for narrow Hγ resonances in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **122**, 081804 (2019), doi:10.1103/PhysRevLett.122.081804, arXiv:1808.01257.

[741] CMS Collaboration, "Search for pair production of first-generation scalar leptoquarks at $\sqrt{s} = 13$ TeV", Phys. Rev. D **99**, 052002 (2019), doi:10.1103/PhysRevD.99.052002, arXiv:1811.01197.

[742] CMS Collaboration, "Search for supersymmetric partners of electrons and muons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **790**, 140 (2019), doi:10.1016/j.physletb.2019.01.005, arXiv:1806.05264.

[743] CMS Collaboration, "Search for the pair production of light top squarks in the $e^{\pm}\mu^{\mp}$ final state in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 101 (2019), doi:10.1007/JHEP03(2019)101, arXiv:1901.01288.

[744] CMS Collaboration, "Search for top quark partners with charge 5/3 in the same-sign dilepton and single-lepton final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 082 (2019), doi:10.1007/JHEP03(2019)082, arXiv:1810.03188.

[745] CMS Collaboration, "Jet Shapes of Isolated Photon-Tagged Jets in Pb-Pb and pp Collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Rev. Lett. **122**, 152001 (2019), doi:10.1103/PhysRevLett.122.152001, arXiv:1809.08602.

[746] CMS Collaboration, "Measurement of the $\text{t}\bar{\text{t}}$ production cross section, the top quark mass, and the strong coupling constant using dilepton events in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 368 (2019), doi:10.1140/epjc/s10052-019-6863-8, arXiv:1812.10505.

[747] CMS Collaboration, "Measurement of the top quark mass in the all-jets final state at $\sqrt{s} = 13\,\text{TeV}$ and combination with the lepton+jets channel", Eur. Phys. J. C **79**, 313 (2019), doi:10.1140/epjc/s10052-019-6788-2, arXiv:1812.10534.

[748] CMS Collaboration, "Measurements of properties of the Higgs boson decaying to a W boson pair in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **791**, 96 (2019), doi:10.1016/j.physletb.2018.12.073, arXiv:1806.05246.

[749] CMS Collaboration, "Measurements of the $\text{pp} \to \text{WZ}$ inclusive and differential production cross section and constraints on charged anomalous triple gauge couplings at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **04**, 122 (2019), doi:10.1007/JHEP04(2019)122, arXiv:1901.03428.

[750] CMS Collaboration, "Observation of prompt J/ψ meson elliptic flow in high-multiplicity pPb collisions at $\sqrt{s_{\text{NN}}} = 8.16\,\text{TeV}$", Phys. Lett. B **791**, 172 (2019), doi:10.1016/j.physletb.2019.02.018, arXiv:1810.01473.

[751] CMS Collaboration, "Observation of Single Top Quark Production in Association with a Z Boson in Proton-Proton Collisions at $\sqrt{s}$ =13 TeV", Phys. Rev. Lett. **122**, 132003 (2019), doi:10.1103/PhysRevLett.122.132003, arXiv:1812.05900.

[752] CMS Collaboration, "Observation of Two Excited B_c^+ States and Measurement of the $\text{B}_\text{c}^+(2\text{S})$ Mass in pp Collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **122**, 132001 (2019), doi:10.1103/PhysRevLett.122.132001, arXiv:1902.00571.

[753] CMS Collaboration, "Search for W boson decays to three charged pions", Phys. Rev. Lett. **122**, 151802 (2019), doi:10.1103/PhysRevLett.122.151802, arXiv:1901.11201.

[754] CMS Collaboration, "Search for contact interactions and large extra dimensions in the dilepton mass spectra from proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **04**, 114 (2019), doi:10.1007/JHEP04(2019)114, arXiv:1812.10443.

[755] CMS Collaboration, "Search for excited leptons in $\ell\ell\gamma$ final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **04**, 015 (2019), doi:10.1007/JHEP04(2019)015, arXiv:1811.03052.

[756] CMS Collaboration, "Search for nonresonant Higgs boson pair production in the $\text{b}\bar{\text{b}}\text{b}\bar{\text{b}}$ final state at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **04**, 112 (2019), doi:10.1007/JHEP04(2019)112, arXiv:1810.11854.

[757] CMS Collaboration, "Search for resonant $\text{t}\bar{\text{t}}$ production in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **04**, 031 (2019), doi:10.1007/JHEP04(2019)031, arXiv:1810.05905.

[758] CMS Collaboration, "Search for resonant production of second-generation sleptons with same-sign dimuon events in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 305 (2019), doi:10.1140/epjc/s10052-019-6800-x, arXiv:1811.09760.

[759] CMS Collaboration, "Search for vector-like quarks in events with two oppositely charged leptons and jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 364 (2019), doi:10.1140/epjc/s10052-019-6855-8, arXiv:1812.09768.

[760] ATLAS, CMS Collaboration, "Combinations of single-top-quark production cross-section measurements and $|f_{\text{LV}}V_{\text{tb}}|$ determinations at $\sqrt{s} = 7$ and 8 TeV with the ATLAS and CMS experiments", J. High Energy Phys. **05**, 088 (2019), doi:10.1007/Jhep05(2019)088, arXiv:1902.07158.

[761] CMS Collaboration, "Combined measurements of Higgs boson couplings in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 421 (2019), doi:10.1140/epjc/s10052-019-6909-y, arXiv:1809.10733.

[762] CMS Collaboration, "Measurement and interpretation of differential cross sections for Higgs boson production at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **792**, 369 (2019), doi:10.1016/j.physletb.2019.03.059, arXiv:1812.06504.

[763] CMS Collaboration, "Measurement of inclusive very forward jet cross sections in proton-lead collisions at $\sqrt{s_{\text{NN}}}$ = 5.02 TeV", J. High Energy Phys. **05**, 043 (2019), doi:10.1007/JHEP05(2019)043, arXiv:1812.01691.

[764] CMS Collaboration, "Measurement of the energy density as a function of pseudorapidity in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 391 (2019), doi:10.1140/epjc/s10052-019-6861-x, arXiv:1812.04095.

[765] CMS Collaboration, "Search for a low-mass $\tau^+\tau^-$ resonance in association with a bottom quark in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **05**, 210 (2019), doi:10.1007/JHEP05(2019)210, arXiv:1903.10228.

[766] CMS Collaboration, "Search for a W' boson decaying to a τ lepton and a neutrino in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **792**, 107 (2019), doi:10.1016/j.physletb.2019.01.069, arXiv:1807.11421.

[767] CMS Collaboration, "Search for an $L_\mu - L_\tau$ gauge boson using $\text{Z} \to 4\mu$ events in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **792**, 345 (2019), doi:10.1016/j.physletb.2019.01.072, arXiv:1808.03684.

[768] CMS Collaboration, "Search for associated production of a Higgs boson and a single top quark in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **99**, 092005 (2019), doi:10.1103/PhysRevD.99.092005, arXiv:1811.09696.

[769] CMS Collaboration, "Search for supersymmetry in events with a photon, jets, b -jets, and missing transverse momentum in proton–proton collisions at 13 TeV", Eur. Phys. J. C **79**, 444 (2019), doi:10.1140/epjc/s10052-019-6926-x, arXiv:1901.06726.

[770] CMS Collaboration, "An embedding technique to determine $\tau\tau$ backgrounds in proton-proton collision data", J. Instrum. **14**, P06032 (2019), doi:10.1088/1748-0221/14/06/P06032, arXiv:1903.01216.

[771] CMS Collaboration, "Measurements of the Higgs boson width and anomalous HVV couplings from on-shell and off-shell production in the four-lepton final state", Phys. Rev. D **99**, 112003 (2019), doi:10.1103/PhysRevD.99.112003, arXiv:1901.00174.

[772] CMS Collaboration, "Search for a standard model-like Higgs boson in the mass range between 70 and 110 GeV in the diphoton final state in proton-proton collisions at $\sqrt{s} = 8$ and 13 TeV", Phys. Lett. B **793**, 320 (2019), doi:10.1016/j.physletb.2019.03.064, arXiv:1811.08459.

[773] CMS Collaboration, "Search for invisible decays of a Higgs boson produced through vector boson fusion in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **793**, 520 (2019), doi:10.1016/j.physletb.2019.04.025, arXiv:1809.05937.

[774] CMS Collaboration, "Search for supersymmetry in final states with photons and missing transverse momentum in proton-proton collisions at 13 TeV", J. High Energy Phys. **06**, 143 (2019), doi:10.1007/JHEP06(2019)143, arXiv:1903.07070.

[775] CMS Collaboration, "Search for the associated production of the Higgs boson and a vector boson in proton-proton collisions at $\sqrt{s} = 13$ TeV via Higgs boson decays to τ leptons", J. High Energy Phys. **06**, 093 (2019), doi:10.1007/JHEP06(2019)093, arXiv:1809.03590.

[776] CMS Collaboration, "Performance of missing transverse momentum reconstruction in proton-proton collisions at $\sqrt{s} = 13$ TeV using the CMS detector", J. Instrum. **14**, P07004 (2019), doi:10.1088/1748-0221/14/07/P07004, arXiv:1903.06078, **Author Contribution Code(s):** 8, 9.

[777] CMS Collaboration, "Search for a heavy pseudoscalar boson decaying to a Z and a Higgs boson at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **79**, 564 (2019), doi:10.1140/epjc/s10052-019-7058-z, arXiv:1903.00941, **Author Contribution Code(s):** 8, 9.

[778] CMS Collaboration, "Search for charged Higgs bosons in the $H^{\pm} \to \tau^{\pm}\nu_{\tau}$ decay channel in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **07**, 142 (2019), doi:10.1007/JHEP07(2019)142, arXiv:1903.04560, **Author Contribution Code(s):** 8, 9.

[779] CMS Collaboration, "Search for the production of $W^{\pm}W^{\pm}W^{\mp}$ events at $\sqrt{s} = 13$ TeV", Phys. Rev. D **100**, 012004 (2019), doi:10.1103/PhysRevD.100.012004, arXiv:1905.04246, **Author Contribution Code(s):** 8, 9.

[780] CMS Collaboration, "Studies of Beauty Suppression via Nonprompt D^0 Mesons in Pb-Pb Collisions at $Q^2 = 4$ GeV^2", Phys. Rev. Lett. **123**, 022001 (2019), doi:10.1103/PhysRevLett.123.022001, arXiv:1810.11102, **Author Contribution Code(s):** 8, 9.

[781] CMS Collaboration, "Centrality and pseudorapidity dependence of the transverse energy density in pPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", Phys. Rev. C **100**, 024902 (2019), doi:10.1103/PhysRevC.100.024902, arXiv:1810.05745, **Author Contribution Code(s):** 8, 9.

[782] CMS Collaboration, "Measurement of electroweak WZ boson production and search for new physics in WZ + two jets events in pp collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **795**, 281 (2019), doi:10.1016/j.physletb.2019.05.042, arXiv:1901.04060, **Author Contribution Code(s):** 8, 9.

[783] CMS Collaboration, "Measurement of exclusive $\rho(770)^0$ photoproduction in ultraperipheral pPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", Eur. Phys. J. C **79**, 702 (2019), doi:10.1140/epjc/s10052-019-7202-9, arXiv:1902.01339, **Author Contribution Code(s):** 8, 9.

[784] CMS Collaboration, "Search for an exotic decay of the Higgs boson to a pair of light pseudoscalars in the final state with two muons and two b quarks in pp collisions at 13 TeV", Phys. Lett. B **795**, 398 (2019), doi:10.1016/j.physletb.2019.06.021, arXiv:1812.06359, **Author Contribution Code(s):** 8, 9.

[785] CMS Collaboration, "Search for dark matter in events with a leptoquark and missing transverse momentum in proton-proton collisions at 13 TeV", Phys. Lett. B **795**, 76 (2019), doi:10.1016/j.physletb.2019.05.046, arXiv:1811.10151, **Author Contribution Code(s):** 8, 9.

[786] CMS Collaboration, "Search for supersymmetry with a compressed mass spectrum in the vector boson fusion topology with 1-lepton and 0-lepton final states in proton-proton collisions at $\sqrt{s} =$ 13 TeV", J. High Energy Phys. **08**, 150 (2019), doi:10.1007/JHEP08(2019)150, arXiv:1905.13059, **Author Contribution Code(s):** 8, 9.

[787] CMS Collaboration, "A search for pair production of new light bosons decaying into muons in proton-proton collisions at 13 TeV", Phys. Lett. B **796**, 131 (2019), doi:10.1016/j.physletb.2019.07.013, arXiv:1812.00380, **Author Contribution Code(s):** 8, 9.

[788] CMS Collaboration, "Azimuthal separation in nearly back-to-back jet topologies in inclusive 2- and 3-jet events in pp collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **79**, 773 (2019), doi:10.1140/epjc/s10052-019-7276-4, arXiv:1902.04374, **Author Contribution Code(s):** 8, 9.

[789] CMS Collaboration, "Measurement of B_s^0 meson production in pp and PbPb collisions at $\sqrt{s_{NN}} =$ 5.02 TeV", Phys. Lett. B **796**, 168 (2019), doi:10.1016/j.physletb.2019.07.014, arXiv:1810.03022, **Author Contribution Code(s):** 8, 9.

[790] CMS Collaboration, "Search for a light charged Higgs boson decaying to a W boson and a CP-odd Higgs boson in final states with e$\mu\mu$ or $\mu\mu\mu$ in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **123**, 131802 (2019), doi:10.1103/PhysRevLett.123.131802, arXiv:1905.07453, **Author Contribution Code(s):** 8, 9.

[791] CMS Collaboration, "Search for vector-like leptons in multilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **100**, 052003 (2019), doi:10.1103/PhysRevD.100.052003, arXiv:1905.10853, **Author Contribution Code(s):** 8, 9.

[792] CMS Collaboration, "Charged-particle angular correlations in XeXe collisions at $\sqrt{s_{NN}} = 5.44$ TeV", Phys. Rev. C **100**, 044902 (2019), doi:10.1103/PhysRevC.100.044902, arXiv:1901.07997, **Author Contribution Code(s):** 8, 9.

[793] CMS Collaboration, "Evidence for light-by-light scattering and searches for axion-like particles in ultraperipheral PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV", Phys. Lett. B **797**, 134826 (2019), doi:10.1016/j.physletb.2019.134826, arXiv:1810.04602, **Author Contribution Code(s):** 8, 9.

[794] J. Duarte et al., "FPGA-accelerated machine learning inference as a service for particle physics computing", Comput. Softw. Big Sci. **3**, 13 (2019), doi:10.1007/s41781-019-0027-2, arXiv:1904.08986, **Author Contribution Code(s):** 1, 2, 9, 12, 13.

[795] CMS Collaboration, "Measurement of the top quark polarization and $t\bar{t}$ spin correlations using dilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **100**, 072002 (2019), doi:10.1103/PhysRevD.100.072002, arXiv:1907.03729, **Author Contribution Code(s):** 8, 9.

[796] CMS Collaboration, "Measurement of the top quark Yukawa coupling from $t\bar{t}$ kinematic distributions in the lepton+jets final state in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **100**, 072007 (2019), doi:10.1103/PhysRevD.100.072007, arXiv:1907.01590, **Author Contribution Code(s):** 8, 9.

[797] CMS Collaboration, "Search for dark photons in decays of Higgs bosons produced in association with Z bosons in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **10**, 139 (2019), doi:10.1007/JHEP10(2019)139, arXiv:1908.02699, **Author Contribution Code(s):** 8, 9.

[798] CMS Collaboration, "Search for Higgs and Z boson decays to J/ψ or Υ pairs in the four-muon final state in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **797**, 134811 (2019), doi:10.1016/j.physletb.2019.134811, arXiv:1905.10408, **Author Contribution Code(s):** 8, 9.

[799] CMS Collaboration, "Search for long-lived particles using nonprompt jets and missing transverse momentum with proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **797**, 134876 (2019), doi:10.1016/j.physletb.2019.134876, arXiv:1906.06441, **Author Contribution Code(s):** 8, 9.

[800] CMS Collaboration, "Search for pair production of vectorlike quarks in the fully hadronic final state", Phys. Rev. D **100**, 072001 (2019), doi:10.1103/PhysRevD.100.072001, arXiv:1906.11903, **Author Contribution Code(s):** 8, 9.

[801] CMS Collaboration, "Search for resonances decaying to a pair of Higgs bosons in the $\mathrm{b\bar{b}q\bar{q}'}\ell\nu$ final state in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **10**, 125 (2019), doi:10.1007/JHEP10(2019)125, arXiv:1904.04193, **Author Contribution Code(s):** 8, 9.

[802] CMS Collaboration, "Search for supersymmetry in proton-proton collisions at 13 TeV in final states with jets and missing transverse momentum", J. High Energy Phys. **10**, 244 (2019), doi:10.1007/JHEP10(2019)244, arXiv:1908.04722, **Author Contribution Code(s):** 8, 9.

[803] CMS Collaboration, "Combination of CMS searches for heavy resonances decaying to pairs of bosons or leptons", Phys. Lett. B **798**, 134952 (2019), doi:10.1016/j.physletb.2019.134952, arXiv:1906.00057, **Author Contribution Code(s):** 8, 9.

[804] CMS Collaboration, "Measurement of the average very forward energy as a function of the track multiplicity at central pseudorapidities in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 893 (2019), doi:10.1140/epjc/s10052-019-7402-3, arXiv:1908.01750, **Author Contribution Code(s):** 8, 9.

[805] CMS Collaboration, "Measurements of triple-differential cross sections for inclusive isolated-photon+jet events in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", Eur. Phys. J. C **79**, 969 (2019), doi:10.1140/epjc/s10052-019-7451-7, arXiv:1907.08155, **Author Contribution Code(s):** 8, 9.

[806] CMS Collaboration, "Search for anomalous electroweak production of vector boson pairs in association with two jets in proton-proton collisions at 13 TeV", Phys. Lett. B **798**, 134985 (2019), doi:10.1016/j.physletb.2019.134985, arXiv:1905.07445, **Author Contribution Code(s):** 8, 9.

[807] CMS Collaboration, "Search for MSSM Higgs bosons decaying to $\mu + \mu -$ in proton-proton collisions at s=13TeV", Phys. Lett. B **798**, 134992 (2019), doi:10.1016/j.physletb.2019.134992, arXiv:1907.03152, **Author Contribution Code(s):** 8, 9.

[808] CMS Collaboration, "Search for new physics in top quark production in dilepton final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **79**, 886 (2019), doi:10.1140/epjc/s10052-019-7387-y, arXiv:1903.11144, **Author Contribution Code(s):** 8, 9.

[809] CMS Collaboration, "Search for the production of four top quarks in the single-lepton and opposite-sign dilepton final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **11**, 082 (2019), doi:10.1007/JHEP11(2019)082, arXiv:1906.02805, **Author Contribution Code(s):** 8, 9.

[810] CMS Collaboration, "Constraints on anomalous HVV couplings from the production of Higgs bosons decaying to τ lepton pairs", Phys. Rev. D **100**, 112002 (2019), doi:10.1103/PhysRevD.100.112002, arXiv:1903.06973, **Author Contribution Code(s):** 8, 9.

[811] CMS Collaboration, "Measurement of the differential Drell-Yan cross section in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **12**, 059 (2019), doi:10.1007/JHEP12(2019)059, arXiv:1812.10529, **Author Contribution Code(s):** 8, 9.

[812] CMS Collaboration, "Measurements of differential Z boson production cross sections in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **12**, 061 (2019), doi:10.1007/JHEP12(2019)061, arXiv:1909.04133, **Author Contribution Code(s):** 8, 9.

[813] CMS Collaboration, "Probing the chiral magnetic wave in pPb and PbPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02\,\mathrm{TeV}$ using charge-dependent azimuthal anisotropies", Phys. Rev. C **100**, 064908 (2019), doi:10.1103/PhysRevC.100.064908, arXiv:1708.08901, **Author Contribution Code(s):** 8, 9.

[814] CMS Collaboration, "Pseudorapidity distributions of charged hadrons in xenon-xenon collisions at $\sqrt{s_{\mathrm{NN}}} = 5.44\,\mathrm{TeV}$", Phys. Lett. B **799**, 135049 (2019), doi:10.1016/j.physletb.2019.135049, arXiv:1902.03603, **Author Contribution Code(s):** 8, 9.

[815] CMS Collaboration, "Search for anomalous triple gauge couplings in WW and WZ production in lepton + jet events in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **12**, 062 (2019), doi:10.1007/JHEP12(2019)062, arXiv:1907.08354, **Author Contribution Code(s):** 8, 9.

[816] CMS Collaboration, "Search for long-lived particles using delayed photons in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Rev. D **100**, 112003 (2019), doi:10.1103/PhysRevD.100.112003, arXiv:1909.06166, **Author Contribution Code(s):** 8, 9.

[817] CMS Collaboration, "Search for low mass vector resonances decaying into quark-antiquark pairs in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Rev. D **100**, 112007 (2019), doi:10.1103/PhysRevD.100.112007, arXiv:1909.04114, **Author Contribution Code(s):** 7, 8, 9, 10.

[818] CMS Collaboration, "Search for low-mass quark-antiquark resonances produced in association with a photon at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Rev. Lett. **123**, 231803 (2019), doi:10.1103/PhysRevLett.123.231803, arXiv:1905.10331, **Author Contribution Code(s):** 7, 8, 9, 10.

[819] CMS Collaboration, "Search for Physics beyond the Standard Model in Events with Overlapping Photons and Jets", Phys. Rev. Lett. **123**, 241801 (2019), doi:10.1103/PhysRevLett.123.241801, arXiv:1907.06275, **Author Contribution Code(s):** 8, 9.

[820] CMS Collaboration, "Search for supersymmetry using Higgs boson to diphoton decays at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **11**, 109 (2019), doi:10.1007/JHEP11(2019)109, arXiv:1908.08500, **Author Contribution Code(s):** 8, 9.

[821] CMS Collaboration, "Study of the $\mathrm{B}^+ \to \mathrm{J}/\psi\overline{\Lambda}\mathrm{p}$ decay in proton-proton collisions at $\sqrt{s} = 8\,\mathrm{TeV}$", J. High Energy Phys. **12**, 100 (2019), doi:10.1007/JHEP12(2019)100, arXiv:1907.05461, **Author Contribution Code(s):** 8, 9.

[822] CMS Collaboration, "Evidence for WW production from double-parton interactions in proton–proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Eur. Phys. J. C **80**, 41 (2020), doi:10.1140/epjc/s10052-019-7541-6, arXiv:1909.06265, **Author Contribution Code(s):** 8, 9.

[823] CMS Collaboration, "Extraction and validation of a new set of CMS PYTHIA8 tunes from underlying-event measurements", Eur. Phys. J. C **80**, 4 (2020), doi:10.1140/epjc/s10052-019-7499-4, arXiv:1903.12179, **Author Contribution Code(s):** 8, 9.

[824] E. A. Moreno et al., "JEDI-net: a jet identification algorithm based on interaction networks", Eur. Phys. J. C **80**, 58 (2020), doi:10.1140/epjc/s10052-020-7608-4, arXiv:1908.05318, **Author Contribution Code(s):** 1, 2, 6, 9, 10, 12, 13.

[825] CMS Collaboration, "Measurement of electroweak production of a W boson in association with two jets in proton–proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Eur. Phys. J. C **80**, 43 (2020), doi:10.1140/epjc/s10052-019-7585-7, arXiv:1903.04040, **Author Contribution Code(s):** 8, 9.

[826] CMS Collaboration, "Measurement of the single top quark and antiquark production cross sections in the t channel and their ratio in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Lett. B **800**, 135042 (2020), doi:10.1016/j.physletb.2019.135042, arXiv:1812.10514, **Author Contribution Code(s):** 8, 9.

[827] CMS Collaboration, "Multiparticle correlation studies in pPb collisions at $\sqrt{s_{\mathrm{NN}}} = 8.16\,\mathrm{TeV}$", Phys. Rev. C **101**, 014912 (2020), doi:10.1103/PhysRevC.101.014912, arXiv:1904.11519, **Author Contribution Code(s):** 8, 9.

[828] CMS Collaboration, "Observation of nuclear modifications in $W^{\pm}$ boson production in pPb collisions at $\sqrt{s_{NN}} = 8.16$ TeV", Phys. Lett. B **800**, 135048 (2020), doi:10.1016/j.physletb.2019.135048, arXiv:1905.01486, **Author Contribution Code(s):** 8, 9.

[829] CMS Collaboration, "Search for a charged Higgs boson decaying into top and bottom quarks in events with electrons or muons in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **01**, 096 (2020), doi:10.1007/JHEP01(2020)096, arXiv:1908.09206, **Author Contribution Code(s):** 8, 9.

[830] CMS Collaboration, "Search for electroweak production of a vector-like T quark using fully hadronic final states", J. High Energy Phys. **01**, 036 (2020), doi:10.1007/JHEP01(2020)036, arXiv:1909.04721, **Author Contribution Code(s):** 8, 9.

[831] CMS Collaboration, "Search for light pseudoscalar boson pairs produced from decays of the 125 GeV Higgs boson in final states with two muons and two nearby tracks in pp collisions at $\sqrt{s} =$ 13 TeV", Phys. Lett. B **800**, 135087 (2020), doi:10.1016/j.physletb.2019.135087, arXiv:1907.07235, **Author Contribution Code(s):** 8, 9.

[832] CMS Collaboration, "Search for production of four top quarks in final states with same-sign or multiple leptons in proton-proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **80**, 75 (2020), doi:10.1140/epjc/s10052-019-7593-7, arXiv:1908.06463, **Author Contribution Code(s):** 8, 9.

[833] CMS Collaboration, "Search for Supersymmetry with a Compressed Mass Spectrum in Events with a Soft τ Lepton, a Highly Energetic Jet, and Large Missing Transverse Momentum in Proton-Proton Collisions at $\sqrt{s} =$ TeV", Phys. Rev. Lett. **124**, 041803 (2020), doi:10.1103/PhysRevLett.124.041803, arXiv:1910.01185, **Author Contribution Code(s):** 8, 9.

[834] CMS Collaboration, "Searches for physics beyond the standard model with the M_{T2} variable in hadronic final states with and without disappearing tracks in proton-proton collisions at $\sqrt{s} =$ 13 TeV", Eur. Phys. J. C **80**, 3 (2020), doi:10.1140/epjc/s10052-019-7493-x, arXiv:1909.03460, **Author Contribution Code(s):** 8, 9.

[835] CMS Collaboration, "Combined search for supersymmetry with photons in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **801**, 135183 (2020), doi:10.1016/j.physletb.2019.135183, arXiv:1907.00857, **Author Contribution Code(s):** 8, 9.

[836] CMS Collaboration, "Measurement of the top quark pair production cross section in dilepton final states containing one τ lepton in pp collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **02**, 191 (2020), doi:10.1007/JHEP02(2020)191, arXiv:1911.13204, **Author Contribution Code(s):** 8, 9.

[837] CMS Collaboration, "Performance of the reconstruction and identification of high-momentum muons in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. Instrum. **15**, P02027 (2020), doi:10.1088/1748-0221/15/02/P02027, arXiv:1912.03516, **Author Contribution Code(s):** 8, 9.

[838] CMS Collaboration, "Search for top squark pair production in a final state with two tau leptons in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **02**, 015 (2020), doi:10.1007/JHEP02(2020)015, arXiv:1910.12932, **Author Contribution Code(s):** 8, 9.

[839] CMS Collaboration, "A multi-dimensional search for new heavy resonances decaying to boosted WW, WZ, or ZZ boson pairs in the dijet final state at 13 TeV", Eur. Phys. J. C **80**, 237 (2020), doi:10.1140/epjc/s10052-020-7773-5, arXiv:1906.05977, **Author Contribution Code(s):** 8, 9.

[840] CMS Collaboration, "A search for the standard model Higgs boson decaying to charm quarks", J. High Energy Phys. **03**, 131 (2020), doi:10.1007/JHEP03(2020)131, arXiv:1912.01662, **Author Contribution Code(s):** 8, 9.

[841] CMS Collaboration, "Bose-Einstein correlations of charged hadrons in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **03**, 014 (2020), doi:10.1007/JHEP03(2020)014, arXiv:1910.08815, **Author Contribution Code(s):** 8, 9.

[842] CMS Collaboration, "Measurement of top quark pair production in association with a Z boson in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 056 (2020), doi:10.1007/JHEP03(2020)056, arXiv:1907.11270, **Author Contribution Code(s):** 8, 9.

[843] CMS Collaboration, "Observation of the $\Lambda_b^0 \to J/\psi\Lambda\phi$ decay in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **802**, 135203 (2020), doi:10.1016/j.physletb.2020.135203, arXiv:1911.03789, **Author Contribution Code(s):** 8, 9.

[844] CMS Collaboration, "Search for a heavy Higgs boson decaying to a pair of W bosons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 034 (2020), doi:10.1007/JHEP03(2020)034, arXiv:1912.01594, **Author Contribution Code(s):** 8, 9.

[845] CMS Collaboration, "Search for a heavy pseudoscalar Higgs boson decaying into a 125 GeV Higgs boson and a Z boson in final states with two tau and two light leptons at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 065 (2020), doi:10.1007/JHEP03(2020)065, arXiv:1910.11634, **Author Contribution Code(s):** 8, 9.

[846] CMS Collaboration, "Search for dark matter particles produced in association with a Higgs boson in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 025 (2020), doi:10.1007/JHEP03(2020)025, arXiv:1908.01713, **Author Contribution Code(s):** 8, 9.

[847] CMS Collaboration, "Search for direct pair production of supersymmetric partners to the τ lepton in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **80**, 189 (2020), doi:10.1140/epjc/s10052-020-7739-7, arXiv:1907.13179, **Author Contribution Code(s):** 8, 9.

[848] CMS Collaboration, "Search for lepton flavour violating decays of a neutral heavy Higgs boson to $\mu\tau$ and $e\tau$ in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 103 (2020), doi:10.1007/JHEP03(2020)103, arXiv:1911.10267, **Author Contribution Code(s):** 8, 9.

[849] CMS Collaboration, "Search for new neutral Higgs bosons through the $H \to ZA \to \ell^+\ell^- b\bar{b}$ process in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 055 (2020), doi:10.1007/JHEP03(2020)055, arXiv:1911.03781, **Author Contribution Code(s):** 8, 9.

[850] CMS Collaboration, "Search for physics beyond the standard model in multilepton final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **03**, 051 (2020), doi:10.1007/JHEP03(2020)051, arXiv:1911.04968, **Author Contribution Code(s):** 8, 9.

[851] CMS Collaboration, "Search for supersymmetry in pp collisions at $\sqrt{s} = 13\,\text{TeV}$ with 137 fb^{-1} in final states with a single lepton using the sum of masses of large-radius jets", Phys. Rev. D **101**, 052010 (2020), doi:10.1103/PhysRevD.101.052010, arXiv:1911.07558, **Author Contribution Code(s):** 8, 9.

[852] CMS Collaboration, "Constraints on the χ_{c1} versus χ_{c2} polarizations in proton-proton collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Rev. Lett. **124**, 162002 (2020), doi:10.1103/PhysRevLett.124.162002, arXiv:1912.07706, **Author Contribution Code(s):** 8, 9.

[853] CMS Collaboration, "Measurement of properties of $B_s^0 \to \mu^+\mu^-$ decays and search for $B^0 \to \mu^+\mu^-$ with the CMS experiment", J. High Energy Phys. **04**, 188 (2020), doi:10.1007/JHEP04(2020)188, arXiv:1910.12127, **Author Contribution Code(s):** 8, 9.

[854] CMS Collaboration, "Measurement of the $t\bar{t}b\bar{b}$ production cross section in the all-jet final state in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **803**, 135285 (2020), doi:10.1016/j.physletb.2020.135285, arXiv:1909.05306, **Author Contribution Code(s):** 8, 9.

[855] CMS Collaboration, "Production of Λ_c^+ baryons in proton-proton and lead-lead collisions at $\sqrt{s_{NN}} = 5.02\,\text{TeV}$", Phys. Lett. B **803**, 135328 (2020), doi:10.1016/j.physletb.2020.135328, arXiv:1906.03322, **Author Contribution Code(s):** 8, 9.

[856] CMS Collaboration, "Running of the top quark mass from proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **803**, 135263 (2020), doi:10.1016/j.physletb.2020.135263, arXiv:1909.09193, **Author Contribution Code(s):** 8, 9.

[857] CMS Collaboration, "Search for a Narrow Resonance Lighter than 200 GeV Decaying to a Pair of Muons in Proton-Proton Collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **124**, 131802 (2020), doi:10.1103/PhysRevLett.124.131802, arXiv:1912.04776, **Author Contribution Code(s):** 8, 9.

[858] CMS Collaboration, "Search for heavy Higgs bosons decaying to a top quark pair in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **04**, 171 (2020), doi:10.1007/JHEP04(2020)171, arXiv:1908.01115, **Author Contribution Code(s):** 8, 9.

[859] CMS Collaboration, "Study of excited Λ_b^0 states decaying to $\Lambda_b^0\pi^+\pi^-$ in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **803**, 135345 (2020), doi:10.1016/j.physletb.2020.135345, arXiv:2001.06533, **Author Contribution Code(s):** 8, 9.

[860] CMS Collaboration, "Calibration of the CMS hadron calorimeters using proton-proton collision data at $\sqrt{s} = 13\,\text{TeV}$", J. Instrum. **15**, P05002 (2020), doi:10.1088/1748-0221/15/05/P05002, arXiv:1910.00079, **Author Contribution Code(s):** 8, 9.

[861] S. Summers et al., "Fast inference of boosted decision trees in FPGAs for particle physics", J. Instrum. **15**, P05026 (2020), doi:10.1088/1748-0221/15/05/p05026, arXiv:2002.02534, **Author Contribution Code(s):** 1, 2, 6, 8, 9, 10, 14.

[862] CMS Collaboration, "Measurement of differential cross sections and charge ratios for t-channel single top quark production in proton–proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **80**, 370 (2020), doi:10.1140/epjc/s10052-020-7858-1, arXiv:1907.08330, **Author Contribution Code(s):** 8, 9.

[863] CMS Collaboration, "Measurement of the jet mass distribution and top quark mass in hadronic decays of boosted top quarks in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **124**, 202001 (2020), doi:10.1103/PhysRevLett.124.202001, arXiv:1911.03800, **Author Contribution Code(s):** 8, 9.

[864] CMS Collaboration, "Search for an excited lepton that decays via a contact interaction to a lepton and two jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **05**, 052 (2020), doi:10.1007/JHEP05(2020)052, arXiv:2001.04521, **Author Contribution Code(s):** 8, 9.

[865] CMS Collaboration, "Search for direct top squark pair production in events with one lepton, jets, and missing transverse momentum at 13 TeV with the CMS experiment", J. High Energy Phys. **05**, 032 (2020), doi:10.1007/JHEP05(2020)032, arXiv:1912.08887, **Author Contribution Code(s):** 8, 9.

[866] CMS Collaboration, "Search for high mass dijet resonances with a new background prediction method in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **05**, 033 (2020), doi:10.1007/JHEP05(2020)033, arXiv:1911.03947, **Author Contribution Code(s):** 7, 8, 9, 10.

[867] CMS Collaboration, "Study of J/ψ meson production inside jets in pp collisions at $\sqrt{s} = 8\,\text{TeV}$", Phys. Lett. B **804**, 135409 (2020), doi:10.1016/j.physletb.2020.135409, arXiv:1910.01686, **Author Contribution Code(s):** 8, 9.

[868] CMS Collaboration, "A measurement of the Higgs boson mass in the diphoton decay channel", Phys. Lett. B **805**, 135425 (2020), doi:10.1016/j.physletb.2020.135425, arXiv:2002.06398, **Author Contribution Code(s):** 8, 9.

[869] CMS Collaboration, "Determination of the strong coupling constant $\alpha_S(m_Z)$ from measurements of inclusive $W^\pm$ and Z boson production cross sections in proton-proton collisions at $\sqrt{s}$ = 7 and 8 TeV", J. High Energy Phys. **06**, 018 (2020), doi:10.1007/JHEP06(2020)018, arXiv:1912.04387, **Author Contribution Code(s):** 8, 9.

[870] CMS Collaboration, "Identification of heavy, energetic, hadronically decaying particles using machine-learning techniques", J. Instrum. **15**, P06005 (2020), doi:10.1088/1748-0221/15/06/P06005, arXiv:2004.08262, **Author Contribution Code(s):** 8, 9.

[871] CMS Collaboration, "Measurement of the cross section for electroweak production of a Z boson, a photon and two jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$ and constraints on anomalous quartic couplings", J. High Energy Phys. **06**, 076 (2020), doi:10.1007/JHEP06(2020)076, arXiv:2002.09902, **Author Contribution Code(s):** 8, 9.

[872] CMS Collaboration, "Measurement of the top quark forward-backward production asymmetry and the anomalous chromoelectric and chromomagnetic moments in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **06**, 146 (2020), doi:10.1007/JHEP06(2020)146, arXiv:1912.09540, **Author Contribution Code(s):** 8, 9.

[873] CMS Collaboration, "Measurements with silicon photomultipliers of dose-rate effects in the radiation damage of plastic scintillator tiles in the CMS hadron endcap calorimeter", J. Instrum. **15**, P06009 (2020), doi:10.1088/1748-0221/15/06/P06009, arXiv:2001.06553, **Author Contribution Code(s):** 8, 9.

[874] CMS Collaboration, "Mixed higher-order anisotropic flow and nonlinear response coefficients of charged particles in PbPb collisions at $\sqrt{s_{\text{NN}}} = 2.76$ and 5.02 TeV", Eur. Phys. J. C **80**, 534 (2020), doi:10.1140/epjc/s10052-020-7834-9, arXiv:1910.08789, **Author Contribution Code(s):** 8, 9.

[875] CMS Collaboration, "Search for dijet resonances using events with three jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **805**, 135448 (2020), doi:10.1016/j.physletb.2020.135448, arXiv:1911.03761, **Author Contribution Code(s):** 7, 8, 9, 10.

[876] CMS Collaboration, "Strange hadron production in pp and pPb collisions at $\sqrt{s_{\text{NN}}} = 5.02$ TeV", Phys. Rev. C **101**, 064906 (2020), doi:10.1103/PhysRevC.101.064906, arXiv:1910.04812, **Author Contribution Code(s):** 8, 9.

[877] E. A. Moreno et al., "Interaction networks for the identification of boosted $\text{H} \to \text{b}\bar{\text{b}}$ decays", Phys. Rev. D **102**, 012010 (2020), doi:10.1103/PhysRevD.102.012010, arXiv:1909.12285, **Author Contribution Code(s):** 1, 2, 6, 9, 10, 12, 13.

[878] CMS Collaboration, "Measurement of $\text{t}\bar{\text{t}}$ normalised multi-differential cross sections in pp collisions at $\sqrt{s} = 13$ TeV, and simultaneous determination of the strong coupling strength, top quark pole mass, and parton distribution functions", Eur. Phys. J. C **80**, 658 (2020), doi:10.1140/epjc/s10052-020-7917-7, arXiv:1904.05237, **Author Contribution Code(s):** 8, 9.

[879] CMS Collaboration, "Measurement of quark- and gluon-like jet fractions using jet charge in PbPb and pp collisions at 5.02 TeV", J. High Energy Phys. **07**, 115 (2020), doi:10.1007/JHEP07(2020)115, arXiv:2004.00602, **Author Contribution Code(s):** 8, 9.

[880] CMS Collaboration, "Measurement of the cross section for $\text{t}\bar{\text{t}}$ production with additional jets and b jets in pp collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **07**, 125 (2020), doi:10.1007/JHEP07(2020)125, arXiv:2003.06467, **Author Contribution Code(s):** 8, 9.

[881] CMS Collaboration, "Search for charged Higgs bosons decaying into a top and a bottom quark in the all-jet final state of pp collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **7**, 126 (2020), doi:10.1007/JHEP07(2020)126, arXiv:2001.07763, **Author Contribution Code(s):** 8, 9.

[882] CMS Collaboration, "Search for disappearing tracks in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **806**, 135502 (2020), doi:10.1016/j.physletb.2020.135502, arXiv:2004.05153, **Author Contribution Code(s):** 8, 9.

[883] CMS Collaboration, "The production of isolated photons in PbPb and pp collisions at $\sqrt{s_{\text{NN}}} = 5.02$ TeV", J. High Energy Phys. **07**, 116 (2020), doi:10.1007/JHEP07(2020)116, arXiv:2003.12797, **Author Contribution Code(s):** 8, 9.

[884] CMS Collaboration, "A deep neural network to search for new long-lived particles decaying to jets", Mach. Learn.: Sci. Technol. **1**, 035012 (2020), doi:10.1088/2632-2153/ab9023, arXiv:1912.12238, **Author Contribution Code(s):** 8, 9.

[885] CMS, ATLAS Collaboration, "Combination of the W boson polarization measurements in top quark decays using ATLAS and CMS data at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **08**, 051 (2020), doi:10.1007/JHEP08(2020)051, arXiv:2005.03799, **Author Contribution Code(s):** 8, 9.

[886] CMS Collaboration, "Measurement of the associated production of a Z boson with charm or bottom quark jets in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **102**, 032007 (2020), doi:10.1103/PhysRevD.102.032007, arXiv:2001.06899, **Author Contribution Code(s):** 8, 9.

[887] CMS Collaboration, "Measurements of $t\bar{t}H$ production and the CP structure of the Yukawa interaction between the Higgs boson and top quark in the diphoton decay channel", Phys. Rev. Lett. **125**, 061801 (2020), doi:10.1103/PhysRevLett.125.061801, arXiv:2003.10866, **Author Contribution Code(s):** 8, 9.

[888] CMS Collaboration, "Search for a light pseudoscalar Higgs boson in the boosted $\mu\mu\tau\tau$ final state in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **08**, 139 (2020), doi:10.1007/JHEP08(2020)139, arXiv:2005.08694, **Author Contribution Code(s):** 8, 9.

[889] CMS Collaboration, "Search for physics beyond the standard model in events with jets and two same-sign or at least three charged leptons in proton-proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **80**, 752 (2020), doi:10.1140/epjc/s10052-020-8168-3, arXiv:2001.10086, **Author Contribution Code(s):** 8, 9.

[890] CMS Collaboration, "Search for resonant pair production of Higgs bosons in the bbZZ channel in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **102**, 032003 (2020), doi:10.1103/PhysRevD.102.032003, arXiv:2006.06391, **Author Contribution Code(s):** 8, 9.

[891] CMS Collaboration, "Study of central exclusive $\pi^+\pi^-$ production in proton-proton collisions at $\sqrt{s} = 5.02$ and 13 TeV", Eur. Phys. J. C **80**, 718 (2020), doi:10.1140/epjc/s10052-020-8166-5, arXiv:2003.02811, **Author Contribution Code(s):** 8, 9.

[892] CMS Collaboration, "Measurement of CKM matrix elements in single top quark t-channel production in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **808**, 135609 (2020), doi:10.1016/j.physletb.2020.135609, arXiv:2004.12181, **Author Contribution Code(s):** 8, 9.

[893] CMS Collaboration, "Measurement of the Y(1S) pair production cross section and search for resonances decaying to Y(1S)$\mu^+\mu^-$ in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **808**, 135578 (2020), doi:10.1016/j.physletb.2020.135578, arXiv:2002.06393, **Author Contribution Code(s):** 8, 9.

[894] CMS Collaboration, "Pileup mitigation at CMS in 13 TeV data", J. Instrum. **15**, P09018 (2020), doi:10.1088/1748-0221/15/09/P09018, arXiv:2003.00503, **Author Contribution Code(s):** 8, 9.

[895] CMS Collaboration, "Search for supersymmetry in proton-proton collisions at $\sqrt{s} = 13$ TeV in events with high-momentum Z bosons and missing transverse momentum", J. High Energy Phys. **09**, 149 (2020), doi:10.1007/JHEP09(2020)149, arXiv:2008.04422, **Author Contribution Code(s):** 8, 9.

[896] CMS Collaboration, "Measurements of production cross sections of WZ and same-sign WW boson pairs in association with two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **809**, 135710 (2020), doi:10.1016/j.physletb.2020.135710, arXiv:2005.01173, **Author Contribution Code(s):** 8, 9.

[897] CMS Collaboration, "Observation of the $B_s^0 \to X(3872)\phi$ decay", Phys. Rev. Lett. **125**, 152001 (2020), doi:10.1103/PhysRevLett.125.152001, arXiv:2005.04764, **Author Contribution Code(s):** 8, 9.

[898] CMS Collaboration, "Observation of the production of three massive gauge bosons at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **125**, 151802 (2020), doi:10.1103/PhysRevLett.125.151802, arXiv:2006.11191, **Author Contribution Code(s):** 8, 9.

[899] CMS Collaboration, "Performance of the CMS Level-1 trigger in proton-proton collisions at $\sqrt{s} =$ 13 TeV", J. Instrum. **15**, P10017 (2020), doi:10.1088/1748-0221/15/10/P10017, arXiv:2006.10165, **Author Contribution Code(s):** 8, 9.

[900] CMS Collaboration, "Reconstruction of signal amplitudes in the CMS electromagnetic calorimeter in the presence of overlapping proton-proton interactions", J. Instrum. **15**, P10002 (2020), doi:10.1088/1748-0221/15/10/P10002, arXiv:2006.14359, **Author Contribution Code(s):** 8, 9.

[901] CMS Collaboration, "Search for a light charged Higgs boson in the $H^{\pm} \to cs$ channel in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **102**, 072001 (2020), doi:10.1103/PhysRevD.102.072001, arXiv:2005.08900, **Author Contribution Code(s):** 8, 9.

[902] CMS Collaboration, "Evidence for top quark production in nucleus-nucleus collisions", Phys. Rev. Lett. **125**, 222001 (2020), doi:10.1103/PhysRevLett.125.222001, arXiv:2006.11110, **Author Contribution Code(s):** 8, 9.

[903] CMS Collaboration, "Investigation into the event-activity dependence of Y(nS) relative production in proton-proton collisions at $\sqrt{s}$ = 7 TeV", J. High Energy Phys. **11**, 001 (2020), doi:10.1007/JHEP11(2020)001, arXiv:2007.04277, **Author Contribution Code(s):** 8, 9.

[904] CMS Collaboration, "Measurement of $B_c(2S)^+$ and $B_c^*(2S)^+$ cross section ratios in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **102**, 092007 (2020), doi:10.1103/PhysRevD.102.092007, arXiv:2008.08629, **Author Contribution Code(s):** 8, 9.

[905] CMS Collaboration, "Measurement of the top quark Yukawa coupling from $t\bar{t}$ kinematic distributions in the dilepton final state in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **102**, 092013 (2020), doi:10.1103/PhysRevD.102.092013, arXiv:2009.07123, **Author Contribution Code(s):** 8, 9.

[906] CMS Collaboration, "Measurements of the W boson rapidity, helicity, double-differential cross sections, and charge asymmetry in pp collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **102**, 092012 (2020), doi:10.1103/PhysRevD.102.092012, arXiv:2008.04174, **Author Contribution Code(s):** 8, 9.

[907] CMS Collaboration, "Search for decays of the 125 GeV Higgs boson into a Z boson and a ρ or ϕ meson", J. High Energy Phys. **11**, 039 (2020), doi:10.1007/JHEP11(2020)039, arXiv:2007.05122, **Author Contribution Code(s):** 8, 9.

[908] CMS Collaboration, "W^+W^- boson pair production in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **102**, 092001 (2020), doi:10.1103/PhysRevD.102.092001, arXiv:2009.00119, **Author Contribution Code(s):** 8, 9.

[909] CMS Collaboration, "A search for bottom-type, vector-like quark pair production in a fully hadronic final state in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **102**, 112004 (2020), doi:10.1103/PhysRevD.102.112004, arXiv:2008.09835, **Author Contribution Code(s):** 8, 9.

[910] J. Ngadiuba et al., "Compressing deep neural networks on FPGAs to binary and ternary precision with hls4ml", Mach. Learn.: Sci. Technol. **2**, 015001 (2020), doi:10.1088/2632-2153/aba042, arXiv:2003.06308, **Author Contribution Code(s):** 1, 9, 14.

[911] CMS Collaboration, "Inclusive search for highly boosted Higgs bosons decaying to bottom quark-antiquark pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **12**, 85 (2020), doi:10.1007/JHEP12(2020)085, arXiv:2006.13251, **Author Contribution Code(s):** 1, 3, 6, 8, 9, 10, 12, 13.

[912] CMS, TOTEM Collaboration, "Measurement of single-diffractive dijet production in proton-proton collisions at $\sqrt{s} = 8$ TeV with the CMS and TOTEM experiments", Eur. Phys. J. C **80**, 1164 (2020), doi:10.1140/epjc/s10052-020-08562-y, arXiv:2002.12146, [Erratum: Eur. Phys. J. C 81, 383 (2021)], **Author Contribution Code(s):** 8, 9.

[913] CMS Collaboration, "Observation of electroweak production of Wγ with two jets in proton-proton collisions at $\sqrt{s}$ = 13 TeV", Phys. Lett. B **811**, 135988 (2020), doi:10.1016/j.physletb.2020.135988, arXiv:2008.10521, **Author Contribution Code(s):** 8, 9.

[914] CMS Collaboration, "Correlations of azimuthal anisotropy Fourier harmonics with subevent cumulants in *pPb* collisions at $\sqrt{s_{\mathrm{NN}}} = 8.16$ TeV", Phys. Rev. C **103**, 014902 (2021), doi:10.1103/PhysRevC.103.014902, arXiv:1905.09935, **Author Contribution Code(s):** 8, 9.

[915] Y. Iiyama et al., "Distance-weighted graph neural networks on FPGAs for real-time particle reconstruction in high energy physics", Front. Big Data **3**, 44 (2021), doi:10.3389/fdata.2020.598927, arXiv:2008.03601, **Author Contribution Code(s):** 1, 2, 6, 8, 9, 10, 14.

[916] CMS Collaboration, "Evidence for electroweak production of four charged leptons and two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **812**, 135992 (2021), doi:10.1016/j.physletb.2020.135992, arXiv:2008.07013, **Author Contribution Code(s):** 8, 9.

[917] CMS Collaboration, "Evidence for Higgs boson decay to a pair of muons", J. High Energy Phys. **01**, 148 (2021), doi:10.1007/JHEP01(2021)148, arXiv:2009.04363, **Author Contribution Code(s):** 8, 9.

[918] CMS Collaboration, "Measurements of production cross sections of polarized same-sign W boson pairs in association with two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **812**, 136018 (2021), doi:10.1016/j.physletb.2020.136018, arXiv:2009.09429, **Author Contribution Code(s):** 8, 9.

[919] CMS Collaboration, "Search for dark matter produced in association with a leptonically decaying Z boson in proton-proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **81**, 13 (2021), doi:10.1140/epjc/s10052-020-08739-5, arXiv:2008.04735, **Author Contribution Code(s):** 8, 9.

[920] CMS Collaboration, "Search for top squark pair production using dilepton final states in pp collision data collected at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **81**, 3 (2021), doi:10.1140/epjc/s10052-020-08701-5, arXiv:2008.05936, **Author Contribution Code(s):** 8, 9.

[921] CMS Collaboration, "Studies of charm and beauty hadron long-range correlations in pp and pPb collisions at LHC energies", Phys. Lett. B **813**, 136036 (2021), doi:10.1016/j.physletb.2020.136036, arXiv:2009.07065, **Author Contribution Code(s):** 8, 9.

[922] CMS Collaboration, "The very forward CASTOR calorimeter of the CMS experiment", J. Instrum. **16**, P02010 (2021), doi:10.1088/1748-0221/16/02/P02010, arXiv:2011.01185, **Author Contribution Code(s):** 8, 9.

[923] CMS Collaboration, "Measurement of differential $\mathrm{t\bar{t}}$ production cross sections using top quarks at large transverse momenta in *pp* collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **103**, 052008 (2021), doi:10.1103/PhysRevD.103.052008, arXiv:2008.07860, **Author Contribution Code(s):** 8, 9.

[924] CMS Collaboration, "Measurements of pp $\to$ ZZ production cross sections and constraints on anomalous triple gauge couplings at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **81**, 200 (2021), doi:10.1140/epjc/s10052-020-08817-8, arXiv:2009.01186, **Author Contribution Code(s):** 8, 9.

[925] CMS Collaboration, "Search for dark photons in Higgs boson production via vector boson fusion in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **03**, 011 (2021), doi:10.1007/JHEP03(2021)011, arXiv:2009.14009, **Author Contribution Code(s):** 8, 9.

[926] CMS Collaboration, "Search for new physics in top quark production with additional leptons in proton-proton collisions at $\sqrt{s} = 13$ TeV using effective field theory", J. High Energy Phys. **03**, 095 (2021), doi:10.1007/JHEP03(2021)095, arXiv:2012.04120, **Author Contribution Code(s):** 8, 9.

[927] CMS Collaboration, "Search for nonresonant Higgs boson pair production in final states with two bottom quarks and two photons in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **03**, 257 (2021), doi:10.1007/JHEP03(2021)257, arXiv:2011.12373, **Author Contribution Code(s):** 8, 9.

[928] CMS Collaboration, "Angular analysis of the decay $B^+ \to K^*(892)^+\mu^+\mu^-$ in proton-proton collisions at $\sqrt{s} = 8$ TeV", J. High Energy Phys. **04**, 124 (2021), doi:10.1007/JHEP04(2021)124, arXiv:2010.13968, **Author Contribution Code(s):** 8, 9.

[929] CMS Collaboration, "Development and validation of HERWIG 7 tunes from CMS underlying-event measurements", Eur. Phys. J. C **81**, 312 (2021), doi:10.1140/epjc/s10052-021-08949-5, arXiv:2011.03422, **Author Contribution Code(s):** 8, 9.

[930] J. Krupa et al., "GPU coprocessors as a service for deep learning inference in high energy physics", Mach. Learn.: Sci. Technol. **2**, 035005 (2021), doi:10.1088/2632-2153/abec21, arXiv:2007.10359, **Author Contribution Code(s):** 1, 4, 6, 8, 9, 14.

[931] CMS Collaboration, "Measurement of differential cross sections for Z bosons produced in association with charm jets in pp collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **04**, 109 (2021), doi:10.1007/JHEP04(2021)109, arXiv:2012.04119, **Author Contribution Code(s):** 8, 9.

[932] CMS Collaboration, "Measurement of the Higgs boson production rate in association with top quarks in final states with electrons, muons, and hadronically decaying tau leptons at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **81**, 378 (2021), doi:10.1140/epjc/s10052-021-09014-x, arXiv:2011.03652, **Author Contribution Code(s):** 8, 9.

[933] CMS Collaboration, "Electron and photon reconstruction and identification with the CMS experiment at the CERN LHC", J. Instrum. **16**, P05014 (2021), doi:10.1088/1748-0221/16/05/P05014, arXiv:2012.06888, **Author Contribution Code(s):** 8, 9.

[934] CMS Collaboration, "First measurement of large area jet transverse momentum spectra in heavy-ion collisions", J. High Energy Phys. **05**, 284 (2021), doi:10.1007/JHEP05(2021)284, arXiv:2102.13080, **Author Contribution Code(s):** 8, 9.

[935] CMS Collaboration, "In-medium modification of dijets in PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV", J. High Energy Phys. **05**, 116 (2021), doi:10.1007/JHEP05(2021)116, arXiv:2101.04720, **Author Contribution Code(s):** 8, 9.

[936] CMS Collaboration, "Measurement of prompt D^0 and $\overline{D}^0$ meson azimuthal anisotropy and search for strong electric fields in PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV", Phys. Lett. B **816**, 136253 (2021), doi:10.1016/j.physletb.2021.136253, arXiv:2009.12628, **Author Contribution Code(s):** 8, 9.

[937] CMS Collaboration, "Measurement of the Z boson differential production cross section using its invisible decay mode ($Z\nu\bar{\nu}$) in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **05**, 205 (2021), doi:10.1007/JHEP05(2021)205, arXiv:2012.09254, **Author Contribution Code(s):** 8, 9.

[938] CMS Collaboration, "Measurements of the differential cross sections of the production of Z + jets and γ + jets and of Z boson emission collinear with a jet in pp collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **05**, 285 (2021), doi:10.1007/JHEP05(2021)285, arXiv:2102.02238, **Author Contribution Code(s):** 8, 9.

[939] J. Pata et al., "MLPF: efficient machine-learned particle-flow reconstruction using graph neural networks", Eur. Phys. J. C **81**, 381 (2021), doi:10.1140/epjc/s10052-021-09158-w, arXiv:2101.08578, **Author Contribution Code(s):** 1, 4, 6, 9, 10, 13, 14.

[940] CMS Collaboration, "Study of Drell-Yan dimuon production in proton-lead collisions at $\sqrt{s_{NN}} = 8.16$ TeV", J. High Energy Phys. **05**, 182 (2021), doi:10.1007/JHEP05(2021)182, arXiv:2102.13648, **Author Contribution Code(s):** 8, 9.

[941] CMS Collaboration, "Measurement of the Wγ Production Cross Section in Proton-Proton Collisions at $\sqrt{s}$=13 TeV and Constraints on Effective Field Theory Coefficients", Phys. Rev. Lett. **126**, 252002 (2021), doi:10.1103/PhysRevLett.126.252002, arXiv:2102.02283, **Author Contribution Code(s):** 8, 9.

[942] CMS Collaboration, "Measurements of production cross sections of the Higgs boson in the four-lepton final state in proton–proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **81**, 488 (2021), doi:10.1140/epjc/s10052-021-09200-x, arXiv:2103.04956, **Author Contribution Code(s):** 8, 9.

[943] CMS Collaboration, "Observation of a New Excited Beauty Strange Baryon Decaying to $\Xi_b^- \pi^+ \pi^-$", Phys. Rev. Lett. **126**, 252003 (2021), doi:10.1103/PhysRevLett.126.252003, arXiv:2102.04524, **Author Contribution Code(s):** 8, 9.

[944] T. Aarrestad et al., "Fast convolutional neural networks on FPGAs with hls4ml", Mach. Learn.: Sci. Technol. **2**, 045015 (2021), doi:10.1088/2632-2153/ac0ea1, arXiv:2101.05108, **Author Contribution Code(s):** 1, 9, 14.

[945] CMS Collaboration, "Measurements of higgs boson production cross sections and couplings in the diphoton decay channel at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 027 (2021), doi:10.1007/JHEP07(2021)027, arXiv:2103.06956, **Author Contribution Code(s):** 8, 9.

[946] CMS Collaboration, "MUSiC: a model-unspecific search for new physics in proton–proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **81**, 629 (2021), doi:10.1140/epjc/s10052-021-09236-z, arXiv:2010.02984, **Author Contribution Code(s):** 8, 9.

[947] CMS Collaboration, "Performance of the CMS muon trigger system in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. Instrum. **16**, P07001 (2021), doi:10.1088/1748-0221/16/07/P07001, arXiv:2102.04790, **Author Contribution Code(s):** 8, 9.

[948] B. Hawks et al., "Ps and Qs: Quantization-aware pruning for efficient low latency neural network inference", Front. AI **4**, 94 (2021), doi:10.3389/frai.2021.676564, arXiv:2102.11289, **Author Contribution Code(s):** 9, 10, 14.

[949] CMS Collaboration, "Search for long-lived particles using displaced jets in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **104**, 012015 (2021), doi:10.1103/PhysRevD.104.012015, arXiv:2012.01581, **Author Contribution Code(s):** 8, 9.

[950] CMS Collaboration, "Search for resonant and nonresonant new phenomena in high-mass dilepton final states at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 208 (2021), doi:10.1007/JHEP07(2021)208, arXiv:2103.02708, **Author Contribution Code(s):** 8, 9.

[951] G. D. Guglielmo et al., "A reconfigurable neural network ASIC for detector front-end data compression at the HL-LHC", IEEE Trans. Nucl. Sci. **68**, 2179 (2021), doi:10.1109/TNS.2021.3087100, arXiv:2105.01683, **Author Contribution Code(s):** 9, 10, 14.

[952] CMS Collaboration, "Constraints on the initial state of Pb-Pb collisions via measurements of Z-boson yields and azimuthal anisotropy at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Rev. Lett. **127**, 102002 (2021), doi:10.1103/PhysRevLett.127.102002, arXiv:2103.14089, **Author Contribution Code(s):** 8, 9.

[953] TOTEM, CMS Collaboration, "Hard color-singlet exchange in dijet events in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **104**, 032009 (2021), doi:10.1103/PhysRevD.104.032009, arXiv:2102.06945, **Author Contribution Code(s):** 8, 9.

[954] CMS Collaboration, "Search for a heavy vector resonance decaying to a Z boson and a Higgs boson in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **81**, 688 (2021), doi:10.1140/epjc/s10052-021-09348-6, arXiv:2102.08198, **Author Contribution Code(s):** 8, 9.

[955] CMS Collaboration, "Search for charged higgs bosons produced in vector boson fusion processes and decaying into vector boson pairs in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **81**, 723 (2021), doi:10.1140/epjc/s10052-021-09472-3, arXiv:2104.04762, **Author Contribution Code(s):** 8, 9.

[956] CMS Collaboration, "Search for lepton-flavor violating decays of the Higgs boson in the $\mu\tau$ and eτ final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **104**, 032013 (2021), doi:10.1103/PhysRevD.104.032013, arXiv:2105.03007, **Author Contribution Code(s):** 8, 9.

[957] CMS Collaboration, "Search for singly and pair-produced leptoquarks coupling to third-generation fermions in proton-proton collisions at s=13 TeV", Phys. Lett. B **819**, 136446 (2021), doi:10.1016/j.physletb.2021.136446, arXiv:2012.04178, **Author Contribution Code(s):** 8, 9.

[958] CMS Collaboration, "Search for the rare decay of the W boson into a pion and a photon in proton-proton collisions at s=13TeV", Phys. Lett. B **819**, 136409 (2021), doi:10.1016/j.physletb.2021.136409, arXiv:2011.06028, **Author Contribution Code(s):** 8, 9.

[959] CMS Collaboration, "Search for top squarks in final states with two top quarks and several light-flavor jets in proton-proton collisions at $\sqrt{s}$ = 13 TeV", Phys. Rev. D **104**, 032006 (2021), doi:10.1103/PhysRevD.104.032006, arXiv:2102.06976, **Author Contribution Code(s):** 8, 9.

[960] CMS Collaboration, "Constraints on anomalous higgs boson couplings to vector bosons and fermions in its production and decay using the four-lepton final state", Phys. Rev. D **104**, 052004 (2021), doi:10.1103/PhysRevD.104.052004, arXiv:2104.12152, **Author Contribution Code(s):** 8, 9.

[961] CMS Collaboration, "First measurement of the cross section for top quark pair production with additional charm jets using dileptonic final states in pp collisions at s=13TeV", Phys. Lett. B **820**, 136565 (2021), doi:10.1016/j.physletb.2021.136565, arXiv:2012.09225, **Author Contribution Code(s):** 8, 9.

[962] CMS Collaboration, "Measurements of angular distance and momentum ratio distributions in three-jet and Z + two-jet final states in pp collisions", Eur. Phys. J. C **81**, 852 (2021), doi:10.1140/epjc/s10052-021-09570-2, arXiv:2102.08816, **Author Contribution Code(s):** 8, 9.

[963] CMS Collaboration, "Observation of Forward Neutron Multiplicity Dependence of Dimuon Acoplanarity in Ultraperipheral Pb-Pb Collisions at $\sqrt{s_{NN}}$=5.02 TeV", Phys. Rev. Lett. **127**, 122001 (2021), doi:10.1103/PhysRevLett.127.122001, arXiv:2011.05239, **Author Contribution Code(s):** 8, 9.

[964] CMS Collaboration, "Precision luminosity measurement in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$ in 2015 and 2016 at CMS", Eur. Phys. J. C **81**, 800 (2021), doi:10.1140/epjc/s10052-021-09538-2, arXiv:2104.01927, **Author Contribution Code(s):** 8, 9.

[965] CMS Collaboration, "Search for W$'$ bosons decaying to a top and a bottom quark at $\sqrt{s} = 13\,\text{TeV}$ in the hadronic final state", Phys. Lett. B **820**, 136535 (2021), doi:10.1016/j.physletb.2021.136535, arXiv:2104.04831, **Author Contribution Code(s):** 8, 9.

[966] CMS Collaboration, "Search for long-lived particles decaying to jets with displaced vertices in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **104**, 052011 (2021), doi:10.1103/PhysRevD.104.052011, arXiv:2104.13474, **Author Contribution Code(s):** 8, 9.

[967] CMS Collaboration, "Search for supersymmetry in final states with two oppositely charged same-flavor leptons and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **04**, 123 (2021), doi:10.1007/JHEP04(2021)123, arXiv:2012.08600, **Author Contribution Code(s):** 8, 9.

[968] CMS Collaboration, "Search for top squark production in fully-hadronic final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **104**, 052001 (2021), doi:10.1103/PhysRevD.104.052001, arXiv:2103.01290, **Author Contribution Code(s):** 8, 9.

[969] CMS Collaboration, "Measurement of the electroweak production of $Z\gamma$ and two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV and constraints on anomalous quartic gauge couplings", Phys. Rev. D **104**, 072001 (2021), doi:10.1103/PhysRevD.104.072001, arXiv:2106.11082, **Author Contribution Code(s):** 8, 9.

[970] CMS Collaboration, "Measurements of the $pp \to W^{\pm}\gamma\gamma$ and $pp \to Z\gamma\gamma$ cross sections at $\sqrt{s} = 13$ TeV and limits on anomalous quartic gauge couplings", J. High Energy Phys. **10**, 174 (2021), doi:10.1007/JHEP10(2021)174, arXiv:2105.12780, **Author Contribution Code(s):** 8, 9.

[971] J. S. John et al., "Real-time artificial intelligence for accelerator control: A study at the Fermilab Booster", Phys. Rev. Accel. Beams **24**, 104601 (2021), doi:10.1103/PhysRevAccelBeams.24.104601, arXiv:2011.07371, **Author Contribution Code(s):** 1, 4, 6, 9, 13, 14.

[972] CMS Collaboration, "Search for chargino-neutralino production in events with Higgs and W bosons using 137 fb^{-1} of proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **10**, 045 (2021), doi:10.1007/JHEP10(2021)045, arXiv:2107.12553, **Author Contribution Code(s):** 8, 9.

[973] CMS Collaboration, "Study of Z boson plus jets events using variables sensitive to double-parton scattering in p p collisions at 13 TeV", J. High Energy Phys. **10**, 176 (2021), doi:10.1007/JHEP10(2021)176, arXiv:2105.14511, **Author Contribution Code(s):** 8, 9.

[974] G. Dezoort et al., "Charged particle tracking via edge-classifying interaction networks", Comput. Softw. Big Sci. **5**, 26 (2021), doi:10.1007/s41781-021-00073-z, arXiv:2103.16701, **Author Contribution Code(s):** 8, 9, 10, 13.

[975] A. Zlokapa et al., "Charged particle tracking with quantum annealing-inspired optimization", Quantum Mach. Intell. **3**, 27 (2021), doi:10.1007/s42484-021-00054-w, arXiv:1908.04475, **Author Contribution Code(s):** 4, 14.

[976] CMS Collaboration, "Combined searches for the production of supersymmetric top quark partners in proton-proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **81**, 970 (2021), doi:10.1140/epjc/s10052-021-09721-5, arXiv:2107.10892, **Author Contribution Code(s):** 8, 9.

[977] CMS Collaboration, "Measurement of differential $t\bar{t}$ production cross sections in the full kinematic range using lepton+jets events from proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **104**, 092013 (2021), doi:10.1103/PhysRevD.104.092013, arXiv:2108.02803, **Author Contribution Code(s):** 8, 9.

[978] CMS Collaboration, "Measurement of prompt open-charm production cross sections in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **11**, 225 (2021), doi:10.1007/JHEP11(2021)225, arXiv:2107.01476, **Author Contribution Code(s):** 8, 9.

[979] CMS Collaboration, "Measurements of the electroweak diboson production cross sections in proton-proton collisions at $\sqrt{s} = 5.02$ TeV using leptonic decays", Phys. Rev. Lett. **127**, 191801 (2021), doi:10.1103/PhysRevLett.127.191801, arXiv:2107.01137, **Author Contribution Code(s):** 8, 9.

[980] CMS Collaboration, "Observation of tW production in the single-lepton channel in pp collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **11**, 111 (2021), doi:10.1007/JHEP11(2021)111, arXiv:2109.01706, **Author Contribution Code(s):** 8, 9.

[981] CMS Collaboration, "Search for a heavy Higgs boson decaying into two lighter Higgs bosons in the $\tau\tau$bb final state at 13 TeV", J. High Energy Phys. **11**, 057 (2021), doi:10.1007/JHEP11(2021)057, arXiv:2106.10361, **Author Contribution Code(s):** 8, 9.

[982] CMS Collaboration, "Search for new particles in events with energetic jets and large missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **11**, 153 (2021), doi:10.1007/JHEP11(2021)153, arXiv:2107.13021, **Author Contribution Code(s):** 8, 9.

[983] CMS Collaboration, "Measurement of the inclusive and differential $t\bar{t}\gamma$ cross sections in the single-lepton channel and EFT interpretation at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **12**, 180 (2021), doi:10.1007/JHEP12(2021)180, arXiv:2107.01508, **Author Contribution Code(s):** 8, 9.

[984] CMS Collaboration, "Measurement of the top quark mass using events with a single reconstructed top quark in pp collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **12**, 161 (2021), doi:10.1007/JHEP12(2021)161, arXiv:2108.10407, **Author Contribution Code(s):** 8, 9.

[985] CMS Collaboration, "Probing effective field theory operators in the associated production of top quarks with a Z boson in multilepton final states at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **12**, 083 (2021), doi:10.1007/JHEP12(2021)083, arXiv:2107.13896, **Author Contribution Code(s):** 8, 9.

[986] CMS Collaboration, "Search for a heavy resonance decaying to a top quark and a W boson at $\sqrt{s}$ = 13 TeV in the fully hadronic final state", J. High Energy Phys. **12**, 106 (2021), doi:10.1007/JHEP12(2021)106, arXiv:2104.12853, **Author Contribution Code(s):** 8, 9.

[987] CMS Collaboration, "Search for long-lived particles decaying in the CMS endcap muon detectors in proton-proton collisions at $\sqrt{s}$ = 13 TeV", Phys. Rev. Lett. **127**, 261804 (2021), doi:10.1103/PhysRevLett.127.261804, arXiv:2107.04838, **Author Contribution Code(s):** 3, 8, 9, 10.

[988] G. Kasieczka et al., "The LHC Olympics 2020: A community challenge for anomaly detection in high energy physics", Rep. Prog. Phys. **84**, 124201 (2021), doi:10.1088/1361-6633/ac36b9, arXiv:2101.08320, **Author Contribution Code(s):** 1, 4, 6, 9, 10, 13, 14.

[989] CMS Collaboration, "Evidence for X(3872) in Pb-Pb Collisions and Studies of its Prompt Production at $\sqrt{s_{NN}}$=5.02 TeV", Phys. Rev. Lett. **128**, 032001 (2022), doi:10.1103/PhysRevLett.128.032001, arXiv:2102.13048, **Author Contribution Code(s):** 8, 9.

[990] CMS Collaboration, "Measurement of double-parton scattering in inclusive production of four jets with low transverse momentum in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **01**, 177 (2022), doi:10.1007/JHEP01(2022)177, arXiv:2109.13822, **Author Contribution Code(s):** 8, 9.

[991] CMS Collaboration, "Study of quark and gluon jet substructure in Z+jet and dijet events from pp collisions", J. High Energy Phys. **01**, 188 (2022), doi:10.1007/JHEP01(2022)188, arXiv:2109.03340, **Author Contribution Code(s):** 8, 9.

[992] T. Aarrestad et al., "The Dark Machines anomaly score challenge: Benchmark data and model independent event classification for the Large Hadron Collider", SciPost Phys. **12**, 43 (2022), doi:10.21468/SciPostPhys.12.1.043, arXiv:2105.14027, **Author Contribution Code(s):** 10.

[993] Y. Chen et al., "A FAIR and AI-ready Higgs boson decay dataset", Sci. Data **9**, 31 (2022), doi:10.1038/s41597-021-01109-0, arXiv:2108.02214, **Author Contribution Code(s):** 1, 2, 4, 8, 9, 10, 13.

[994] E. Govorkova et al., "Autoencoders on FPGAs for real-time, unsupervised new physics detection at 40 MHz at the Large Hadron Collider", Nat. Mach. Intell. **4**, 154 (2022), doi:10.1038/s42256-022-00441-3, arXiv:2108.03986, **Author Contribution Code(s):** 8, 9, 10, 13.

[995] CMS Collaboration, "Fragmentation of jets containing a prompt J/ψ meson in PbPb and pp collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 TeV", Phys. Lett. B **825**, 136842 (2022), doi:10.1016/j.physletb.2021.136842, arXiv:2106.13235, **Author Contribution Code(s):** 8, 9.

[996] P. Jawahar et al., "Improving variational autoencoders for new physics detection at the LHC with normalizing flows", Front. Big Data **5**, 803685 (2022), doi:10.3389/fdata.2022.803685, arXiv:2110.08508, **Author Contribution Code(s):** 10, 14.

[997] CMS Collaboration, "Inclusive and differential cross section measurements of single top quark production in association with a Z boson in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **02**, 107 (2022), doi:10.1007/JHEP02(2022)107, arXiv:2111.02860, **Author Contribution Code(s):** 8, 9.

[998] CMS Collaboration, "Measurement and QCD analysis of double-differential inclusive jet cross sections in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **02**, 142 (2022), doi:10.1007/JHEP02(2022)142, arXiv:2111.10431, **Author Contribution Code(s):** 8, 9.

[999] CMS Collaboration, "Measurement of the Inclusive and Differential Higgs Boson Production Cross Sections in the Decay Mode to a Pair of τ Leptons in pp Collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **128**, 081805 (2022), doi:10.1103/PhysRevLett.128.081805, arXiv:2107.11486, **Author Contribution Code(s):** 8, 9.

[1000] CMS Collaboration, "Search for flavor-changing neutral current interactions of the top quark and the Higgs boson decaying to a bottom quark-antiquark pair at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **02**, 169 (2022), doi:10.1007/JHEP02(2022)169, arXiv:2112.09734, **Author Contribution Code(s):** 8, 9.

[1001] CMS Collaboration, "Search for heavy resonances decaying to WW, WZ, or WH boson pairs in a final state consisting of a lepton and a large-radius jet in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **105**, 032008 (2022), doi:10.1103/PhysRevD.105.032008, arXiv:2109.06055, **Author Contribution Code(s):** 8, 9.

[1002] CMS Collaboration, "Search for long-lived particles decaying to leptons with large impact parameter in proton–proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **82**, 153 (2022), doi:10.1140/epjc/s10052-022-10027-3, arXiv:2110.04809, **Author Contribution Code(s):** 8, 9.

[1003] CMS Collaboration, "A new calibration method for charm jet identification validated with proton-proton collision events at $\sqrt{s}$ =13 TeV", J. Instrum. **17**, P03014 (2022), doi:10.1088/1748-0221/17/03/P03014, arXiv:2111.03027, **Author Contribution Code(s):** 8, 9.

[1004] A. Elabd et al., "Graph neural networks for charged particle tracking on FPGAs", Front. Big Data **5** (2022), doi:10.3389/fdata.2022.828666, arXiv:2112.02048, **Author Contribution Code(s):** 1, 4, 7, 8, 9, 10, 13, 14.

[1005] CMS Collaboration, "Measurement of W$\pm\gamma$ differential cross sections in proton-proton collisions at $\sqrt{s} = 13$ TeV and effective field theory constraints", Phys. Rev. D **105**, 052003 (2022), doi:10.1103/PhysRevD.105.052003, arXiv:2111.13948, **Author Contribution Code(s):** 8, 9.

[1006] CMS Collaboration, "Search for long-lived particles produced in association with a Z boson in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **03**, 160 (2022), doi:10.1007/JHEP03(2022)160, arXiv:2110.13218, **Author Contribution Code(s):** 3, 8, 9, 10, 14.

[1007] CMS Collaboration, "Search for strongly interacting massive particles generating trackless jets in proton–proton collisions at $\sqrt{s} = 13$ TeV", Eur. Phys. J. C **82**, 213 (2022), doi:10.1140/epjc/s10052-022-10095-5, arXiv:2105.09178, **Author Contribution Code(s):** 8, 9.

[1008] CMS Collaboration, "Search for Wγ resonances in proton-proton collisions at s=13 TeV using hadronic decays of Lorentz-boosted W bosons", Phys. Lett. B **826**, 136888 (2022), doi:10.1016/j.physletb.2022.136888, arXiv:2106.10509, **Author Contribution Code(s):** 8, 9.

[1009] CMS Collaboration, "Study of dijet events with large rapidity separation in proton-proton collisions at $\sqrt{s}$ = 2.76 TeV", J. High Energy Phys. **03**, 189 (2022), doi:10.1007/JHEP03(2022)189, arXiv:2111.04605, **Author Contribution Code(s):** 8, 9.

[1010] CMS Collaboration, "Measurement of the inclusive $\mathrm{t\bar{t}}$ production cross section in proton-proton collisions at $\sqrt{s}$ = 5.02 TeV", J. High Energy Phys. **04**, 144 (2022), doi:10.1007/JHEP04(2022)144, arXiv:2112.09114, **Author Contribution Code(s):** 8, 9.

[1011] CMS Collaboration, "Precision measurement of the W boson decay branching fractions in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **105**, 072008 (2022), doi:10.1103/PhysRevD.105.072008, arXiv:2201.07861, **Author Contribution Code(s):** 8, 9.

[1012] CMS Collaboration, "Search for a heavy resonance decaying into a top quark and a W boson in the lepton+jets final state at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **04**, 048 (2022), doi:10.1007/JHEP04(2022)048, arXiv:2111.10216, **Author Contribution Code(s):** 8, 9.

[1013] CMS Collaboration, "Search for a right-handed W boson and a heavy neutrino in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **04**, 047 (2022), doi:10.1007/JHEP04(2022)047, arXiv:2112.03949, **Author Contribution Code(s):** 8, 9.

[1014] CMS Collaboration, "Search for heavy resonances decaying to ZZ or ZW and axion-like particles mediating nonresonant ZZ or ZH production at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **04**, 087 (2022), doi:10.1007/JHEP04(2022)087, arXiv:2111.13669, **Author Contribution Code(s):** 8, 9.

[1015] CMS Collaboration, "Search for long-lived particles decaying into muon pairs in proton-proton collisions at $\sqrt{s}$ = 13 TeV collected with a dedicated high-rate data stream", J. High Energy Phys. **04**, 062 (2022), doi:10.1007/JHEP04(2022)062, arXiv:2112.13769, **Author Contribution Code(s):** 8, 9.

[1016] CMS Collaboration, "Search for supersymmetry in final states with two or three soft leptons and missing transverse momentum in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **04**, 091 (2022), doi:10.1007/JHEP04(2022)091, arXiv:2111.06296, **Author Contribution Code(s):** 8, 9.

[1017] CMS Collaboration, "Measurement of the production cross section for Z+b jets in proton-proton collisions at $\sqrt{s}$ = 13 TeV", Phys. Rev. D **105**, 092014 (2022), doi:10.1103/PhysRevD.105.092014, arXiv:2112.09659, **Author Contribution Code(s):** 8, 9.

[1018] CMS Collaboration, "Observation of $B^0 \to \psi(2S) K^0_S \pi^+ \pi^-$ and $B^0_S \to \psi(2S) K^0_S$ decays", Eur. Phys. J. C **82**, 499 (2022), doi:10.1140/epjc/s10052-022-10315-y, arXiv:2201.09131, **Author Contribution Code(s):** 8, 9.

[1019] CMS Collaboration, "Search for heavy resonances decaying to a pair of Lorentz-boosted Higgs bosons in final states with leptons and a bottom quark pair at $\sqrt{s}$= 13 TeV", J. High Energy Phys. **05**, 005 (2022), doi:10.1007/JHEP05(2022)005, arXiv:2112.03161, **Author Contribution Code(s):** 8, 9.

[1020] CMS Collaboration, "Search for higgsinos decaying to two Higgs bosons and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **05**, 014 (2022), doi:10.1007/JHEP05(2022)014, arXiv:2201.04206, **Author Contribution Code(s):** 8, 9.

[1021] CMS Collaboration, "Search for single production of a vector-like T quark decaying to a top quark and a Z boson in the final state with jets and missing transverse momentum at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **05**, 093 (2022), doi:10.1007/JHEP05(2022)093, arXiv:2201.02227, **Author Contribution Code(s):** 8, 9.

[1022] CMS Collaboration, "Analysis of the *CP* structure of the Yukawa coupling between the Higgs boson and τ leptons in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **06**, 012 (2022), doi:10.1007/JHEP06(2022)012, arXiv:2110.04836, **Author Contribution Code(s):** 8, 9.

[1023] TOTEM, CMS Collaboration, "First search for exclusive diphoton production at high mass with tagged protons in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **129**, 011801 (2022), doi:10.1103/PhysRevLett.129.011801, arXiv:2110.05916, **Author Contribution Code(s):** 8, 9.

[1024] CMS Collaboration, "Inclusive nonresonant multilepton probes of new phenomena at $\sqrt{s} = 13$ TeV", Phys. Rev. D **105**, 112007 (2022), doi:10.1103/PhysRevD.105.112007, arXiv:2202.08676, **Author Contribution Code(s):** 8, 9.

[1025] CMS Collaboration, "Observation of Bs0 mesons and measurement of the Bs0/B+ yield ratio in PbPb collisions at Image 1 TeV", Phys. Lett. B **829**, 137062 (2022), doi:10.1016/j.physletb.2022.137062, arXiv:2109.01908, **Author Contribution Code(s):** 8, 9.

[1026] CMS Collaboration, "Observation of the B_c^+ Meson in Pb-Pb and pp Collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV and Measurement of its Nuclear Modification Factor", Phys. Rev. Lett. **128**, 252301 (2022), doi:10.1103/PhysRevLett.128.252301, arXiv:2201.02659, **Author Contribution Code(s):** 8, 9.

[1027] CMS Collaboration, "Search for charged-lepton flavor violation in top quark production and decay in pp collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **06**, 082 (2022), doi:10.1007/JHEP06(2022)082, arXiv:2201.07859, **Author Contribution Code(s):** 8, 9.

[1028] CMS Collaboration, "Search for nonresonant pair production of highly energetic Higgs bosons decaying to bottom quarks", Phys. Rev. Lett. **131**, 041803 (2023), doi:10.1103/PhysRevLett.131.041803, arXiv:2205.06667, **Author Contribution Code(s):** 1, 2, 8, 9, 10, 12, 13.

[1029] CMS Collaboration, "A portrait of the Higgs boson by the CMS experiment ten years after the discovery", Nature **607**, 60 (2022), doi:10.1038/s41586-022-04892-x, arXiv:2207.00043, [Erratum: Nature 623, E4 (2023)], **Author Contribution Code(s):** 3, 6, 8, 9, 10, 11, 12, 14.

[1030] M. Touranakou et al., "Particle-based fast jet simulation at the LHC with variational autoencoders", Mach. Learn.: Sci. Technol. **3**, 035003 (2022), doi:10.1088/2632-2153/ac7c56, arXiv:2203.00520, **Author Contribution Code(s):** 10.

[1031] CMS Collaboration, "Search for Flavor-Changing Neutral Current Interactions of the Top Quark and Higgs Boson in Final States with Two Photons in Proton-Proton Collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **129**, 032001 (2022), doi:10.1103/PhysRevLett.129.032001, **Author Contribution Code(s):** 8, 9.

[1032] CMS Collaboration, "Search for Higgs boson pair production in the four b quark final state in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **129**, 081802 (2022), doi:10.1103/PhysRevLett.129.081802, arXiv:2202.09617, **Author Contribution Code(s):** 8, 9.

[1033] CMS Collaboration, "Strategies and performance of the CMS silicon tracker alignment during LHC Run 2", Nucl. Instrum. Methods Phys. Res. A **1037**, 166795 (2022), doi:10.1016/j.nima.2022.166795, arXiv:2111.08757, **Author Contribution Code(s):** 8, 9.

[1034] * CMS Collaboration, "Measurement of the Drell-Yan forward-backward asymmetry at high dilepton masses in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **2022**, 063 (2022), doi:10.1007/JHEP08(2022)063, arXiv:2202.12327, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1035] * CMS Collaboration, "Search for long-lived heavy neutral leptons with displaced vertices in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 081 (2022), doi:10.1007/JHEP07(2022)081, arXiv:2201.05578, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1036] * CMS Collaboration, "Search for new physics in the lepton plus missing transverse momentum final state in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 067 (2022), doi:10.1007/JHEP07(2022)067, arXiv:2202.06075, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1037] * CMS Collaboration, "Search for resonances decaying to three W bosons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **129**, 021802 (2022), doi:10.1103/PhysRevLett.129.021802, arXiv:2201.08476, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1038] * CMS Collaboration, "Identification of hadronic tau lepton decays using a deep neural network", J. Instrum. **17**, P07023 (2022), doi:10.1088/1748-0221/17/07/P07023, arXiv:2201.08458, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1039] * CMS Collaboration, "Measurement of the inclusive and differential $t\bar{t}\gamma$ cross sections in the dilepton channel and effective field theory interpretation in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **05**, 091 (2022), doi:10.1007/JHEP05(2022)091, arXiv:2201.07301, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1040] * CMS Collaboration, "Search for a W′ boson decaying to a vector-like quark and a top or bottom quark in the all-jets final state at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 088 (2022), doi:10.1007/JHEP09(2022)088, arXiv:2202.12988, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1041] * CMS Collaboration, "Search for high-mass resonances decaying to a jet and a Lorentz-boosted resonance in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **832**, 137263 (2022), doi:10.1016/j.physletb.2022.137263, arXiv:2201.02140, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1042] * CMS Collaboration, "Search for invisible decays of the Higgs boson produced via vector boson fusion in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **105**, 092007 (2022), doi:10.1103/PhysRevD.105.092007, arXiv:2201.11585, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1043] * CMS Collaboration, "Measurement of the Higgs boson width and evidence of its off-shell contributions to ZZ production", Nat. Phys. **18**, 1329 (2022), doi:10.1038/s41567-022-01682-0, arXiv:2202.06923, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1044] * CMS Collaboration, "Nuclear modification of Υ states in pPb collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Lett. B **835**, 137397 (2022), doi:10.1016/j.physletb.2022.137397, arXiv:2202.11807, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1045] * CMS Collaboration, "Search for new particles in an extended Higgs sector with four b quarks in the final state at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **835**, 137566 (2022), doi:10.1016/j.physletb.2022.137566, arXiv:2203.00480, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1046] * R. Kansal et al., "Evaluating generative models in high energy physics", Phys. Rev. D **107**, 076017 (2023), doi:10.1103/PhysRevD.107.076017, arXiv:2211.10295, **Contribution:** I acquired funding, supervised the students performing the studies, and revised and edited the manuscript.

[1047] * W. Bhimij et al., "Snowmass 2021 Computational Frontier CompF4 Topical Group Report Storage and Processing Resource Access", Comput. Softw. Big Sci. **7**, 5 (2023), doi:10.1007/s41781-023-00097-7, arXiv:2209.08868, **Contribution:** I co-wrote the section on AI Hardware.

[1048] * CMS Collaboration, "Search for heavy resonances and quantum black holes in $e\mu$, $e\tau$, and $\mu\tau$ final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **05**, 227 (2023), doi:10.1007/JHEP05(2023)227, arXiv:2205.06709, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1049] * CMS Collaboration, "Search for Higgs boson decays to a Z boson and a photon in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **05**, 233 (2023), doi:10.1007/JHEP05(2023)233, arXiv:2204.12945, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1050] * CMS Collaboration, "Search for long-lived particles decaying to a pair of muons in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **05**, 228 (2023), doi:10.1007/JHEP05(2023)228, arXiv:2205.08582, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1051] * CMS Collaboration, "Strange hadron collectivity in pPb and PbPb collisions", J. High Energy Phys. **05**, 007 (2023), doi:10.1007/JHEP05(2023)007, arXiv:2205.00080, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1052] * Z. Hao et al., "Lorentz group equivariant autoencoders", Eur. Phys. J. C **83**, 485 (2023), doi:10.1140/epjc/s10052-023-11633-5, arXiv:2212.07347, **Contribution:** I conceptualized the original idea, supervised the students designing the algorithm, and revised and edited the manuscript.

[1053] * CMS Collaboration, "Observation of electroweak W^+W^- pair production in association with two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **841**, 137495 (2023), doi:10.1016/j.physletb.2022.137495, arXiv:2205.05711, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1054] * CMS Collaboration, "Search for nonresonant Higgs boson pair production in the four leptons plus twob jets final state in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **06**, 130 (2023), doi:10.1007/JHEP06(2023)130, arXiv:2206.10657, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1055] * CMS Collaboration, "Search for top squarks in the four-body decay mode with single lepton final states in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **06**, 060 (2023), doi:10.1007/JHEP06(2023)060, arXiv:2301.08096, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1056] * CMS Collaboration, "CMS pythia 8 colour reconnection tunes based on underlying-event data", Eur. Phys. J. C **83**, 587 (2023), doi:10.1140/epjc/s10052-023-11630-8, arXiv:2205.02905, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1057] * E. A. Huerta et al., "FAIR for AI: an interdisciplinary and international community building perspective", Sci. Data **10**, 487 (2023), doi:10.1038/s41597-023-02298-6, arXiv:2210.08973, **Contribution:** I participated in the workshop and contributed to writing the report.

[1058] * CMS Collaboration, "Measurement of inclusive and differential cross sections for single top quark production in association with a W boson in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **07**, 046 (2023), doi:10.1007/JHEP07(2023)046, arXiv:2208.00924, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1059] * CMS Collaboration, "Measurement of the cross section of top quark-antiquark pair production in association with a W boson in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 219 (2023), doi:10.1007/JHEP07(2023)219, arXiv:2208.06485, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1060] * CMS Collaboration, "Measurement of the differential $\mathrm{t\bar{t}}$ production cross section as a function of the jet mass and extraction of the top quark mass in hadronic decays of boosted top quarks", Eur. Phys. J. C **83**, 560 (2023), doi:10.1140/epjc/s10052-023-11587-8, arXiv:2211.01456, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1061] * CMS Collaboration, "Measurement of the Higgs boson inclusive and differential fiducial production cross sections in the diphoton decay channel with pp collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 091 (2023), doi:10.1007/JHEP07(2023)091, arXiv:2208.12279, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1062] * CMS Collaboration, "Measurement of the mass dependence of the transverse momentum of lepton pairs in Drell-Yan production in proton-proton collisions at $\sqrt{s}$ = 13 TeV", Eur. Phys. J. C **83**, 628 (2023), doi:10.1140/epjc/s10052-023-11631-7, arXiv:2205.04897, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1063] * CMS Collaboration, "Measurement of the top quark pole mass using $\mathrm{t\bar{t}}$+jet events in the dilepton final state in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 077 (2023), doi:10.1007/JHEP07(2023)077, arXiv:2207.02270, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1064] * CMS Collaboration, "Measurements of Higgs boson production in the decay channel with a pair of τ leptons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **83**, 562 (2023), doi:10.1140/epjc/s10052-023-11452-8, arXiv:2204.12957, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1065] * CMS Collaboration, "Measurements of the Higgs boson production cross section and couplings in the W boson pair decay channel in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **83**, 667 (2023), doi:10.1140/epjc/s10052-023-11632-6, arXiv:2206.09466, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1066] * CMS Collaboration, "Precision measurement of the Z boson invisible width in pp collisions at $\sqrt{s} =$ 13 TeV", Phys. Lett. B **842**, 137563 (2023), doi:10.1016/j.physletb.2022.137563, arXiv:2206.07110, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1067] * CMS Collaboration, "Probing Heavy Majorana Neutrinos and the Weinberg Operator through Vector Boson Fusion Processes in Proton-Proton Collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **131**, 011803 (2023), doi:10.1103/PhysRevLett.131.011803, arXiv:2206.08956, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1068] * CMS Collaboration, "Search for *CP* violation in ttH and tH production in multilepton channels in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **07**, 092 (2023), doi:10.1007/JHEP07(2023)092, arXiv:2208.02686, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1069] * CMS Collaboration, "Search for a massive scalar resonance decaying to a light scalar and a Higgs boson in the four b quarks final state with boosted topology", Phys. Lett. B **842**, 137392 (2023), doi:10.1016/j.physletb.2022.137392, arXiv:2204.12413, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1070] * CMS Collaboration, "Search for CP violating top quark couplings in pp collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **07**, 023 (2023), doi:10.1007/JHEP07(2023)023, arXiv:2205.07434, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1071] * CMS Collaboration, "Search for direct pair production of supersymmetric partners of τ leptons in the final state with two hadronically decaying τ leptons and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **108**, 012011 (2023), doi:10.1103/PhysRevD.108.012011, arXiv:2207.02254, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1072] * CMS Collaboration, "Search for electroweak production of charginos and neutralinos at $\sqrt{s} =$ 13 TeV in final states containing hadronic decays of WW, WZ, or WH and missing transverse momentum", Phys. Lett. B **842**, 137460 (2023), doi:10.1016/j.physletb.2022.137460, arXiv:2205.09597, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1073] * CMS Collaboration, "Search for higgs boson and observation of Z boson through their decay into a charm quark-antiquark pair in boosted topologies in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. Lett. **131**, 041801 (2023), doi:10.1103/PhysRevLett.131.041801, arXiv:2211.14181, **Contribution:** I co-developed one the Higgs boson identification algorithm and supervised the student leading the project.

[1074] * CMS Collaboration, "Search for Higgs boson decays into Z and J/ψ and for Higgs and Z boson decays into J/ψ or Y pairs in pp collisions at $\sqrt{s} = 13$ TeV", Phys. Lett. B **842**, 137534 (2023), doi:10.1016/j.physletb.2022.137534, arXiv:2206.03525, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing

common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1075] * CMS Collaboration, "Search for Higgs boson pairs decaying to WW^*WW^*, $WW^*\tau\tau$, and $\tau\tau\tau\tau$ in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 095 (2023), doi:10.1007/JHEP07(2023)095, arXiv:2206.10268, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1076] * CMS, TOTEM Collaboration, "Search for high-mass exclusive $\gamma\gamma \to WW$ and $\gamma\gamma \to ZZ$ production in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 229 (2023), doi:10.1007/JHEP07(2023)229, arXiv:2211.16320, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1077] * CMS Collaboration, "Search for light Higgs bosons from supersymmetric cascade decays in pp collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **83**, 571 (2023), doi:10.1140/epjc/s10052-023-11581-0, arXiv:2204.13532, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1078] * CMS Collaboration, "Search for long-lived particles using out-of-time trackless jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 210 (2023), doi:10.1007/JHEP07(2023)210, arXiv:2212.06695, **Contribution:** I supervised the project and edited and revised the manuscript.

[1079] * CMS Collaboration, "Search for narrow resonances in the b-tagged dijet mass spectrum in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **108**, 012009 (2023), doi:10.1103/PhysRevD.108.012009, arXiv:2205.01835, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1080] * CMS Collaboration, "Search for nonresonant Higgs boson pair production in final state with two bottom quarks and two tau leptons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **842**, 137531 (2023), doi:10.1016/j.physletb.2022.137531, arXiv:2206.09401, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1081] * CMS Collaboration, "Search for pair production of vector-like quarks in leptonic final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 020 (2023), doi:10.1007/JHEP07(2023)020, arXiv:2209.07327, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1082] * CMS Collaboration, "Search for resonant and nonresonant production of pairs of dijet resonances in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 161 (2023), doi:10.1007/JHEP07(2023)161, arXiv:2206.09997, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1083] * CMS Collaboration, "Search for the exotic decay of the Higgs boson into two light pseudoscalars with four photons in the final state in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 148 (2023), doi:10.1007/JHEP07(2023)148, arXiv:2208.01469, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1084] * CMS Collaboration, "Search for top squark pair production in a final state with at least one hadronically decaying tau lepton in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 110 (2023), doi:10.1007/JHEP07(2023)110, arXiv:2304.07174, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1085] * CMS Collaboration, "Searches for additional Higgs bosons and for vector leptoquarks in $\tau\tau$ final states in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **07**, 073 (2023), doi:10.1007/JHEP07(2023)073, arXiv:2208.02717, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1086] * CMS Collaboration, "Azimuthal correlations in Z+jets events in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **83**, 722 (2023), doi:10.1140/epjc/s10052-023-11833-z, arXiv:2210.16139, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1087] * CMS Collaboration, "Azimuthal Correlations within Exclusive Dijets with Large Momentum Transfer in Photon-Lead Collisions", Phys. Rev. Lett. **131**, 051901 (2023), doi:10.1103/PhysRevLett.131.051901, arXiv:2205.00045, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1088] * CMS Collaboration, "Constraints on anomalous Higgs boson couplings to vector bosons and fermions from the production of Higgs bosons using the $\tau\tau$ final state", Phys. Rev. D **108**, 032013 (2023), doi:10.1103/PhysRevD.108.032013, arXiv:2205.05120, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1089] * CMS Collaboration, "First measurement of the top quark pair production cross section in proton-proton collisions at $\sqrt{s}$ = 13.6 TeV", J. High Energy Phys. **08**, 204 (2023), doi:10.1007/JHEP08(2023)204, arXiv:2303.10680, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1090] * CMS Collaboration, "Measurement of the electroweak production of Wγ in association with two jets in proton-proton collisions at $\sqrt{s}$ = 13 TeV", Phys. Rev. D **108**, 032017 (2023), doi:10.1103/PhysRevD.108.032017, arXiv:2212.12592, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1091] * CMS Collaboration, "Measurements of inclusive and differential cross sections for the Higgs boson production and decay to four-leptons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **08**, 040 (2023), doi:10.1007/JHEP08(2023)040, arXiv:2305.07532, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1092] * CMS Collaboration, "Measurements of jet multiplicity and jet transverse momentum in multijet events in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **83**, 742 (2023), doi:10.1140/epjc/s10052-023-11753-y, arXiv:2210.13557, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common soft-

ware, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1093] * CMS Collaboration, "Search for a heavy composite Majorana neutrino in events with dilepton signatures from proton-proton collisions at s=13 TeV", Phys. Lett. B **843**, 137803 (2023), doi:10.1016/j.physletb.2023.137803, arXiv:2210.03082, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1094] * CMS Collaboration, "Search for Higgs Boson Decay to a Charm Quark-Antiquark Pair in Proton-Proton Collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **131**, 061801 (2023), doi:10.1103/PhysRevLett.131.061801, arXiv:2205.05550, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1095] * CMS Collaboration, "Search for new physics using effective field theory in 13 TeV pp collision events that contain a top quark pair and a boosted Z or Higgs boson", Phys. Rev. D **108**, 032008 (2023), doi:10.1103/PhysRevD.108.032008, arXiv:2208.12837, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1096] * CMS, TOTEM Collaboration, "A search for new physics in central exclusive production using the missing mass technique with the CMS detector and the CMS-TOTEM precision proton spectrometer", Eur. Phys. J. C **83**, 827 (2023), doi:10.1140/epjc/s10052-023-11687-5, arXiv:2303.04596, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1097] * CMS Collaboration, "Evidence for Four-Top Quark Production in Proton-Proton Collisions at $\sqrt{s} =$ 13 TeV", Phys. Lett. B **844**, 138076 (2023), doi:10.1016/j.physletb.2023.138076, arXiv:2303.03864, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1098] * CMS Collaboration, "Measurement of differential cross sections for the production of a Z boson in association with jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **108**, 052004 (2023), doi:10.1103/PhysRevD.108.052004, arXiv:2205.02872, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1099] * CMS Collaboration, "Measurement of the dependence of the hadron production fraction ratio f_s/f_u and f_d/f_u on B meson kinematic variables in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **131**, 121901 (2023), doi:10.1103/PhysRevLett.131.121901, arXiv:2212.02309, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1100] * CMS Collaboration, "Observation of same-sign WW production from double parton scattering in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **131**, 091803 (2023), doi:10.1103/PhysRevLett.131.091803, arXiv:2206.02681, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1101] * CMS Collaboration, "Observation of the rare decay of the η meson to four muons", Phys. Rev. Lett. **131**, 091903 (2023), doi:10.1103/PhysRevLett.131.091903, arXiv:2305.04904, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1102] * CMS, TOTEM Collaboration, "Proton reconstruction with the CMS-TOTEM Precision Proton Spectrometer", J. Instrum. **18**, P09009 (2023), doi:10.1088/1748-0221/18/09/P09009, arXiv:2210.05854, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1103] * CMS Collaboration, "Reconstruction of decays to merged photons using end-to-end deep learning with domain continuation in the CMS detector", Phys. Rev. D **108**, 052002 (2023), doi:10.1103/PhysRevD.108.052002, arXiv:2204.12313, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1104] * CMS Collaboration, "Search for a charged Higgs boson decaying into a heavy neutral Higgs boson and a W boson in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 032 (2023), doi:10.1007/JHEP09(2023)032, arXiv:2207.01046, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1105] * CMS Collaboration, "Search for a vector-like quark $\text{T}' \to \text{tH}$ via the diphoton decay mode of the Higgs boson in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 057 (2023), doi:10.1007/JHEP09(2023)057, arXiv:2302.12802, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1106] * CMS Collaboration, "Search for exotic Higgs boson decays $\text{H} \to \mathcal{A}\mathcal{A} \to 4\gamma$ with events containing two merged diphotons in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **131**, 101801 (2023), doi:10.1103/PhysRevLett.131.101801, arXiv:2209.06197, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1107] * CMS Collaboration, "Search for medium effects using jets from bottom quarks in PbPb collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", Phys. Lett. B **844**, 137849 (2023), doi:10.1016/j.physletb.2023.137849, arXiv:2210.08547, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1108] * CMS Collaboration, "Search for new heavy resonances decaying to WW, WZ, ZZ, WH, or ZH boson pairs in the all-jets final state in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **844**, 137813 (2023), doi:10.1016/j.physletb.2023.137813, arXiv:2210.00043, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1109] * CMS Collaboration, "Search for supersymmetry in final states with a single electron or muon using angular correlations and heavy-object identification in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **09**, 149 (2023), doi:10.1007/JHEP09(2023)149, arXiv:2211.08476, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration

publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1110] * CMS Collaboration, "Two-particle azimuthal correlations in γp interactions using pPb collisions at $\sqrt{s_{\mathrm{NN}}} = 8.16\,\mathrm{TeV}$", Phys. Lett. B **844**, 137905 (2023), doi:10.1016/j.physletb.2023.137905, arXiv:2204.13486, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1111] * CMS Collaboration, "A search for decays of the Higgs boson to invisible particles in events with a top-antitop quark pair or a vector boson in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Eur. Phys. J. C **83**, 933 (2023), doi:10.1140/epjc/s10052-023-11952-7, arXiv:2303.01214, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1112] * R. Kansal et al., "JetNet: A Python package for accessing open datasets and benchmarking machine learning methods in high energy physics", J. Open Source Softw. **8**, 5789 (2023), doi:10.21105/joss.05789, **Contribution:** I acquired funding, contributed to developing the software, supervised the students, and revised and edited the manuscript.

[1113] * B. Orzari et al., "LHC hadronic jet generation using convolutional variational autoencoders with normalizing flows", Mach. Learn.: Sci. Technol. **4**, 045023 (2023), doi:10.1088/2632-2153/ad04ea, arXiv:2310.13138, **Contribution:** I supervised the students and revised and edited the manuscript.

[1114] * CMS Collaboration, "Measurement of the top quark mass using a profile likelihood approach with the lepton + jets final states in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Eur. Phys. J. C **83**, 963 (2023), doi:10.1140/epjc/s10052-023-12050-4, arXiv:2302.01967, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1115] * CMS Collaboration, "Measurements of the azimuthal anisotropy of prompt and nonprompt charmonia in PbPb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 TeV", J. High Energy Phys. **10**, 115 (2023), doi:10.1007/JHEP10(2023)115, arXiv:2305.16928, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1116] * CMS Collaboration, "Observation of τ lepton pair production in ultraperipheral lead-lead collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 TeV", Phys. Rev. Lett. **131**, 151803 (2023), doi:10.1103/PhysRevLett.131.151803, arXiv:2206.05192, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1117] * CMS Collaboration, "Search for a high-mass dimuon resonance produced in association with b quark jets at $\sqrt{s} = 13 TeV$", J. High Energy Phys. **10**, 043 (2023), doi:10.1007/JHEP10(2023)043, arXiv:2307.08708, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1118] * CMS Collaboration, "Search for new physics in multijet events with at least one photon and large missing transverse momentum in proton-proton collisions at 13 TeV", J. High Energy Phys. **10**, 046 (2023), doi:10.1007/JHEP10(2023)046, arXiv:2307.16216, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1119] * CMS Collaboration, "Search for the lepton-flavor violating decay of the Higgs boson and additional Higgs bosons in the eμ final state in proton-proton collisions at $\sqrt{s}$ = 13 TeV", Phys. Rev. D **108**, 072004 (2023), doi:10.1103/PhysRevD.108.072004, arXiv:2305.18106, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1120] * CMS Collaboration, "First Measurement of the Forward Rapidity Gap Distribution in pPb Collisions at $\sqrt{s_{\mathrm{NN}}} = 8.16\,\mathrm{TeV}$", Phys. Rev. D **108**, 092004 (2023), doi:10.1103/PhysRevD.108.092004, arXiv:2301.07630, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1121] * CMS Collaboration, "Measurement of the $\mathrm{t\bar{t}}$ charge asymmetry in events with highly Lorentz-boosted top quarks in pp collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Lett. B **846**, 137703 (2023), doi:10.1016/j.physletb.2023.137703, arXiv:2208.02751, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1122] * CMS Collaboration, "Performance of the local reconstruction algorithms for the CMS hadron calorimeter with Run 2 data", J. Instrum. **18**, P11017 (2023), doi:10.1088/1748-0221/18/11/P11017, arXiv:2306.10355, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1123] * CMS Collaboration, "Search for pair-produced vector-like leptons in final states with third-generation leptons and at least three b quark jets in proton-proton collisions at s=13TeV", Phys. Lett. B **846**, 137713 (2023), doi:10.1016/j.physletb.2023.137713, arXiv:2208.09700, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1124] * CMS Collaboration, "Search for the Higgs boson decay to a pair of electrons in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Lett. B **846**, 137783 (2023), doi:10.1016/j.physletb.2023.137783, arXiv:2208.00265, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1125] * CMS Collaboration, "Search for Z' bosons decaying to pairs of heavy Majorana neutrinos in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **11**, 181 (2023), doi:10.1007/JHEP11(2023)181, arXiv:2307.06959, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1126] * R. Shenoy et al., "Differentiable Earth Mover's Distance for Data Compression at the High-Luminosity LHC", Mach. Learn.: Sci. Technol. **4**, 045058 (2023), doi:10.1088/2632-2153/ad1139, arXiv:2306.04712, **Contribution:** I developed software to implement the idea, supervised the student conducting the studies, acquired funding, and co-wrote the manuscript.

[1127] * J. Duarte et al., "FAIR AI Models in High Energy Physics", Mach. Learn.: Sci. Technol. **4**, 045062 (2023), doi:10.1088/2632-2153/ad12e3, arXiv:2212.05081, **Contribution:** I conceptualized and coordinated the overall project, supervised the students and postdoctoral researchers performing the studies, co-wrote the manuscript, and corresponded with the journal.

[1128] * CMS Collaboration, "Observation of four top quark production in proton-proton collisions at $\sqrt{s} =$ 13 TeV", Phys. Lett. B **847**, 138290 (2023), doi:10.1016/j.physletb.2023.138290, arXiv:2305.13439, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1129] * CMS Collaboration, "Probing Small Bjorken-x Nuclear Gluonic Structure via Coherent J/ψ Photoproduction in Ultraperipheral Pb-Pb Collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV", Phys. Rev. Lett. **131**, 262301 (2023), doi:10.1103/PhysRevLett.131.262301, arXiv:2303.16984, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1130] * CMS Collaboration, "Search for direct production of GeV-scale resonances decaying to a pair of muons in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **12**, 070 (2023), doi:10.1007/JHEP12(2023)070, arXiv:2309.16003, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1131] * CMS Collaboration, "Search for physics beyond the standard model in top quark production with additional leptons in the context of effective field theory", J. High Energy Phys. **12**, 068 (2023), doi:10.1007/JHEP12(2023)068, arXiv:2307.15761, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1132] * CMS Collaboration, "Search for resonances in events with photon and jet final states in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **12**, 189 (2023), doi:10.1007/JHEP12(2023)189, arXiv:2305.07998, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1133] * ATLAS, CMS Collaboration, "Evidence for the Higgs Boson Decay to a Z Boson and a Photon at the LHC", Phys. Rev. Lett. **132**, 021803 (2024), doi:10.1103/PhysRevLett.132.021803, arXiv:2309.03501, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1134] * CMS Collaboration, "Luminosity determination using Z boson production at the CMS experiment", Eur. Phys. J. C **84**, 26 (2024), doi:10.1140/epjc/s10052-023-12268-2, arXiv:2309.01008, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1135] * CMS Collaboration, "Measurement of the Higgs boson production via vector boson fusion and its decay into bottom quarks in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **01**, 173 (2024), doi:10.1007/JHEP01(2024)173, arXiv:2308.01253, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1136] * CMS Collaboration, "Measurement of the τ lepton polarization in Z boson decays in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **01**, 101 (2024), doi:10.1007/JHEP01(2024)101, arXiv:2309.12408, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1137] * CMS Collaboration, "Measurement of the production cross section for a W boson in association with a charm quark in proton–proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **84**, 27 (2024), doi:10.1140/epjc/s10052-023-12258-4, arXiv:2308.02285, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1138] * CMS Collaboration, "Search for Inelastic Dark Matter in Events with Two Displaced Muons and Missing Transverse Momentum in Proton-Proton Collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **132**, 041802 (2024), doi:10.1103/PhysRevLett.132.041802, arXiv:2305.11649, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1139] * CMS Collaboration, "Study of charm hadronization with prompt Λ_c^+ baryons in proton-proton and lead-lead collisions at $\sqrt{s_{NN}}$ = 5.02 TeV", J. High Energy Phys. **01**, 128 (2024), doi:10.1007/JHEP01(2024)128, arXiv:2307.11186, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1140] * O. Weng et al., "Tailor: Altering skip connections for resource-efficient inference", ACM Trans. Reconfigurable Technol. Syst. (2024), doi:10.1145/3624990, arXiv:2301.07247, **Contribution:** I supervised the student, acquired funding, and revised and edited the manuscript.

[1141] * CMS Collaboration, "Higher-order moments of the elliptic flow distribution in PbPb collisions at $\sqrt{s_{\text{NN}}} = 5.02\,\text{TeV}$", J. High Energy Phys. **2024**, 106 (2024), doi:10.1007/JHEP02(2024)106, arXiv:2311.11370, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1142] * K. M. Black et al., "Muon Collider Forum Report", J. Instrum. **19**, T02015 (2024), doi:10.1088/1748-0221/19/02/T02015, arXiv:2209.01318, **Contribution:** I attended and participated in Muon Collider Forum meetings and gave feedback on the manuscript.

[1143] * CMS Collaboration, "Muon identification using multivariate techniques in the CMS experiment in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. Instrum. **19**, P02031 (2024), doi:10.1088/1748-0221/19/02/P02031, arXiv:2310.03844, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1144] * CMS Collaboration, "Portable acceleration of CMS computing workflows with coprocessors as a service", Comput. Softw. Big Sci. **8**, 17 (2024), doi:10.1007/s41781-024-00124-1, arXiv:2402.15366, **Contribution:** I co-conceptualized the original method, supervised the students and postdoctoral researchers performing the studies, and revised and edited the manuscript.

[1145] * CMS Collaboration, "Search for long-lived particles decaying in the CMS muon detectors in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **110**, 032007 (2024), doi:10.1103/PhysRevD.110.032007, arXiv:2402.01898, **Contribution:** I supervised the students and postdoctoral researchers performing the search, and revised and edited the manuscript.

[1146] * CMS Collaboration, "Search for Scalar Leptoquarks Produced via τ-Lepton–Quark Scattering in pp Collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. Lett. **132**, 061801 (2024), doi:10.1103/PhysRevLett.132.061801, arXiv:2308.06143, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1147] * CMS Collaboration, "Two-particle Bose-Einstein correlations and their Lévy parameters in PbPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02\,\mathrm{TeV}$", Phys. Rev. C **109**, 024914 (2024), doi:10.1103/PhysRevC.109.024914, arXiv:2306.11574, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1148] * CMS Collaboration, "Measurements of azimuthal anisotropy of nonprompt D0 mesons in PbPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02\,\mathrm{TeV}$", Phys. Lett. B **850**, 138389 (2024), doi:10.1016/j.physletb.2023.138389, arXiv:2212.01636, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1149] * CMS Collaboration, "New Structures in the $\mathrm{J}/\psi\mathrm{J}/\psi$ Mass Spectrum in Proton-Proton Collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Rev. Lett. **132**, 111901 (2024), doi:10.1103/PhysRevLett.132.111901, arXiv:2306.07164, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1150] * CMS Collaboration, "Observation of $\mathrm{WW}\gamma$ production and search for $\mathrm{H}\gamma$ production in proton-proton collisions at $\sqrt{s}$ = 13 TeV", Phys. Rev. Lett. **132**, 121901 (2024), doi:10.1103/PhysRevLett.132.121901, arXiv:2310.05164, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1151] * CMS Collaboration, "Search for dark matter particles in $\mathrm{W}^{+}\mathrm{W}^{-}$ events with transverse momentum imbalance in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", J. High Energy Phys. **03**, 134 (2024), doi:10.1007/JHEP03(2024)134, arXiv:2310.12229, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1152] * CMS Collaboration, "Search for Long-Lived Heavy Neutral Leptons with Lepton Flavour Conserving or Violating Decays to a Jet and a Charged Lepton", J. High Energy Phys. **03**, 105 (2024), doi:10.1007/JHEP03(2024)105, arXiv:2312.07484, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1153] * CMS Collaboration, "Search for new Higgs bosons via same-sign top quark pair production in association with a jet in proton-proton collisions at $\sqrt{s} = 13\,\mathrm{TeV}$", Phys. Lett. B **850**, 138478 (2024), doi:10.1016/j.physletb.2024.138478, arXiv:2311.03261, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1154] * CMS Collaboration, "Study of azimuthal anisotropy of Υ(1S) mesons in pPb collisions at $\sqrt{s_{\mathrm{NN}}} = 8.16\,\mathrm{TeV}$", Phys. Lett. B **850**, 138518 (2024), doi:10.1016/j.physletb.2024.138518, arXiv:2310.03233, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1155] * J. Pata et al., "Improved particle-flow event reconstruction with scalable neural networks for current and future particle detectors", Commun. Phys. **7**, 124 (2024), doi:10.1038/s42005-024-01599-5, arXiv:2309.06782, **Contribution:** I performed studies comparing model inference on different AI hardware, supervised the students, acquired funding, and revised and edited the manuscript.

[1156] * CMS Collaboration, "Search for flavor changing neutral current interactions of the top quark in final states with a photon and additional jets in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **109**, 072004 (2024), doi:10.1103/PhysRevD.109.072004, arXiv:2312.08229, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1157] * CMS Collaboration, "Search for supersymmetry in final states with disappearing tracks in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **109**, 072007 (2024), doi:10.1103/PhysRevD.109.072007, arXiv:2309.16823, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1158] * CMS Collaboration, "Development of the CMS detector for the CERN LHC Run 3", J. Instrum. **19**, P05064 (2024), doi:10.1088/1748-0221/19/05/P05064, arXiv:2309.05466, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1159] * CMS Collaboration, "Inclusive and differential cross section measurements of $\text{t}\bar{\text{t}}\text{b}\bar{\text{b}}$ production in the lepton+jets channel at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **05**, 042 (2024), doi:10.1007/JHEP05(2024)042, arXiv:2309.14442, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1160] * CMS Collaboration, "Measurement of simplified template cross sections of the Higgs boson produced in association with W or Z bosons in the $\text{H} \to \text{b}\bar{\text{b}}$ decay channel in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **109**, 092011 (2024), doi:10.1103/PhysRevD.109.092011, arXiv:2312.07562, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1161] * CMS Collaboration, "Measurement of the primary Lund jet plane density in proton-proton collisions at $\sqrt{\text{s}}$ = 13 TeV", J. High Energy Phys. **05**, 116 (2024), doi:10.1007/JHEP05(2024)116, arXiv:2312.16343, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1162] * CMS Collaboration, "Search for an exotic decay of the Higgs boson into a Z boson and a pseudoscalar particle in proton-proton collisions at s=13TeV", Phys. Lett. B **852**, 138582 (2024), doi:10.1016/j.physletb.2024.138582, arXiv:2311.00130, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1163] * CMS Collaboration, "Search for exotic decays of the Higgs boson to a pair of pseudoscalars in the $\mu\mu$bb and $\tau\tau$bb final states", Eur. Phys. J. C **84**, 493 (2024), doi:10.1140/epjc/s10052-024-12727-4, arXiv:2402.13358, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1164] * CMS Collaboration, "Search for long-lived particles decaying to final states with a pair of muons in proton-proton collisions at $\sqrt{s} = 13.6\,\text{TeV}$", J. High Energy Phys. **05**, 047 (2024), doi:10.1007/JHEP05(2024)047, arXiv:2402.14491, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1165] * CMS Collaboration, "Search for W' bosons decaying to a top and a bottom quark in leptonic final states in proton-proton collisions at $\sqrt{s}$ = 13 TeV", J. High Energy Phys. **05**, 046 (2024), doi:10.1007/JHEP05(2024)046, arXiv:2310.19893, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1166] * ATLAS, CMS Collaboration, "Combination of Measurements of the Top Quark Mass from Data Collected by the ATLAS and CMS Experiments at $\sqrt{s} = 7$ and 8 TeV", Phys. Rev. Lett. **132**, 261902 (2024), doi:10.1103/PhysRevLett.132.261902, arXiv:2402.08713, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1167] * CMS Collaboration, "Combined search for electroweak production of winos, binos, higgsinos, and sleptons in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **109**, 112001 (2024), doi:10.1103/PhysRevD.109.112001, arXiv:2402.01888, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1168] * J. Campos et al., "End-to-end codesign of Hessian-aware quantized neural networks for FPGAs", ACM Trans. Reconfigurable Technol. Syst. **17** (2024), doi:10.1145/3662000, arXiv:2304.06745, **Contribution:** I supervised the project, gave feedback on studies, and contributed to writing the manuscript.

[1169] * CMS Collaboration, "Extracting the speed of sound in quark–gluon plasma with ultrarelativistic lead–lead collisions at the LHC", Rep. Prog. Phys. **87**, 077801 (2024), doi:10.1088/1361-6633/ad4b9b, arXiv:2401.06896, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1170] * TOTEM, CMS Collaboration, "Nonresonant central exclusive production of charged-hadron pairs in proton-proton collisions at s=13 TeV", Phys. Rev. D **109**, 112013 (2024), doi:10.1103/PhysRevD.109.112013, arXiv:2401.14494, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1171] * CMS Collaboration, "Observation of the J/$\psi\to\mu$+μ-μ+μ- decay in proton-proton collisions at s=13 TeV", Phys. Rev. D **109**, L111101 (2024), doi:10.1103/PhysRevD.109.L111101, arXiv:2403.11352, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1172] * CMS Collaboration, "Search for heavy neutral leptons in final states with electrons, muons, and hadronically decaying tau leptons in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **06**, 123 (2024), doi:10.1007/JHEP06(2024)123, arXiv:2403.00100, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1173] * CMS Collaboration, "Search for long-lived heavy neutrinos in the decays of B mesons produced in proton-proton collisions at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **06**, 183 (2024), doi:10.1007/JHEP06(2024)183, arXiv:2403.04584, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1174] * CMS Collaboration, "Search for long-lived particles using displaced vertices and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **109**, 112005 (2024), doi:10.1103/PhysRevD.109.112005, arXiv:2402.15804, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1175] * CMS Collaboration, "Search for pair production of scalar and vector leptoquarks decaying to muons and bottom quarks in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **109**, 112003 (2024), doi:10.1103/PhysRevD.109.112003, arXiv:2402.08668, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1176] * CMS Collaboration, "Search for the decay of the Higgs boson to a pair of light pseudoscalar bosons in the final state with four bottom quarks in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", J. High Energy Phys. **06**, 097 (2024), doi:10.1007/JHEP06(2024)097, arXiv:2403.10341, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1177] * CMS Collaboration, "Search for the lepton flavor violating $\tau \to 3\mu$ decay in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Lett. B **853**, 138633 (2024), doi:10.1016/j.physletb.2024.138633, arXiv:2312.02371, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1178] * O. Weng et al., "FKeras: a sensitivity analysis tool for edge neural networks", ACM J. Auton. Transport. Syst. **1** (2024), doi:10.1145/3665334, **Contribution:** I supervised the student, acquired funding, and revised and edited the manuscript.

[1179] * CMS Collaboration, "Observation of the $\Xi_b^- \to \psi(2S)\Xi^-$ decay and studies of the Ξ_b^{*0} baryon in proton-proton collisions at $\sqrt{s} = 13$ TeV", Phys. Rev. D **110**, 012002 (2024), doi:10.1103/PhysRevD.110.012002, arXiv:2402.17738, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1180] * CMS Collaboration, "Search for ZZ and ZH production in the $b\bar{b}b\bar{b}$ final state using proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Eur. Phys. J. C **84**, 712 (2024), doi:10.1140/epjc/s10052-024-13021-z, arXiv:2403.20241, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1181] * CMS Collaboration, "Search for long-lived heavy neutral leptons decaying in the CMS muon detectors in proton-proton collisions at $\sqrt{s} = 13\,\text{TeV}$", Phys. Rev. D **110**, 012004 (2024), doi:10.1103/PhysRevD.110.012004, arXiv:2402.18658, **Contribution:** I supervised the students and postdoctoral researchers performing the search, and revised and edited the manuscript.

[1182] * CMS Collaboration, "Test of lepton flavor universality in $B^\pm \to K^\pm \mu^+ \mu^-$ and $B^\pm \to K^\pm e^+ e^-$ decays in proton-proton collisions at $\sqrt{s} = 13$ TeV", Rep. Prog. Phys. **87**, 077802 (2024), doi:10.1088/1361-6633/ad4e65, arXiv:2401.07090, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1183] * P. Odagiu et al., "Ultrafast jet classification on FPGAs for HL-LHC", Mach. Learn.: Sci. Technol. **5**, 035017 (2024), doi:10.1088/2632-2153/ad5f10, arXiv:2402.01876, **Contribution:** I coordinated the overall project, developed the firmware implementation, supervised the students, acquired funding, and co-wrote the manuscript.

[1184] * CMS Collaboration, "Evidence for tWZ production in proton-proton collisions at s=13 TeV in multilepton final states", Phys. Lett. B **855**, 138815 (2024), doi:10.1016/j.physletb.2024.138815, arXiv:2312.11668, **Contribution:** As a member of the CMS Collaboration, I contribute indirectly to all collaboration publications by developing common software, acquiring funding, reviewing drafts, participating in meetings, and taking on coordination roles.

[1185] * H. Abouabid et al., "HHH whitepaper", Eur. Phys. J. C **84**, 1183 (2024), doi:10.1140/epjc/s10052-024-13376-3, arXiv:2407.03015.

[1186] * CMS Collaboration, "Measurement of boosted Higgs bosons produced via vector boson fusion or gluon fusion in the $H \to b\bar{b}$ decay mode using LHC proton-proton collision data at $\sqrt{s} = 13$ TeV", J. High Energy Phys. **12**, 035 (2024), doi:10.1007/JHEP12(2024)035, arXiv:2407.08012, **Contribution:** I supervised the students and postdoctoral researchers who performed the search.

[1187] * CMS Collaboration, "Dark sector searches with the CMS experiment", Phys. Rept. **1115**, 448 (2025), doi:10.1016/j.physrep.2024.09.013, arXiv:2405.13778, **Contribution:** I supervised the postdoctoral researcher who was one of the editing authors and contributed to several of the searches described in the review.

[1188] * CMS Collaboration, "Enriching the Physics Program of the CMS Experiment via Data Scouting and Data Parking", Phys. Rept. **1115**, 678 (2025), doi:10.1016/j.physrep.2024.09.006, arXiv:2403.16134, **Contribution:** I maintained the data scouting stream in Run 2, and contributed to several of the searches described in the review.

[1189] * F. Mokhtar et al., "Fine-tuning machine-learned particle-flow reconstruction for new detector geometries in future colliders", Phys. Rev. D **111**, 092015 (2025), doi:10.1103/PhysRevD.111.092015, arXiv:2503.00131, **Contribution:** I supervised the student performing the studies, acquired funding, and co-wrote the manuscript.

[1190] * H. Zhao et al., "Track reconstruction as a service for collider physics", J. Instrum. **20**, P06002 (2025), doi:10.1088/1748-0221/20/06/P06002, arXiv:2501.05520, **Contribution:** I supervised the postdoctoral students and graduate students performed the studies and contributed to the manuscript.

[1191] * J. Weitz et al., "Neural architecture codesign for fast physics applications", Mach. Learn.: Sci. Technol. **6**, 035009 (2025), doi:10.1088/2632-2153/adede1, arXiv:2501.05515, **Contribution:** I supervised the overall project and co-wrote and revised the manuscript.

[1192] * H. F. Tsoi et al., "SymbolFit: Automatic Parametric Modeling with Symbolic Regression", Comput. Softw. Big Sci. **9**, 12 (2025), doi:10.1007/s41781-025-00140-9, arXiv:2411.09851, **Contribution:** I supervised the student who developed the software, and contributed to the manuscript.

[1193] * H. Li et al., "Reconstruction of boosted and resolved multi-Higgs-boson events with symmetry-preserving attention networks", J. High Energy Phys. **11**, 119 (2025), doi:10.1007/JHEP11(2025)119, arXiv:2412.03819, **Contribution:** I conceptualized the original idea, supervised the students and postdoctoral researchers, acquired funding, and co-wrote the manuscript.

II. Review and Invited Articles

[1] A. M. Deiana et al., "Applications and techniques for fast machine learning in science", Front. Big Data **5**, 787421 (2022), doi:10.3389/fdata.2022.787421, arXiv:2110.13041, **Author Contribution Code(s):** 1, 4, 13, 14.

[2] * J. Duarte et al., "Editorial: Efficient AI in particle physics and astrophysics", Front. AI **5**, 999173 (2022), doi:10.3389/frai.2022.999173, **Contribution:** I was a journal guest editor of the special research topic and I co-wrote the editorial.

[3] * E. Chien et al., "Opportunities and challenges of graph neural networks in electrical engineering", Nat. Rev. Electr. Eng. **1**, 529 (2024), doi:10.1038/s44287-024-00076-z, **Contribution:** I co-wrote the section on applications in high energy physics.

III. Books and Book Chapters

[1] J. Duarte et al., "Graph neural networks for particle tracking and reconstruction", in *Artificial Intelligence for High Energy Physics*, edited by P. Calafiura et al. (World Scientific, Mar. 2022), p. 387, doi:10.1142/9789811234033_0012, arXiv:2012.01249.

[2] * J. Duarte et al., "Machine learning for analysis and instrumentation in high energy physics", in *Instrumentation and Techniques in High Energy Physics*, edited by D. Lincoln (World Scientific, Dec. 2024), p. 125, doi:10.1142/9789819801107_0005.

IV. Refereed Conference Proceedings

[1] J. Duarte et al., "Accelerated machine learning as a service for particle physics computing", in 2nd Machine Learning and the Physical Sciences Workshop at the 33rd Conference on Neural Information Processing Systems (Dec. 2019), doi:10.5281/zenodo.3895029, https://ml4physicalsciences.github.io/2019/files/NeurIPS_ML4PS_2019_64.pdf, **Author Contribution Code(s):** 1, 2, 9, 12, 13.

[2] E. A. Moreno et al., "Interaction networks for the identification of Higgs boson decays to bottom quark-antiquark pairs", in 2nd Machine Learning and the Physical Sciences Workshop at the 33rd Conference on Neural Information Processing Systems (Dec. 2019), doi:10.5281/zenodo.3895048, https://ml4physicalsciences.github.io/2019/files/NeurIPS_ML4PS_2019_71.pdf, **Author Contribution Code(s):** 1, 2, 6, 9, 10, 12, 13.

[3] J. Duarte et al., "Low-latency machine learning inference on FPGAs", in 2nd Machine Learning and the Physical Sciences Workshop at the 33rd Conference on Neural Information Processing Systems (Dec. 2019), doi:10.5281/zenodo.3895081, https://ml4physicalsciences.github.io/2019/files/NeurIPS_ML4PS_2019_74.pdf, **Author Contribution Code(s):** 1, 2, 6, 9, 12, 13.

[4] D. S. Rankin et al., "FPGAs-as-a-service toolkit (FaaST)", in 2020 IEEE/ACM International Workshop on Heterogeneous High-performance Reconfigurable Computing (H2RC) (Nov. 2020), p. 38, doi:10.1109/H2RC51942.2020.00010, arXiv:2010.08556, **Author Contribution Code(s):** 1, 4, 6, 8, 9, 13.

[5] A. Heintz et al., "Accelerated charged particle tracking with graph neural networks on FPGAs", in 3rd Machine Learning and the Physical Sciences Workshop at the 34th Conference on Neural Information Processing Systems (Dec. 2020), arXiv:2012.01563, https://ml4physicalsciences.github.io/2020/files/NeurIPS_ML4PS_2020_137.pdf, **Author Contribution Code(s):** 1, 4, 6, 8, 9, 13.

[6] R. Kansal et al., "Graph generative adversarial networks for sparse data generation in high energy physics", in 3rd Machine Learning and the Physical Sciences Workshop at the 34th Conference on Neural Information Processing Systems (Dec. 2020), arXiv:2012.00173, https://ml4physicalsciences.github.io/2020/files/NeurIPS_ML4PS_2020_104.pdf, **Author Contribution Code(s):** 1, 4, 6, 8, 9, 13.

[7] F. Fahim et al., "Hls4ml: an open-source codesign workflow to empower scientific low-power machine learning devices", in 1st tinyML Research Symposium (Mar. 2021), arXiv:2103.05579, **Author Contribution Code(s):** 1, 4, 6, 8, 9, 13.

[8] B. Orzari et al., "Sparse data generation for particle-based simulation of hadronic jets in the LHC", in LatinX in AI (LXAI) Research Workshop at the 38th International Conference on Machine Learning (July 2021), arXiv:2109.15197, https://research.latinxinai.org/papers/icml/2021/pdf/paper_15.pdf, **Author Contribution Code(s):** 1, 2, 4, 6, 10, 14.

[9] F. Mokhtar et al., "Explaining machine-learned particle-flow reconstruction", in 4th Machine Learning and the Physical Sciences Workshop at the 35th Conference on Neural Information Processing Systems (Dec. 2021), arXiv:2111.12840, https://ml4physicalsciences.github.io/2021/files/NeurIPS_ML4PS_2021_120.pdf, **Author Contribution Code(s):** 1, 2, 4, 6, 10, 13, 14.

[10] C. Banbury et al., "MLPerf Tiny benchmark", in Proceedings of the Neural Information Processing Systems Track on Datasets and Benchmarks, Vol. 1 (Dec. 2021), arXiv:2106.07597, https://datasets-benchmarks-proceedings.neurips.cc/paper/2021/hash/da4fb5c6e93e74d3df8527599fa62642-Abstract-round1.html, **Author Contribution Code(s):** 9, 10.

[11] R. Kansal et al., "Particle cloud generation with message passing generative adversarial networks", in Advances in Neural Information Processing Systems, Vol. 34 (Dec. 2021), arXiv:2106.11535, https://papers.nips.cc/paper/2021/hash/c8512d142a2d849725f31a9a7a361ab9-Abstract.html, **Author Contribution Code(s):** 1, 2, 4, 6, 10, 13, 14.

[12] S. Tsan et al., "Particle Graph Autoencoders and Differentiable, Learned Energy Mover's Distance", in 4th Machine Learning and the Physical Sciences Workshop at the 35th Conference on Neural Information Processing Systems (Dec. 2021), arXiv:2111.12849, https://ml4physicalsciences.github.io/2021/files/NeurIPS_ML4PS_2021_98.pdf, **Author Contribution Code(s):** 1, 2, 4, 6, 9, 10, 13, 14.

[13] J. Pata et al., "Machine Learning for Particle Flow Reconstruction at CMS", in 20th International Workshop on Advanced Computing and Analysis Techniques in Physics Research (Mar. 2022), arXiv:2203.00330, **Author Contribution Code(s):** 1, 2, 4, 6, 10, 13, 14.

[14] H. Borras et al., "Open-source FPGA-ML codesign for the MLPerf Tiny Benchmark", in 3rd Workshop on Benchmarking Machine Learning Workloads on Emerging Hardware (MLBench) at 5th Conference on Machine Learning and Systems (MLSys) (June 2022), arXiv:2206.11791, **Author Contribution Code(s):** 1, 4, 6, 9, 10, 13, 14.

[15] A. Pappalardo et al., "QONNX: Representing arbitrary-precision quantized neural networks", in 4th Workshop on Accelerated Machine Learning at the High-performance Embedded Architecture and Compilation 2022 Conference (June 2022), arXiv:2206.07527, https://accml.dcs.gla.ac.uk/papers/2022/4thAccML_paper_1(12).pdf, **Author Contribution Code(s):** 1, 4, 6, 9, 10, 13, 14.

[16] J. Duarte et al., "FastML Science Benchmarks: Accelerating Real-Time Scientific Edge Machine Learning", in 3rd Workshop on Benchmarking Machine Learning Workloads on Emerging Hardware (MLBench) at 5th Conference on Machine Learning and Systems (MLSys) (July 2022), arXiv:2207.07958, **Author Contribution Code(s):** 1, 2, 4, 6, 9, 10, 13, 14.

[17] * F. Mokhtar et al., "Do graph neural networks learn traditional jet substructure?", in 5th Machine Learning and the Physical Sciences Workshop at the 36th Conference on Neural Information Processing Systems (Nov. 2022), arXiv:2211.09912, https://ml4physicalsciences.github.io/2022/files/NeurIPS_ML4PS_2022_57.pdf, **Contribution:** I supervised the student performing the studies, acquired funding, and co-wrote the manuscript.

[18] * S. Hussain et al., "FastStamp: accelerating neural steganography and digital watermarking of images on FPGAs", in Proceedings of the 41st IEEE/ACM International Conference on Computer-Aided Design (Dec. 2022), p. 1, doi:10.1145/3508352.3549357, arXiv:2209.12391, **Contribution:** I assisted in the development of the FPGA algorithm and contributed to writing the manuscript.

[19] * L. McDermott et al., "Neural architecture codesign for fast Bragg peak analysis", in 3rd AAAI Workshop on AI to Accelerate Science and Engineering (AI2ASE) (2023), arXiv:2312.05978, https://ai-2-ase.github.io/papers/18%5cCameraReady%5cAAAI_Accelerating_Science_2.pdf, **Contribution:** I supervised the students performing the studies, acquired funding, and co-wrote the manuscript.

[20] * F. Mokhtar et al., "Progress towards an improved particle flow algorithm at CMS with machine learning", in 21st International Workshop on Advanced Computing and Analysis Techniques in Physics Research (Mar. 2023), arXiv:2303.17657, **Contribution:** I supervised the student performing the studies, acquired funding, and revised and edited the manuscript.

[21] * S.-Y. Huang et al., "Low Latency Edge Classification GNN for Particle Trajectory Tracking on FPGAs", in 33rd International Conference on Field-Programmable Logic and Applications (Sept. 2023), p. 294, doi:10.1109/FPL60245.2023.00050, arXiv:2306.11330, **Contribution:** I supervised the students conducting the studies.

[22] * R. E. Amaro et al., "Voyager - An Innovative Computational Resource for Artificial Intelligence & Machine Learning Applications in Science and Engineering", in Practice and Experience in Advanced Research Computing (Sept. 2023), p. 278, doi:10.1145/3569951.3597597, **Contribution:** I acquired funding for the supercomputer and was one of the first users.

[23] * A. Li et al., "Induced Generative Adversarial Particle Transformers", in 6th Machine Learning and the Physical Sciences Workshop at the 37th Conference on Neural Information Processing Systems (Dec. 2023), arXiv:2312.04757, https://ml4physicalsciences.github.io/2023/files/NeurIPS_ML4PS_2023_213.pdf, **Contribution:** I supervised the students performing the studies, acquired funding, and co-wrote the manuscript.

[24] * S. Miao et al., "Locality-Sensitive Hashing-Based Efficient Point Transformer with Applications in High-Energy Physics", in 41st International Conference on Machine Learning, Vol. 235 (May 2024), p. 35546, arXiv:2402.12535, https://proceedings.mlr.press/v235/miao24b.html, **Contribution:** I supervised the student performing the studies, acquired funding, and edited and revised the manuscript.

[25] * T. Baldi et al., "Reliable edge machine learning hardware for scientific applications", in 2024 IEEE 42nd VLSI Test Symposium (VTS) (May 2024), p. 1, doi:10.1109/VTS60656.2024.10538639, arXiv:2406.19522, **Contribution:** I contributed to writing the manuscript.

[26] * Z. Zhao et al., "Large-Scale Pretraining and Finetuning for Efficient Jet Classification in Particle Physics", in 22nd International Workshop on Advanced Computing and Analysis Techniques in Physics Research (Aug. 2024), arXiv:2408.09343, **Contribution:** I conceptualized the study, supervised the students, and co-wrote the proceeding.

[27] * A. Wang et al., "Interpreting and Accelerating Transformers for Jet Tagging", in 7th Machine Learning and the Physical Sciences Workshop at the 38th Conference on Neural Information Processing Systems (Dec. 2024), arXiv:2412.03673, https://ml4physicalsciences.github.io/2024/files/NeurIPS_ML4PS_2024_189.pdf.

[28] * S. Katel et al., "Learning Symmetry-Independent Jet Representations via Jet-Based Joint Embedding Predictive Architecture", in 7th Machine Learning and the Physical Sciences Workshop at the 38th Conference on Neural Information Processing Systems (Dec. 2024), arXiv:2412.05333, https://ml4physicalsciences.github.io/2024/files/NeurIPS_ML4PS_2024_222.pdf, **Contribution:** I conceptualized the original idea, supervised the students performing the studies, acquired funding, and co-wrote the manuscript.

[29] * D. Kondratyev et al., "SuperSONIC: Cloud-Native Infrastructure for ML Inferencing", in Practice and Experience in Advanced Research Computing (July 2025), doi:10.1145/3708035.3736049, arXiv:2506.20657, **Contribution:** I contributed to the software and manuscript.

[30] * Z. Hao et al., "RINO: Renormalization Group Invariance with No Labels", in 8th Machine Learning and the Physical Sciences Workshop at the 39th Conference on Neural Information Processing Systems (Sept. 2025), arXiv:2509.07486, **Contribution:** I supervised the student conducting the studies and revised the manuscript.

[31] * S. Govil et al., "Locality-Sensitive Hashing-Based Efficient Point Transformer for Charged Particle Reconstruction", in 8th Machine Learning and the Physical Sciences Workshop at the 39th Conference on Neural Information Processing Systems (Oct. 2025), arXiv:2510.07594, **Contribution:** I helped secure funding, contributed to the discussions, and reviewed the manuscript.

[32] * T. Legge et al., "Why Is Attention Sparse In Particle Transformer?", in 8th Machine Learning and the Physical Sciences Workshop at the 39th Conference on Neural Information Processing Systems (Nov. 2025), arXiv:2512.00210, https://ml4physicalsciences.github.io/2025/files/NeurIPS_ML4PS_2025_238.pdf.

[33] * J. Weitz et al., "Surrogate Neural Architecture Codesign Package (SNAC-Pack)", in 8th Machine Learning and the Physical Sciences Workshop at the 39th Annual Conference on Neural Information Processing Systems (Dec. 2025), arXiv:2512.15998, **Contribution:** I supervised the overall project and revised the manuscript.

B. OTHER WORK

I. Other Conference Proceedings

[1] J. Duarte, "Search for natural supersymmetry in events with 1 b-tagged jet using razor variables at 8 TeV", in 2nd Large Hadron Collider Physics Conference (Sept. 2014), arXiv:1409.4466.

[2] A. Bornheim et al., "Calorimeters for precision timing measurements in high energy physics", in 16th International Conference on Calorimetry in Particle Physics (Feb. 2015), doi:10.1088/1742-6596/587/1/012057.

[3] D. Anderson et al., "Studies towards a precision timing calorimeter for high energy physics collider experiments", in 2015 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC) (Oct. 2015), p. 1, doi:10.1109/NSSMIC.2015.7581887.

[4] J. Duarte, "Inclusive Searches for Supersymmetry with the CMS detector at $\sqrt{s} = 8$ TeV", in 37th International Conference on High Energy Physics (May 2016), doi:10.1016/j.nuclphysbps.2015.09.071.

[5] A. Bornheim et al., "Comparative test beam studies of precision timing calorimeter technologies", in 2016 IEEE Nuclear Science Symposium and Medical Imaging Conference (Oct. 2016), doi:10.1109/NSSMIC.2016.8069874.

[6] A. Bornheim et al., "LYSO based precision timing calorimeters", in 17th International Conference on Calorimetry in Particle Physics, Vol. 928 (Nov. 2017), p. 012023, doi:10.1088/1742-6596/928/1/012023.

[7] J. Duarte, "Fast reconstruction and data scouting", in 4th International Workshop Connecting The Dots (Aug. 2018), arXiv:1808.00902.

[8] K. Albertsson et al., "Machine learning in high energy physics community white paper", in 18th International Workshop on Advanced Computing and Analysis Techniques in Physics Research (ACAT 2017), Vol. 1085 (Sept. 2018), p. 022008, doi:10.1088/1742-6596/1085/2/022008, arXiv:1807.02876.

[9] HEP Software Foundation Collaboration, "HL-LHC Computing Review: Common Tools and Community Software", in 2022 Snowmass Summer Study, edited by P. Canal et al. (Aug. 2020), doi:10.5281/zenodo.4009114, arXiv:2008.13636.

[10] K. A. Woźniak et al., "New physics agnostic selections for new physics searches", in 24th International Conference on Computing in High Energy and Nuclear Physics (CHEP 2019), Vol. 245 (Nov. 2020), p. 06039, doi:10.1051/epjconf/202024506039, **Author Contribution Code(s):** 10, 14.

[11] S. Thais et al., "Graph Neural Networks in Particle Physics: Implementations, Innovations, and Challenges", in 2022 Snowmass Summer Study (Mar. 2022), arXiv:2203.12852, **Author Contribution Code(s):** 13.

[12] P. Harris et al., "Physics Community Needs, Tools, and Resources for Machine Learning", in 2022 Snowmass Summer Study (Mar. 2022), arXiv:2203.16255, **Author Contribution Code(s):** 13.

[13] A. Apresyan et al., "Improving Di-Higgs Sensitivity at Future Colliders in Hadronic Final States with Machine Learning", in 2022 Snowmass Summer Study (Apr. 2022), arXiv:2203.07353, **Author Contribution Code(s):** 1, 6, 8, 9, 10, 13.

[14] G. Benelli et al., "Data Science and Machine Learning in Education", in 2022 Snowmass Summer Study (July 2022), arXiv:2207.09060, **Author Contribution Code(s):** 13.

[15] S. Dawson et al., "Report of the Topical Group on Higgs Physics for Snowmass 2021: The Case for Precision Higgs Physics", in 2022 Snowmass Summer Study (Sept. 2022), arXiv:2209.07510, **Contribution:** I participated in the topical group meetings and contributed a whitepaper to the proceedings.

[16] P. Shanahan et al., "Snowmass 2021 Computational Frontier CompF03 Topical Group Report: Machine Learning", in 2022 Snowmass Summer Study (Sept. 2022), arXiv:2209.07559, **Contribution:** I participated in the topical group meetings and contributed whitepapers to the proceedings.

[17] M. Agarwal et al., "Applications of Deep Learning to physics workflows", in Accelerating Physics with ML@MIT Workshop (June 2023), arXiv:2306.08106, **Contribution:** I participated remotely in the workshop, assisted with the figures, and edited the whitepaper.

[18] H. Li et al., "FAIR AI Models in High Energy Physics", in 26th International Conference on Computing in High Energy and Nuclear Physics, Vol. 295 (2024), p. 09017, doi:10.1051/epjconf/202429509017, **Contribution:** I conceptualized and coordinated the overall project, supervised the students and postdoctoral researchers performing the studies, and co-wrote the manuscript.

[19] J. M. Duarte, "Novel machine learning applications at the LHC", in 42nd International Conference on High Energy Physics (Sept. 2024), doi:10.22323/1.476.0012, arXiv:2409.20413, **Contribution:** I presented the results at the conference and wrote the corresponding proceeding.

II. Abstracts

III. Popular Works

IV. Additional Products of Major Research

[1] J. Duarte et al., *Squark-mediated Higgs+jets production at the LHC*, Mar. 2017, arXiv:1703.06544.

[2] CMS Collaboration, *Performance of deep tagging algorithms for boosted double quark jet topology in proton-proton collisions at 13 TeV with the Phase-0 CMS detector*, CMS Detector Performance Note CMS-DP-2018-046 (July 2018), https://cds.cern.ch/record/2630438.

[3] CMS Collaboration, *Searches for dijet resonances in pp collisions at $\sqrt{s} = 13$ TeV using the 2016 and 2017 datasets*, CMS Physics Analysis Summary CMS-PAS-EXO-17-026 (Sept. 2018), https://cds.cern.ch/record/2637847.

[4] CMS Collaboration, *The Phase-2 upgrade of the CMS Level-1 trigger*, CMS Technical Design Report CERN-LHCC-2020-004. CMS-TDR-021, **Author Contribution Code(s):** 6, 9, 12, 13 (Apr. 2020), https://cds.cern.ch/record/2714892.

[5] V. Lončar et al., *fastmachinelearning/hls4ml*, version v0.6.0, **Author Contribution Code(s):** 1, 9, Nov. 2021, doi:10.5281/zenodo.1201549, https://github.com/fastmachinelearning/hls4ml.

[6] CMS Collaboration, *Machine Learning for Particle Flow Reconstruction at CMS*, CMS Detector Performance Note CMS-DP-2021-030, **Author Contribution Code(s):** 1, 9, 13, 14 (Nov. 2021), https://cds.cern.ch/record/2792320.

[7] CMS Collaboration, *Inclusive search for a boosted Higgs boson decaying to a charm quark pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV*, CMS Physics Analysis Summary CMS-PAS-HIG-21-012, **Author Contribution Code(s):** 8, 9, 10, 14 (May 2022), https://cds.cern.ch/record/2809929.

[8] CMS Collaboration, *Performance of the mass-decorrelated DeepDoubleX classifier for double-b and double-c large-radius jets with the CMS detector*, CMS Detector Performance Note CMS-DP-2022-041, **Contribution:** I developed the original algorithm and supervised the students who improved it. (Nov. 2022), https://cds.cern.ch/record/2839736.

[9] CMS Collaboration, *Progress towards an improved particle flow algorithm at CMS with machine learning*, CMS Detector Performance Note CMS-DP-2022-061, **Contribution:** I supervised the student performing the studies and acquired funding. (Nov. 2022), https://cds.cern.ch/record/2842375.

[10] CMS Collaboration, *Portable Acceleration of CMS Mini-AOD Production with Coprocessors as a Service*, CMS Detector Performance Note CMS-DP-2023-037, **Contribution:** I co-conceptualized the original method and supervised the students and postdoctoral researchers performing the studies. (June 2023), https://cds.cern.ch/record/2863316.

[11] CMS Collaboration, *Search for boosted Higgs bosons produced via vector boson fusion in the $H \to b\bar{b}$ decay mode using LHC proton-proton collision data at $\sqrt{s} = 13$ TeV*, CMS Physics Analysis Summary CMS-PAS-HIG-21-020, **Contribution:** I supervised the students and postdoctoral researchers who performed the search. (Aug. 2023), https://cds.cern.ch/record/2866501.

[12] CMS Collaboration, *Anomaly Detection in the CMS Global Trigger Test Crate for Run 3*, CMS Detector Performance Note CMS-DP-2023-079, **Contribution:** I supervised the students and postdoctoral researchers who developed the firmware algorithm and its software emulation. (Oct. 2023), https://cds.cern.ch/record/2876546.

[13] O. Weng et al., *Architectural implications of neural network inference for high data-rate, low-latency scientific applications*, **Contribution:** I contributed to writing the manuscript. Mar. 2024, arXiv:2403.08980.

[14] CMS Collaboration, *2024 Data Collected with AXOL1TL Anomaly Detection at the CMS Level-1 Trigger*, CMS Detector Performance Note CMS-DP-2024-059 (July 2024), https://cds.cern.ch/record/2904695.

[15] CMS Collaboration, *Search for highly energetic double Higgs boson production in the two bottom quark and two vector boson all-hadronic final state*, CMS Physics Analysis Summary CMS-PAS-HIG-23-012, **Contribution:** I developed several of the analysis techniques and supervised the student who performed the search. (July 2024), https://cds.cern.ch/record/2904879.

[16] CMS Collaboration, *Search for low mass vector and scalar resonances decaying into quark-antiquark pairs*, CMS Physics Analysis Summary CMS-PAS-EXO-24-007, **Contribution:** I supervised the students who performed the search. (July 2024), https://cds.cern.ch/record/2904945.

[17] CMS Collaboration, *Search for Higgs boson production at high transverse momentum in the WW^* decay channel in proton-proton collisions at $\sqrt{s} = 13$ TeV*, CMS Physics Analysis Summary CMS-PAS-HIG-24-008, **Contribution:** I supervised the graduate student who performed one of the searches and edited the manuscript. (May 2025), https://cds.cern.ch/record/2932358.

[18] CMS Collaboration, *Machine-Learned Particle-Flow Reconstruction with Transformer Models in CMS*, CMS Detector Performance Note CMS-DP-2025-033 (July 2025), https://cds.cern.ch/record/2937578.

[19] CMS Collaboration, *Search for heavy scalar resonances decaying to a Higgs and a Higgs-like boson in the Lorentz-boosted $b\bar{b}4q$ final state*, CMS Physics Analysis Summary CMS-PAS-B2G-23-007, **Contribution:** I supervised the students who performed the search and revised the manuscript. (July 2025), https://cds.cern.ch/record/2938006.

[20] CMS Collaboration, *Particle transformers for identifying Lorentz-boosted Higgs bosons decaying to a pair of W bosons*, CMS Physics Analysis Summary CMS-PAS-JME-25-001, **Contribution:** I supervised the students who trained the machine learning algorithm and revised the manuscript. (Aug. 2025), https://cds.cern.ch/record/2939451.

[21] CMS Collaboration, *Anomaly detection with AXOL1TL at the CMS Level-1 Trigger in 2024 and 2025*, CMS Detector Performance Note CMS-DP-2025-061 (Sept. 2025), https://cds.cern.ch/record/2942560.

[22] CMS Collaboration, *Improved results on Higgs boson pair production in the 4b final state*, CMS Physics Analysis Summary CMS-PAS-HIG-24-010, **Contribution:** I supervised students performing one of the searches in the merged channel, developed the statistical model for combinations of results across different LHC Runs, and wrote and revised portions of the manuscript. (Oct. 2025), https://cds.cern.ch/record/2947325.

[23] CMS Collaboration, *Search for nonresonant triple Higgs boson production in the six b-quark final state in proton-proton collisions at 13 TeV*, CMS Physics Analysis Summary CMS-PAS-HIG-24-012, **Contribution:** I contributed to the development of the machine learning algorithms and analysis strategy and revised the manuscript. (Oct. 2025), https://cds.cern.ch/record/2945361.

C. WORK IN PROGRESS