

# Publication List from all Collaborations and Experiments

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- A. Tumasyan et al., **Performance of the local reconstruction algorithms for the CMS hadron calorimeter with Run 2 data**, (2023). <http://arxiv.org/abs/2306.10355>, arXiv:2306.10355 [hep-ex]
- A. Tumasyan et al., **Two-particle Bose-Einstein correlations and their Lévy parameters in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, (2023). <http://arxiv.org/abs/2306.11574>, arXiv:2306.11574 [nucl-ex]
- A. Hayrapetyan et al., **Observation of four top quark production in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2023). <http://arxiv.org/abs/2305.13439>, arXiv:2305.13439 [hep-ex]
- A. Tumasyan et al., **Measurements of the azimuthal anisotropy of prompt and nonprompt charmonia in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, (2023). <http://arxiv.org/abs/2305.16928>, arXiv:2305.16928 [hep-ex]
- A. Hayrapetyan et al., **Search for the lepton-flavor violating decay of the Higgs boson and additional Higgs bosons in the  $e\mu$  final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2023). <http://arxiv.org/abs/2305.18106>, arXiv:2305.18106 [hep-ex]
- A. Tumasyan et al., **Search for resonances in events with photon and jet final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2023). <http://arxiv.org/abs/2305.07998>, arXiv:2305.07998 [hep-ex]
- A. Tumasyan et al., **Search for top squark pair production in a final state with at least one hadronically decaying tau lepton in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2023). <http://arxiv.org/abs/2304.07174>, arXiv:2304.07174 [hep-ex]
- A. Tumasyan et al., **First measurement of the top quark pair production cross section in proton-proton collisions at  $\sqrt{s} = 13.6$  TeV**, (2023). <http://arxiv.org/abs/2303.10680>, arXiv:2303.10680 [hep-ex]
- V. Khachatryan et al., **Exclusive and semi-exclusive  $\pi^+\pi^-$  production in proton-proton collisions at  $\sqrt{s} = 7$  TeV**, (2017). <http://arxiv.org/abs/1706.08310>, arXiv:1706.08310 [hep-ex]
- G.L. Bayatian et al., **CMS expression of interest in the SLHC**, (2007)
- A. Tumasyan et al., **Observation of triple  $J/\psi$  meson production in proton-proton collisions**, *Nature Phys.* 19 (2023) 338–350, doi:10.1038/s41567-022-01838-y, arXiv:2111.05370 [hep-ex]
- A. Tumasyan et al., **Search for Higgs boson decays to a Z boson and a photon in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP.* 05 (2023) 233, doi:10.1007/JHEP05(2023)233, arXiv:2204.12945 [hep-ex]
- A. Tumasyan et al., **Strange hadron collectivity in pPb and PbPb collisions**, *JHEP.* 05 (2023) 007, doi:10.1007/JHEP05(2023)007, arXiv:2205.00080 [nucl-ex]
- A. Tumasyan et al., **Search for a heavy composite Majorana neutrino in events with dilepton signatures from proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Lett. B.* 843 (2023) 137803, doi:10.1016/j.physletb.2023.137803, arXiv:2210.03082 [hep-ex]
- A. Tumasyan et al., **Precision measurement of the Z boson invisible width in pp collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Lett. B.* 842 (2023) 137563, doi:10.1016/j.physletb.2022.137563, arXiv:2206.07110 [hep-ex]
- A. Tumasyan et al., **Search for heavy resonances and quantum black holes in  $e\mu$ ,  $e\tau$ , and  $\mu\tau$  final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP.* 05 (2023) 227, doi:10.1007/JHEP05(2023)227, arXiv:2205.06709 [hep-ex]
- A. Tumasyan et al., **Measurement of the  $B_S^0 \rightarrow \mu^+\mu^-$  decay properties and search for the  $B^0 \rightarrow \mu^+\mu^-$  decay in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Lett. B.* 842 (2023) 137955, doi:10.1016/j.physletb.2023.137955, arXiv:2212.10311 [hep-ex]

- A. Tumasyan et al., **Search for nonresonant Higgs boson pair production in the four leptons plus twob jets final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP*. 06 (2023) 130, doi:[10.1007/JHEP06\(2023\)130](https://doi.org/10.1007/JHEP06(2023)130), arXiv:[2206.10657](https://arxiv.org/abs/2206.10657) [hep-ex]
- A. Tumasyan et al., **Search for long-lived particles decaying to a pair of muons in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP*. 05 (2023) 228, doi:[10.1007/JHEP05\(2023\)228](https://doi.org/10.1007/JHEP05(2023)228), arXiv:[2205.08582](https://arxiv.org/abs/2205.08582) [hep-ex]
- A. Tumasyan et al., **Search for CP violation using  $t\bar{t}$  events in the lepton+jets channel in pp collisions at  $\sqrt{s} = 13$  TeV**, *JHEP*. 06 (2023) 081, doi:[10.1007/JHEP06\(2023\)081](https://doi.org/10.1007/JHEP06(2023)081), arXiv:[2205.02314](https://arxiv.org/abs/2205.02314) [hep-ex]
- A. Tumasyan et al., **Search for top squarks in the four-body decay mode with single lepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP*. 06 (2023) 060, doi:[10.1007/JHEP06\(2023\)060](https://doi.org/10.1007/JHEP06(2023)060), arXiv:[2301.08096](https://arxiv.org/abs/2301.08096) [hep-ex]
- A. Tumasyan et al., **Search for electroweak production of charginos and neutralinos in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP*. 04 (2022) 147, doi:[10.1007/JHEP04\(2022\)147](https://doi.org/10.1007/JHEP04(2022)147), arXiv:[2106.14246](https://arxiv.org/abs/2106.14246) [hep-ex]
- A. Tumasyan et al., **Measurement of  $W^{\pm}\gamma$  differential cross sections in proton-proton collisions at  $\sqrt{s} = 13$  TeV and effective field theory constraints**, *Phys. Rev. D*. 105 (2022) 052003, doi:[10.1103/PhysRevD.105.052003](https://doi.org/10.1103/PhysRevD.105.052003), arXiv:[2111.13948](https://arxiv.org/abs/2111.13948) [hep-ex]
- A. Tumasyan et al., **Search for a right-handed W boson and a heavy neutrino in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP*. 04 (2022) 047, doi:[10.1007/JHEP04\(2022\)047](https://doi.org/10.1007/JHEP04(2022)047), arXiv:[2112.03949](https://arxiv.org/abs/2112.03949) [hep-ex]
- A. Tumasyan et al., **Search for resonant production of strongly coupled dark matter in proton-proton collisions at 13 TeV**, *JHEP*. 06 (2022) 156, doi:[10.1007/JHEP06\(2022\)156](https://doi.org/10.1007/JHEP06(2022)156), arXiv:[2112.11125](https://arxiv.org/abs/2112.11125) [hep-ex]
- A. Tumasyan et al., **Search for supersymmetry in final states with two or three soft leptons and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP*. 04 (2022) 091, doi:[10.1007/JHEP04\(2022\)091](https://doi.org/10.1007/JHEP04(2022)091), arXiv:[2111.06296](https://arxiv.org/abs/2111.06296) [hep-ex]
- A. Tumasyan et al., **Search for flavor-changing neutral current interactions of the top quark and the Higgs boson decaying to a bottom quark-antiquark pair at  $\sqrt{s} = 13$  TeV**, *JHEP*. 02 (2022) 169, doi:[10.1007/JHEP02\(2022\)169](https://doi.org/10.1007/JHEP02(2022)169), arXiv:[2112.09734](https://arxiv.org/abs/2112.09734) [hep-ex]
- A. Tumasyan et al., **Measurement of the inclusive  $t\bar{t}$  production cross section in proton-proton collisions at  $\sqrt{s} = 5.02$  TeV**, *JHEP*. 04 (2022) 144, doi:[10.1007/JHEP04\(2022\)144](https://doi.org/10.1007/JHEP04(2022)144), arXiv:[2112.09114](https://arxiv.org/abs/2112.09114) [hep-ex]
- A. Tumasyan et al., **Measurement of the inclusive and differential Higgs boson production cross sections in the decay mode to a pair of  $\tau$  leptons in pp collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Rev. Lett.* 128 (2022) 081805, doi:[10.1103/PhysRevLett.128.081805](https://doi.org/10.1103/PhysRevLett.128.081805), arXiv:[2107.11486](https://arxiv.org/abs/2107.11486) [hep-ex]
- A. Tumasyan et al., **Search for Flavor-Changing Neutral Current Interactions of the Top Quark and Higgs Boson in Final States with Two Photons in Proton-Proton Collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Rev. Lett.* 129 (2022) 032001, doi:[10.1103/PhysRevLett.129.032001](https://doi.org/10.1103/PhysRevLett.129.032001), arXiv:[2111.02219](https://arxiv.org/abs/2111.02219) [hep-ex]
- A. Tumasyan et al., **Measurement of the inclusive and differential WZ production cross sections, polarization angles, and triple gauge couplings in pp collisions at  $\sqrt{s} = 13$  TeV**, *JHEP*. 07 (2022) 032, doi:[10.1007/JHEP07\(2022\)032](https://doi.org/10.1007/JHEP07(2022)032), arXiv:[2110.11231](https://arxiv.org/abs/2110.11231) [hep-ex]
- A. Tumasyan et al., **Strategies and performance of the CMS silicon tracker alignment during LHC Run 2**, *Nucl. Instrum. Meth. A*. 1037 (2022) 166795, doi:[10.1016/j.nima.2022.166795](https://doi.org/10.1016/j.nima.2022.166795), arXiv:[2111.08757](https://arxiv.org/abs/2111.08757) [physics.ins-det]
- A. Tumasyan et al., **Search for heavy resonances decaying to  $Z(\nu\bar{\nu})V(q\bar{q}')$  in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Rev. D*. 106 (2022) 012004, doi:[10.1103/PhysRevD.106.012004](https://doi.org/10.1103/PhysRevD.106.012004), arXiv:[2109.08268](https://arxiv.org/abs/2109.08268) [hep-ex]
- A. Tumasyan et al., **Study of quark and gluon jet substructure in Z+jet and dijet events from pp collisions**, *JHEP*. 01 (2022) 188, doi:[10.1007/JHEP01\(2022\)188](https://doi.org/10.1007/JHEP01(2022)188), arXiv:[2109.03340](https://arxiv.org/abs/2109.03340) [hep-ex]
- A. Tumasyan et al., **Search for long-lived particles decaying to leptons with large impact parameter in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Eur. Phys. J. C*. 82 (2022) 153, doi:[10.1140/epjc/s10052-022-10027-3](https://doi.org/10.1140/epjc/s10052-022-10027-3), arXiv:[2110.04809](https://arxiv.org/abs/2110.04809) [hep-ex]
- A. Tumasyan et al., **Search for heavy resonances decaying to WW, WZ, or WH boson pairs in the lepton plus merged jet final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Rev. D*. 105 (2022) 032008, doi:[10.1103/PhysRevD.105.032008](https://doi.org/10.1103/PhysRevD.105.032008), arXiv:[2109.06055](https://arxiv.org/abs/2109.06055) [hep-ex]

- A. Tumasyan et al., **Measurement of double-parton scattering in inclusive production of four jets with low transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP.* 01 (2022) 177, doi:[10.1007/JHEP01\(2022\)177](https://doi.org/10.1007/JHEP01(2022)177), arXiv:[2109.13822](https://arxiv.org/abs/2109.13822) [hep-ex]
- A. Tumasyan et al., **Study of dijet events with large rapidity separation in proton-proton collisions at  $\sqrt{s} = 2.76$  TeV**, *JHEP.* 03 (2022) 189, doi:[10.1007/JHEP03\(2022\)189](https://doi.org/10.1007/JHEP03(2022)189), arXiv:[2111.04605](https://arxiv.org/abs/2111.04605) [hep-ex]
- A. Tumasyan et al., **Search for resonances decaying to three  $W$  bosons in the hadronic final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Rev. D.* 106 (2022) 012002, doi:[10.1103/PhysRevD.106.012002](https://doi.org/10.1103/PhysRevD.106.012002), arXiv:[2112.13090](https://arxiv.org/abs/2112.13090) [hep-ex]
- A. Tumasyan et al., **Search for a heavy resonance decaying into a top quark and a  $W$  boson in the lepton+jets final state at  $\sqrt{s} = 13$  TeV**, *JHEP.* 04 (2022) 048, doi:[10.1007/JHEP04\(2022\)048](https://doi.org/10.1007/JHEP04(2022)048), arXiv:[2111.10216](https://arxiv.org/abs/2111.10216) [hep-ex]
- A. Tumasyan et al., **Observation of  $B_s^0$  mesons and measurement of the  $B_s^0/B^+$  yield ratio in PbPb collisions at Image 1 TeV**, *Phys. Lett. B.* 829 (2022) 137062, doi:[10.1016/j.physletb.2022.137062](https://doi.org/10.1016/j.physletb.2022.137062), arXiv:[2109.01908](https://arxiv.org/abs/2109.01908) [hep-ex]
- A.M. Sirunyan et al., **Using  $Z$  Boson Events to Study Parton-Medium Interactions in Pb-Pb Collisions**, *Phys. Rev. Lett.* 128 (2022) 122301, doi:[10.1103/PhysRevLett.128.122301](https://doi.org/10.1103/PhysRevLett.128.122301), arXiv:[2103.04377](https://arxiv.org/abs/2103.04377) [hep-ex]
- A. Tumasyan et al., **Measurements of the associated production of a  $W$  boson and a charm quark in protonproton collisions at  $\sqrt{s} = 8\text{TeV}$** , *Eur. Phys. J. C.* 82 (2022) 1094, doi:[10.1140/epjc/s10052-022-10897-7](https://doi.org/10.1140/epjc/s10052-022-10897-7), arXiv:[2112.00895](https://arxiv.org/abs/2112.00895) [hep-ex]
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- A. Tumasyan et al., **Search for low-mass dilepton resonances in Higgs boson decays to four-lepton final states in protonproton collisions at  $\sqrt{s} = 13\text{TeV}$** , *Eur. Phys. J. C.* 82 (2022) 290, doi:[10.1140/epjc/s10052-022-10127-0](https://doi.org/10.1140/epjc/s10052-022-10127-0), arXiv:[2111.01299](https://arxiv.org/abs/2111.01299) [hep-ex]
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- A. Tumasyan et al., **Search for heavy resonances decaying to a pair of Lorentz-boosted Higgs bosons in final states with leptons and a bottom quark pair at  $\sqrt{s} = 13$  TeV**, *JHEP.* 05 (2022) 005, doi:[10.1007/JHEP05\(2022\)005](https://doi.org/10.1007/JHEP05(2022)005), arXiv:[2112.03161](https://arxiv.org/abs/2112.03161) [hep-ex]
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- A. Tumasyan et al., **Search for heavy resonances decaying to  $ZZ$  or  $ZW$  and axion-like particles mediating non-resonant  $ZZ$  or  $ZH$  production at  $\sqrt{s} = 13$  TeV**, *JHEP.* 04 (2022) 087, doi:[10.1007/JHEP04\(2022\)087](https://doi.org/10.1007/JHEP04(2022)087), arXiv:[2111.13669](https://arxiv.org/abs/2111.13669) [hep-ex]
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