

# Publication List from all Collaborations and Experiments

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- A. Hayrapetyan et al., **Search for direct production of GeV-scale resonances decaying to a pair of muons in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2023). <http://arxiv.org/abs/2309.16003>, arXiv:2309.16003 [hep-ex]
- A. Hayrapetyan et al., **Measurement of the  $\tau$  lepton polarization in Z boson decays in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2023). <http://arxiv.org/abs/2309.12408>, arXiv:2309.12408 [hep-ex]
- A. Hayrapetyan et al., **Luminosity determination using Z boson production at the CMS experiment**, (2023). <http://arxiv.org/abs/2309.01008>, arXiv:2309.01008 [hep-ex]
- A. Hayrapetyan et al., **Inclusive and differential cross section measurements of  $t\bar{t}b\bar{b}$  production in the lepton+jets channel at  $\sqrt{s} = 13$  TeV**, (2023). <http://arxiv.org/abs/2309.14442>, arXiv:2309.14442 [hep-ex]
- A. Tumasyan et al., **Measurement of the production cross section for a W boson in association with a charm quark in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, (2023). <http://arxiv.org/abs/2308.02285>, arXiv:2308.02285 [hep-ex]
- A. Hayrapetyan et al., **Search for scalar leptoquarks produced in lepton-quark collisions and coupled to  $\tau$  leptons**, (2023). <http://arxiv.org/abs/2308.06143>, arXiv:2308.06143 [hep-ex]
- A. Hayrapetyan et al., **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**, (2023). <http://arxiv.org/abs/2308.01253>, arXiv:2308.01253 [hep-ex]
- A. Tumasyan et al., **Study of charm hadronization with prompt  $\Lambda_c^+$  baryons in proton-proton and lead-lead collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, (2023). <http://arxiv.org/abs/2307.11186>, arXiv:2307.11186 [nucl-ex]
- A. Tumasyan et al., **Multiplicity and transverse momentum dependence of charge-balance functions in pPb and PbPb collisions at LHC energies**, (2023). <http://arxiv.org/abs/2307.11185>, arXiv:2307.11185 [nucl-ex]
- 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]
- 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)
- G. Aad et al., **Combination of inclusive top-quark pair production cross-section measurements using ATLAS and CMS data at  $\sqrt{s} = 7$  and 8 TeV**, *JHEP*. 07 (2023) 213, doi:[10.1007/JHEP07\(2023\)213](https://doi.org/10.1007/JHEP07(2023)213), arXiv:2205.13830 [hep-ex]

- 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](https://doi.org/10.1038/s41567-022-01838-y), arXiv:[2111.05370](https://arxiv.org/abs/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](https://doi.org/10.1007/JHEP05(2023)233), arXiv:[2204.12945](https://arxiv.org/abs/2204.12945) [hep-ex]
- A. Tumasyan et al., **CMS pythia 8 colour reconnection tunes based on underlying-event data**, *Eur. Phys. J. C.* 83 (2023) 587, doi:[10.1140/epjc/s10052-023-11630-8](https://doi.org/10.1140/epjc/s10052-023-11630-8), arXiv:[2205.02905](https://arxiv.org/abs/2205.02905) [hep-ex]
- A. Tumasyan et al., **Strange hadron collectivity in pPb and PbPb collisions**, *JHEP.* 05 (2023) 007, doi:[10.1007/JHEP05\(2023\)007](https://doi.org/10.1007/JHEP05(2023)007), arXiv:[2205.00080](https://arxiv.org/abs/2205.00080) [nucl-ex]
- A. Tumasyan et al., **Search for medium effects using jets from bottom quarks in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV**, *Phys. Lett. B.* 844 (2023) 137849, doi:[10.1016/j.physletb.2023.137849](https://doi.org/10.1016/j.physletb.2023.137849), arXiv:[2210.08547](https://arxiv.org/abs/2210.08547) [hep-ex]
- A. Tumasyan et al., **Search for a heavy composite Majorana neutrino in events with dilepton signatures from proton-proton collisions at  $s=13$  TeV**, *Phys. Lett. B.* 843 (2023) 137803, doi:[10.1016/j.physletb.2023.137803](https://doi.org/10.1016/j.physletb.2023.137803), arXiv:[2210.03082](https://arxiv.org/abs/2210.03082) [hep-ex]
- A. Tumasyan et al., **Search for  $CP$  violation in  $t\bar{t}H$  and  $tH$  production in multilepton channels in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP.* 07 (2023) 092, doi:[10.1007/JHEP07\(2023\)092](https://doi.org/10.1007/JHEP07(2023)092), arXiv:[2208.02686](https://arxiv.org/abs/2208.02686) [hep-ex]
- A. Tumasyan et al., **Search for high-mass exclusive  $\gamma\gamma \rightarrow WW$  and  $\gamma\gamma \rightarrow ZZ$  production in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP.* 07 (2023) 229, doi:[10.1007/JHEP07\(2023\)229](https://doi.org/10.1007/JHEP07(2023)229), arXiv:[2211.16320](https://arxiv.org/abs/2211.16320) [hep-ex]
- A. Tumasyan et al., **Two-particle azimuthal correlations in  $\gamma p$  interactions using pPb collisions at  $\sqrt{s_{NN}} = 8.16$  TeV**, *Phys. Lett. B.* 844 (2023) 137905, doi:[10.1016/j.physletb.2023.137905](https://doi.org/10.1016/j.physletb.2023.137905), arXiv:[2204.13486](https://arxiv.org/abs/2204.13486) [nucl-ex]
- A. Tumasyan et al., **Measurements of jet multiplicity and jet transverse momentum in multijet events in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Eur. Phys. J. C.* 83 (2023) 742, doi:[10.1140/epjc/s10052-023-11753-y](https://doi.org/10.1140/epjc/s10052-023-11753-y), arXiv:[2210.13557](https://arxiv.org/abs/2210.13557) [hep-ex]
- A. Tumasyan et al., **Measurement of the top quark pole mass using  $t\bar{t}$ +jet events in the dilepton final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP.* 07 (2023) 077, doi:[10.1007/JHEP07\(2023\)077](https://doi.org/10.1007/JHEP07(2023)077), arXiv:[2207.02270](https://arxiv.org/abs/2207.02270) [hep-ex]
- A. Tumasyan et al., **Precision measurement of the Z boson invisible width in pp collisions at  $s=13$  TeV**, *Phys. Lett. B.* 842 (2023) 137563, doi:[10.1016/j.physletb.2022.137563](https://doi.org/10.1016/j.physletb.2022.137563), arXiv:[2206.07110](https://arxiv.org/abs/2206.07110) [hep-ex]
- A. Tumasyan et al., **Search for narrow resonances in the b-tagged dijet mass spectrum in proton-proton collisions at  $s=13$  TeV**, *Phys. Rev. D.* 108 (2023) 012009, doi:[10.1103/PhysRevD.108.012009](https://doi.org/10.1103/PhysRevD.108.012009), arXiv:[2205.01835](https://arxiv.org/abs/2205.01835) [hep-ex]
- A. Tumasyan et al., **Search for pair production of vector-like quarks in leptonic final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP.* 07 (2023) 020, doi:[10.1007/JHEP07\(2023\)020](https://doi.org/10.1007/JHEP07(2023)020), arXiv:[2209.07327](https://arxiv.org/abs/2209.07327) [hep-ex]
- A. Tumasyan et al., **Search for Higgs boson decays into Z and  $J/\psi$  and for Higgs and Z boson decays into  $J/\psi$  or Y pairs in pp collisions at  $s=13$  TeV**, *Phys. Lett. B.* 842 (2023) 137534, doi:[10.1016/j.physletb.2022.137534](https://doi.org/10.1016/j.physletb.2022.137534), arXiv:[2206.03525](https://arxiv.org/abs/2206.03525) [hep-ex]
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- A. Tumasyan et al., **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 (2023) 032008, doi:[10.1103/PhysRevD.108.032008](https://doi.org/10.1103/PhysRevD.108.032008), arXiv:[2208.12837](https://arxiv.org/abs/2208.12837) [hep-ex]
- A. Tumasyan et al., **Proton reconstruction with the CMS-TOTEM Precision Proton Spectrometer**, *JINST.* 18 (2023) P09009, doi:[10.1088/1748-0221/18/09/P09009](https://doi.org/10.1088/1748-0221/18/09/P09009), arXiv:[2210.05854](https://arxiv.org/abs/2210.05854) [hep-ex]

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- A. Tumasyan et al., **Measurement of differential cross sections for the production of a Z boson in association with jets in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Phys. Rev. D.* 108 (2023) 052004, doi:[10.1103/PhysRevD.108.052004](https://doi.org/10.1103/PhysRevD.108.052004), arXiv:[2205.02872](https://arxiv.org/abs/2205.02872) [hep-ex]
- A. Tumasyan et al., **Search for a charged Higgs boson decaying into a heavy neutral Higgs boson and a W boson in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP.* 09 (2023) 032, doi:[10.1007/JHEP09\(2023\)032](https://doi.org/10.1007/JHEP09(2023)032), arXiv:[2207.01046](https://arxiv.org/abs/2207.01046) [hep-ex]
- A. Tumasyan et al., **Measurements of Higgs boson production in the decay channel with a pair of  $\tau$  leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *Eur. Phys. J. C.* 83 (2023) 562, doi:[10.1140/epjc/s10052-023-11452-8](https://doi.org/10.1140/epjc/s10052-023-11452-8), arXiv:[2204.12957](https://arxiv.org/abs/2204.12957) [hep-ex]
- A. Tumasyan et al., **Search for Higgs boson pairs decaying to  $WW^*WW^*$ ,  $WW^*\tau\tau$ , and  $\tau\tau\tau\tau$  in proton-proton collisions at  $\sqrt{s} = 13$  TeV**, *JHEP.* 07 (2023) 095, doi:[10.1007/JHEP07\(2023\)095](https://doi.org/10.1007/JHEP07(2023)095), arXiv:[2206.10268](https://arxiv.org/abs/2206.10268) [hep-ex]
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