

Publication List from all Collaborations and Experiments

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January 1, 2026

A. Hayrapetyan et al., **Characterization of the quantum state of top quark pairs produced in proton-proton collisions at $\sqrt{s} = 13$ TeV using the beam and helicity bases**, (2025). <http://arxiv.org/abs/2512.17557>, arXiv:2512.17557 [hep-ex]

A. Hayrapetyan et al., **Measurement of Z γ production in proton-proton collisions at $\sqrt{s} = 13.6$ TeV and constraints on neutral triple gauge couplings**, (2025). <http://arxiv.org/abs/2512.08582>, arXiv:2512.08582 [hep-ex]

A. Hayrapetyan et al., **Machine-learning techniques for model-independent searches in dijet final states**, (2025). <http://arxiv.org/abs/2512.20395>, arXiv:2512.20395 [hep-ex]

A. Hayrapetyan et al., **Search for new physics in the final state with a single photon and large missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2511.17310>, arXiv:2511.17310 [hep-ex]

V. Chekhovsky et al., **Jet fragmentation function and groomed substructure of bottom quark jets in proton-proton collisions at 5.02 TeV**, (2025). <http://arxiv.org/abs/2511.10666>, arXiv:2511.10666 [hep-ex]

A. Hayrapetyan et al., **Search for low-mass hidden-valley dark showers with non-prompt muon pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2511.11888>, arXiv:2511.11888 [hep-ex]

A. Hayrapetyan et al., **Search for Higgsinos in final states with low-momentum lepton-track pairs at 13 TeV**, (2025). <http://arxiv.org/abs/2511.16394>, arXiv:2511.16394 [hep-ex]

A. Hayrapetyan et al., **Measurements of electroweak production of a photon in association with two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2512.00502>, arXiv:2512.00502 [hep-ex]

A. Hayrapetyan et al., **Search for long-lived particles using displaced vertices with low-momentum tracks in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2511.08212>, arXiv:2511.08212 [hep-ex]

A. Hayrapetyan et al., **Search for heavy H γ and Z γ resonances with a bottom quark-antiquark pair in the final state in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2511.14583>, arXiv:2511.14583 [hep-ex]

V. Chekhovsky et al., **Search for a new neutral gauge boson produced in association with one or two b jets and decaying into a pair of muons in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2511.11853>, arXiv:2511.11853 [hep-ex]

A. Hayrapetyan et al., **Inclusive and differential measurements of the $t\bar{t}\gamma$ cross section and the $t\bar{t}\gamma/t\bar{t}$ cross section ratio in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2511.01995>, arXiv:2511.01995 [hep-ex]

A. Hayrapetyan et al., **Search for light pseudoscalar bosons, pair-produced in Higgs boson decays in the four-electron final state in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2511.19563>, arXiv:2511.19563 [hep-ex]

A. Hayrapetyan et al., **Discovery of suppressed charged-particle production in ultrarelativistic oxygen-oxygen collisions**, (2025). <http://arxiv.org/abs/2510.09864>, arXiv:2510.09864 [nucl-ex]

V. Chekhovsky et al., **Measurement of the ratio of the $B_c^+ \rightarrow J/\psi \tau^+ \nu_\tau$ and $B_c^+ \rightarrow J/\psi \mu^+ \nu_\mu$ branching fractions using three-prong τ lepton decays**, (2025). <http://arxiv.org/abs/2510.21559>, arXiv:2510.21559 [hep-ex]

A. Hayrapetyan et al., **Characterizing the initial state and dynamical evolution in XeXe and PbPb collisions using multiparticle cumulants**, (2025). <http://arxiv.org/abs/2510.26766>, arXiv:2510.26766 [nucl-ex]

A. Hayrapetyan et al., **Observation of long-range collective flow in OO and NeNe collisions and implications for nuclear structure studies**, (2025). <http://arxiv.org/abs/2510.02580>, arXiv:2510.02580 [nucl-ex]

- A. Hayrapetyan et al., **Observation of tWZ production at the CMS experiment**, (2025). <http://arxiv.org/abs/2510.19080>, arXiv:2510.19080 [hep-ex]
- V. Chekhovsky et al., **Search for dark matter production in association with bottom quarks and a lepton pair in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2510.12396>, arXiv:2510.12396 [hep-ex]
- A. Hayrapetyan et al., **Search for dijet resonances with data scouting in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2510.21641>, arXiv:2510.21641 [hep-ex]
- A. Hayrapetyan et al., **Search for single production of a vector-like T quark decaying to a top quark and a neutral scalar boson in the lepton+jets final state in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2510.25874>, arXiv:2510.25874 [hep-ex]
- A. Hayrapetyan et al., **Vector boson scattering and anomalous quartic couplings in final states with $\ell\nu qq$ or $\ell\ell qq$ plus jets using proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2510.00118>, arXiv:2510.00118 [hep-ex]
- A. Hayrapetyan et al., **Search for resonances decaying to an anomalous jet and a Higgs boson in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2509.13635>, arXiv:2509.13635 [hep-ex]
- A. Hayrapetyan et al., **Model-independent measurement of the Higgs boson associated production with two jets and decaying to a pair of W bosons in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2509.07958>, arXiv:2509.07958 [hep-ex]
- A. Hayrapetyan et al., **Measurements of ttW differential cross sections and the leptonic charge asymmetry at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2509.13512>, arXiv:2509.13512 [hep-ex]
- V. Chekhovsky et al., **Measurement of D⁰ meson photoproduction in ultraperipheral heavy ion collisions**, (2025). <http://arxiv.org/abs/2509.08626>, arXiv:2509.08626 [nucl-ex]
- V. Chekhovsky et al., **Measurement of the dineutrino system kinematic variables in dileptonic top quark pair production in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2510.00160>, arXiv:2510.00160 [hep-ex]
- A. Hayrapetyan et al., **First exclusive reconstruction of the B^{*+}, B^{*0}, and B_s^{*0} mesons and precise measurement of their masses**, (2025). <http://arxiv.org/abs/2508.05820>, arXiv:2508.05820 [hep-ex]
- V. Chekhovsky et al., **Search for light pseudoscalar boson pairs produced from Higgs boson decays using the 4 τ and 2 τ final states in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2508.06947>, arXiv:2508.06947 [hep-ex]
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- A. Hayrapetyan et al., **Search for resonant production of pairs of dijet resonances through broad mediators in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2507.17884>, arXiv:2507.17884 [hep-ex]
- A. Hayrapetyan et al., **Probing the flavour structure of dimension-6 EFT operators in multilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2507.17498>, arXiv:2507.17498 [hep-ex]
- A. Hayrapetyan et al., **Machine learning method for enforcing variable independence in background estimation with LHC data: ABCDisCoTEC**, (2025). <http://arxiv.org/abs/2506.08826>, arXiv:2506.08826 [hep-ex]
- V. Chekhovsky et al., **Search for nonresonant new physics signals in high-mass dilepton events produced in association with b-tagged jets in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2506.13565>, arXiv:2506.13565 [hep-ex]

- A. Hayrapetyan et al., **Search for the nonresonant and resonant production of a Higgs boson in association with an additional scalar boson in the $\gamma\gamma\tau\tau$ final state in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2506.23012>, arXiv:2506.23012 [hep-ex]
- G. Aad et al., **Highlights of the HL-LHC physics projections by ATLAS and CMS**, (2025). <http://arxiv.org/abs/2504.00672>, arXiv:2504.00672 [hep-ex]
- V. Chekhovsky et al., **Combination and interpretation of differential Higgs boson production cross sections in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2504.13081>, arXiv:2504.13081 [hep-ex]
- V. Chekhovsky et al., **Observation of coherent $\phi(1020)$ meson photoproduction in ultraperipheral PbPb collisions at $\sqrt{s_{NN}} = 5.36$ TeV**, (2025). <http://arxiv.org/abs/2504.05193>, arXiv:2504.05193 [nucl-ex]
- V. Chekhovsky et al., **Combined effective field theory interpretation of Higgs boson, electroweak vector boson, top quark, and multi-jet measurements**, (2025). <http://arxiv.org/abs/2504.02958>, arXiv:2504.02958 [hep-ex]
- A. Hayrapetyan et al., **Search for charged-lepton flavour violation in top quark interactions with an up-type quark, a muon, and a τ lepton in proton-proton collisions at $\sqrt{s} = 13$ TeV**, (2025). <http://arxiv.org/abs/2504.08532>, arXiv:2504.08532 [hep-ex]
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- V. Chekhovsky et al., **Measurements of the inclusive W and Z boson production cross sections and their ratios in proton-proton collisions at $\sqrt{s} = 13.6$ TeV**, (2025). <http://arxiv.org/abs/2503.09742>, arXiv:2503.09742 [hep-ex]
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- A. Hayrapetyan et al., **Evidence for CP violation and measurement of CP -violating parameters in $B_s^0 \rightarrow J/\psi \phi(1020)$ decays in pp collisions at $\sqrt{s} = 13$ TeV**, (2024). <http://arxiv.org/abs/2412.19952>, arXiv:2412.19952 [hep-ex]
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- 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]
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- A. Hayrapetyan et al., **Constraints on the Higgs boson self-coupling from the combination of single and double Higgs boson production in proton-proton collisions at $s=13$ TeV**, *Phys. Lett. B* 861 (2025) 139210, doi:10.1016/j.physletb.2024.139210, arXiv:2407.13554 [hep-ex]
- A. Hayrapetyan et al., **Review of searches for vector-like quarks, vector-like leptons, and heavy neutral leptons in proton-proton collisions at $\sqrt{s}=13$ TeV at the CMS experiment**, *Phys. Rept.* 1115 (2025) 570–677, doi:10.1016/j.physrep.2024.09.012, arXiv:2405.17605 [hep-ex]

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