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Institute of Physics

Chair of Nuclear Physics and Astrophysics

Head of the chair, assistant

🌐 Language skills

Русский

📖 Publications

Article

Measurement of the Higgs boson mass and width using the four-lepton final state in proton-proton collisions at $\sqrt{s} = 13$ TeV

A. Tumasyan, A. Hayrapetyan, M. Kirakosyan, A. Apresyan, A. Nikitenko, O. Kodolova,

et al. (CMS Collaboration)

Physical Review D 2025 092014

Article

Energy-scaling behavior of intrinsic transverse-momentum parameters in Drell-Yan simulation

A. Tumasyan, A. Hayrapetyan, M. Kirakosyan, A. Nikitenko, O. Kodolova, A. Apresyan,

et al. (CMS Collaboration)

Physical Review D 2025 072003

Article

Proton reconstruction with the TOTEM Roman pot detectors for high- b^* LHC data

A. Tumasyan, A. Hayrapetyan, et al

Journal of Instrumentation 2025 P04012

Article

Search for light long-lived particles decaying to displaced jets in proton-proton collisions at $\sqrt{s} = 13.6$ TeV

A. Tumasyan, A. Hayrapetyan, CMS Collaboration

Reports on Progress in Physics 2025 037801

Article

Search for heavy neutral Higgs bosons A and H in the $t\bar{t}Z$ channel in proton-proton collisions at 13 TeV

A. Tumasyan, A. Hayrapetyan, A. Apresyan, M. Kirakosyan, CMS Collaboration

Physics Letters B 2025 139568

Article

Search for rare decays of the Z and Higgs bosons to a J/Psi or Psi(2S) meson and a photon in proton-proton collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, A. Hayrapetyan, A. Apresyan, M. Kirakosyan, CMS Collaboration

Article

Search for Nuclear Modifications of B⁺ Meson Production in p-Pb Collisions at $\sqrt{s_{NN}} = 8.16$ TeV

A. Tumasyan, A. Hayrapetyan, A. Apresyan, M. Kiraksyan, A. Nikitenko, O. Kodolova, CMS Collaboration
Physical Review Letters 2025 111903

Article

Search for New Resonances Decaying to Pairs of Merged Diphotons in Proton-Proton Collisions at $\sqrt{s} = 13$ TeV

A. Tumasyan, A. Hayrapetyan, O. Kodolova, A. Nikitenko, A. Apresyan, M. Kirakosyan, CMS Collaboration
Physical Review Letters 2025 041801

Article

Search for pair production of heavy particles decaying to a top quark and a gluon in the lepton+jets final state in proton-proton collisions at $\sqrt{s} = 13$ TeV

A. Tumasyan, A. Hayrapetyan, CMS Collaboration 2389
European Physical Journal C 2025 342

Article

Constraints on standard model effective field theory for a Higgs boson produced in association with W or Z bosons in the $H \rightarrow b\bar{b}$ decay channel in proton-proton collisions at $\sqrt{s} = 13$ TeV

A. Tumasyan, A. Hayrapetyan, CMS collaboration
Journal of High Energy Physics 2025 114

Article

Measurement of the inclusive WZ production cross section in pp collisions at $\sqrt{s} = 13.6$ TeV

A. Tumasyan, A. Hayrapetyan, CMS collaboration
Journal of High Energy Physics 2025 115

Article

Model-agnostic search for dijet resonances with anomalous jet substructure in proton-proton collisions at $\sqrt{s} = 13$ TeV

A. Tumasyan, A. Hayrapetyan, CMS Collaboration
Reports on Progress in Physics 2025 067802

Article

Stairway to discovery: A report on the CMS programme of cross section measurements from millibarns to femtobarns

A. Tumasyan, A. Hayrapetyan, CMS Collaboration
Physics Reports 2025 3-115

Article

Dark sector searches with the CMS experiment

A. Tumasyan, A. Hayrapetyan, CMS Collaboration
Physics Reports 2025 448-569

Article

Search for pair production of scalar and vector leptoquarks decaying to muons and bottom quarks in proton-proton collisions at $\sqrt{s}=13$ TeV

Tumasyan A., Hayrapetyan A., et al. 2283

Physical Review D 2024 112003

Article

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 $\sqrt{s}=13$ TeV

A. Tumasyan, A. Hayrapetyan, et al. 2319

Physical Review D 2024 072004

Article

Muon identification using multivariate techniques in the CMS experiment in proton-proton collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, A. Hayrapetyan, CMS collaboration 1917

Journal of Instrumentation 2024 P02031

Article

Luminosity determination using Z boson production at the CMS experiment

A. Tumasyan, A. Hayrapetyan, CMS Collaboration 2345

European Physical Journal C 2024 26

Article

Measurement of multijet azimuthal correlations and determination of the strong coupling in proton-proton collisions at $\sqrt{s} = 13$ TeV

A. Tumasyan, A. Hayrapetyan, CMS Collaboration 2321

European Physical Journal C 2024 842

Article

Observation of WW γ Production and Search for H γ Production in Proton-Proton Collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, A. Hayrapetyan, CMS Collaboration 2191

Physical Review Letters 2024 21901

Article

New Structures in the J/Psi η /Psi Mass Spectrum in Proton-Proton Collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, A. Hayrapetyan, CMS Collaboration 2320

Physical Review Letters 2024 111901

Article

Two-particle Bose-Einstein correlations and their Lévy parameters in PbPb collisions at $\sqrt{s_{NN}}=5.02$ TeV

A. Tumasyan, CMS Collaboration 2288

Physical Review C 2024 024914

Article

Measurements of azimuthal anisotropy of nonprompt D0 mesons in PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV

A. Tumasyan, CMS Collaboration 2312

Physics Letters B 2024 138389

Article

Search for new Higgs bosons via same-sign top quark pair production in association with a jet in proton-proton collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, A. Hayrapetyan, CMS Collaboration 2305

Physics Letters B 2024 138478

Article

Search for long-lived particles decaying to final states with a pair of muons in proton-proton collisions at $\sqrt{s} = 13.6$ TeV

A. Tumasyan, Hayrapetyan A., CMS collaboration 2305

Journal of High Energy Physics 2024 47

Article

Extracting the speed of sound in quark-gluon plasma with ultrarelativistic lead-lead collisions at the LHC

A. Tumasyan, A. Hayrapetyan, CMS Collaboration

Reports on Progress in Physics 2024 077801

Article

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

A. Tumasyan, A. A. Hayrapetyan, CMS collaboration

Journal of High Energy Physics 2024 123

Article

Measurements of polarization and spin correlation and observation of entanglement in top quark pairs using lepton + jets events from proton-proton collisions at $\sqrt{s} = 13$ TeV

A. Tumasyan, A. Hayrapetyan¹, A. Nikitenko, M. Kirakosyan, A. Apresyan, CMS Collaboration

Physical Review D 2024 112016

Article

Performance of the CMS high-level trigger during LHC Run 2

A. Tumasyan, A. Hayrapetyan, et al

Journal of Instrumentation 2024 P11021

Article

Search for CP violation in $D^0 \rightarrow K^0_S K^0_S$ decays in proton-proton collisions at $\sqrt{s} = 13$ TeV

A. Tumasyan, A. Hayrapetyan, CMS Collaboration

European Physical Journal C 2024 1264

Article

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

A. Tumasyan, et al. 2278

Physical Review D 2023 052004

Article

Constraints on anomalous Higgs boson couplings to vector bosons and fermions from the production of Higgs bosons using the $t\bar{t}$ final state

A. Tumasyan, et al. 2283

Article

Measurements of Higgs boson production in the decay channel with a pair of τ leptons in proton-proton collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, CMS Collaboration 2338

European Physical Journal C 2023 562

Article

Measurement of the top quark mass using a profile likelihood approach with the lepton + jets final states in proton-proton collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, CMS Collaboration 2340

European Physical Journal C 2023 963

Article

Performance of the local reconstruction algorithms for the CMS hadron calorimeter with Run 2 data

A. Tumasyan, CMS collaboration 2322

Journal of Instrumentation 2023 P11017

Article

Search for Higgs Boson Decay to a Charm Quark-Antiquark Pair in Proton-Proton Collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, CMS Collaboration 2362

Physical Review Letters 2023 061801

Article

Observation of τ Lepton Pair Production in Ultraperipheral Pb-Pb Collisions at $\sqrt{s_{NN}}=5.02$ TeV

A. Tumasyan, CMS Collaboration 2335

Physical Review Letters 2023 151803

Article

Observation of four top quark production in proton-proton collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, CMS Collaboration 2318

Physics Letters B 2023 138290

Article

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

A. Tumasyan, CMS Collaboration 2295

Physics Letters B 2023 137460

Article

Searches for additional Higgs bosons and for vector leptoquarks in $\tau\tau$ final states in proton-proton collisions at $\sqrt{s}=13$ TeV

A. Tumasyan, CMS collaboration 2380

Journal of High Energy Physics 2023 73

Article

Search for physics beyond the standard model in top quark production with additional

leptons in the context of effective field theory

A. Tumasyan, A. Hayrapetyan, CMS collaboration

Journal of High Energy Physics 2023 68
