CMS Physics Publications

March 21, 2019


- 838. Search for charged Higgs bosons in the $H^\pm \rightarrow \tau^\pm \nu_\tau$ decay channel in proton-proton collisions at $\sqrt{s} = 13$ TeV, Submitted to JHEP, arXiv:1903.04560.


- 836. Search for a heavy pseudoscalar boson decaying to a $Z$ and a Higgs boson at $\sqrt{s} = 13$ TeV, Submitted to EPJC, arXiv:1903.00941.

- 835. Combinations of single-top-quark production cross-section measurements and $|f_{LVV}|$ determinations at $\sqrt{s} = 7$ and 8 TeV with the ATLAS and CMS experiments, Submitted to JHEP, arXiv:1902.07158.


- 832. Measurement of exclusive $\rho(770)^0$ photoproduction in ultraperipheral pPb collisions at $\sqrt{\dmb s_{\text{NN}}} = 5.02$ TeV, Submitted to EPJC, arXiv:1902.01339.

- 831. Observation of two excited $B_{c}^+(2S)$ states and measurement of the $B_{c}^+(2S)$ mass in pp collisions at $\sqrt{s} = 13$ TeV, Accepted by PRL, arXiv:1902.00571.

• 829. Charged-particle angular correlations in XeXe collisions at $\sqrt{s_{\text{NN}}}$ = 5.44 TeV, Submitted to PRC, arXiv:1901.07997.


• 825. 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 TeV, Accepted by JHEP, arXiv:1901.01553.

• 824. Search for the pair production of light top squarks in the e±µ∓ final state in proton-proton collisions at $\sqrt{s}$ = 13 TeV, Accepted by JHEP, arXiv:1901.01288.


• 822. Measurement of the top quark mass in the all-jets final state at $\sqrt{s}$ = 13 TeV and combination with the lepton+jets channel, Accepted by EPJC, arXiv:1812.10534.

• 821. 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 TeV, Submitted to PLB, arXiv:1812.10514.


• 819. Measurement of the $t\bar{t}$ production cross section, the top quark mass, and the strong coupling constant using dilepton events in pp collisions at $\sqrt{s}$ = 13 TeV, Submitted to EPJC, arXiv:1812.10505.

• 818. Search for contact interactions and large extra dimensions in the dilepton mass spectra from proton-proton collisions at $\sqrt{s}$ = 13 TeV, Submitted to JHEP, arXiv:1812.10443.


• 812. Observation of single top quark production in association with a Z boson in proton-proton collisions at \( \sqrt{s} = 13 \) TeV, Accepted by PRL, arXiv:1812.05900.


• 809. Measurement of inclusive very forward jet cross sections in proton-lead collisions at \( \sqrt{\hat{s}_{NN}} = 5.02 \) TeV, Submitted to JHEP, arXiv:1812.01691.


• 807. Measurement of associated production of a W boson and a charm quark in proton-proton collisions at \( \sqrt{s} = 13 \) TeV, Accepted by EPJC, arXiv:1811.10021.


• 805. Search for resonant production of second-generation sleptons with same-sign dimuon events in proton-proton collisions at \( \sqrt{s} = 13 \) TeV, Accepted by EPJC, arXiv:1811.09760.

• 804. Search for associated production of a Higgs boson and a single top quark in proton-proton collisions at \( \sqrt{s} = 13 \) TeV, Submitted to PRD, arXiv:1811.09696.
• 803. Combination of searches for Higgs boson pair production in proton-proton collisions at $\sqrt{s} = 13$ TeV.
  Accepted by PRL, arXiv:1811.09689.

• 802. 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.
  Accepted by PLB, arXiv:1811.08459.

• 801. Search for long-lived particles decaying into displaced jets in proton-proton collisions at $\sqrt{s} = 13$ TeV,

• 800. Measurements of $t\bar{t}$ differential cross sections in proton-proton collisions at $\sqrt{s} = 13$ TeV using events containing two leptons,

• 799. Search for a $W'$ boson decaying to a vector-like quark and a top or bottom quark in the all-jets final state,
  Accepted by JHEP, arXiv:1811.07010.

• 798. Search for dark matter produced in association with a Higgs boson decaying to a pair of bottom quarks in proton-proton collisions at $\sqrt{s} = 13$ TeV,
  Accepted by EPJC, arXiv:1811.06562.

• 797. Search for excited leptons in $\ell\ell\gamma$ final states in proton-proton collisions at $\sqrt{s} = 13$ TeV,
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• 796. Search for pair production of first-generation scalar leptoquarks at $\sqrt{s} = 13$ TeV,

• 795. Event shape variables measured using multijet final states in proton-proton collisions at $\sqrt{s} = 13$ TeV,

• 794. Search for heavy neutrinos and third-generation leptoquarks in hadronic states of two $\tau$ leptons and two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV,
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• 793. Search for nonresonant Higgs boson pair production in the $b\bar{b}b\bar{b}$ final state at $\sqrt{s} = 13$ TeV,

• 792. Search for low-mass resonances decaying into bottom quark-antiquark pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV,

• 791. Studies of beauty suppression via nonprompt $D^0$ mesons in PbPb collisions at $\sqrt{b_N}=5.02$ TeV,


• 787. Search for resonant $t\bar{t}$ production in proton-proton collisions at $\sqrt{s} = 13$ TeV, Submitted to JHEP, arXiv:1810.05905.

• 786. Centrality and pseudorapidity dependence of the transverse energy density in pPb collisions at $\sqrt{b_{NN}} = 5.02$ TeV, Submitted to PRC, arXiv:1810.05745.


• 784. Search for top quark partners with charge $5/3$ in the same-sign dilepton and single-lepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV, Accepted by JHEP, arXiv:1810.03188.

• 783. Measurement of $B^0_s$ meson production in pp and PbPb collisions at $\sqrt{b_{NN}} = 5.02$ TeV, Submitted to PLB, arXiv:1810.03022.


• 780. Measurement of exclusive $\Upsilon$ photoproduction from protons in pPb collisions at $\sqrt{b_{NN}} = 5.02$ TeV, Accepted by EPJC, arXiv:1809.11080.


• 778. Jet shapes of isolated photon-tagged jets in PbPb and pp collisions at $\sqrt{b_{NN}} = 5.02$ TeV, Accepted by PRL, arXiv:1809.08602.

• 776. Search for invisible decays of a Higgs boson produced through vector
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• 765. Search for pair-produced resonances decaying to quark pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV,

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• 758. Search for a W' boson decaying to a $\tau$ lepton and a neutrino in proton-proton collisions at $\sqrt{s} = 13$ TeV, Accepted by PLB, arXiv:1807.11421.


745. Search for the decay of a Higgs boson in the $\ell\ell\gamma$ channel in proton-proton collisions at $\sqrt{s} = 13$ TeV, JHEP 11 (2018) 152, arXiv:1806.05996.


742. Search for dark matter produced in association with a Higgs boson decaying to $\gamma\gamma$ or $\tau^+\tau^-$ at $\sqrt{s} = 13$ TeV, JHEP 09 (2018) 046, arXiv:1806.04771.


• 734. Search for Higgs boson pair production in the $\gamma\gamma b\bar{b}$ final state in pp collisions at $\sqrt{s} = 13$ TeV, PLB 788 (2018) 7, arXiv:1806.00408.


• 732. Observation of the $\chi_{b1}(3P)$ and $\chi_{b2}(3P)$ and measurement of their masses, PRL 121 (2018) 092002, arXiv:1805.11192.


• 729. Measurement of nuclear modification factors of $\Upsilon(1S)$, $\Upsilon(2S)$, and $\Upsilon(3S)$ mesons in PbPb collisions at $\sqrt{\mathcal{b}}_{NN} = 5.02$ TeV, PLB 790 (2019) 270, arXiv:1805.09215.


• 724. Search for vector-like T and B quark pairs in final states with leptons at $\sqrt{s} = 13$ TeV, 

• 723. Search for an exotic decay of the Higgs boson to a pair of light pseudoscalars in the final state of two muons and two $\tau$ leptons in proton-proton collisions at $\sqrt{s} = 13$ TeV, 

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• 706. Search for additional neutral MSSM Higgs bosons in the \( \tau\tau \) final state in proton-proton collisions at \( \sqrt{s} = 13 \) TeV, JHEP 09 (2018) 007, arXiv:1803.06553.


• 704. Evidence for associated production of a Higgs boson with a top quark pair in final states with electrons, muons, and hadronically decaying \( \tau \) leptons at \( \sqrt{s} = 13 \) TeV, JHEP 08 (2018) 066, arXiv:1803.05485.


• 701. Search for a heavy resonance decaying into a Z boson and a vector boson in the \( \nu\nuq\bar{q} \) final state, JHEP 07 (2018) 075, arXiv:1803.03838.

• 700. Search for third-generation scalar leptoquarks decaying to a top quark and a \( \tau \) lepton at \( \sqrt{s} = 13 \) TeV, EPJC 78 (2018) 707, arXiv:1803.02864.


• 698. Search for a heavy resonance decaying to a pair of vector bosons in the lepton plus merged jet final state at \( \sqrt{s} = 13 \) TeV, JHEP 05 (2018) 088, arXiv:1802.09407.

• 696. Measurement of the $\Lambda_b$ polarization and angular parameters in $\Lambda_b \to J/\psi \Lambda$ decays from pp collisions at $\sqrt{s} = 7$ and 8 TeV, PRD 97 (2018) 072010, arXiv:1802.04867.


• 691. Search for lepton-flavor violating decays of heavy resonances and quantum black holes to $e\mu$ final states in proton-proton collisions at $\sqrt{s} = 13$ TeV, JHEP 04 (2018) 073, arXiv:1802.01122.


• 677. Search for the X(5568) state decaying into $B_s^0\pi^\pm$ in proton-proton collisions at $\sqrt{s} = 8$ TeV, PRL 120 (2018) 202005, arXiv:1712.06144.


• 673. 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, JHEP 06 (2018) 102, arXiv:1712.02399.


• 662. Measurement of the inclusive t$\bar{t}$ cross section in pp collisions at $\sqrt{s} = 5.02$ TeV using final states with at least one charged lepton, JHEP 03 (2018) 115, arXiv:1711.03143.


• 649. 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, PLB 781 (2018) 244.

• 648. Measurement of angular parameters from the decay $B^0 \rightarrow K^{*0} \mu^+ \mu^-$ in proton-proton collisions at $\sqrt{s} = 8$ TeV, PLB 781 (2018) 517, arXiv:1710.02846.

• 647. Search for pair production of vector-like quarks in the $b\bar{W}b\bar{W}$ channel from proton-proton collisions at $\sqrt{s} = 13$ TeV, PLB 779 (2018) 82, arXiv:1710.01539.


• 636. Combination of inclusive and differential $t\bar{t}$ charge asymmetry measurements using ATLAS and CMS data at $\sqrt{s} = 7$ and 8 TeV, JHEP 04 (2018) 033, arXiv:1709.05327.


• 610. Search for heavy resonances that decay into a vector boson and a Higgs boson in hadronic final states at $\sqrt{s} = 13$ TeV, EPJC 77 (2017) 636, arXiv:1707.01303.

• 609. A search for Higgs boson pair production in the $bb\tau\tau$ final state in proton-proton collisions at $\sqrt{s} = 8$ TeV, PRD 96 (2017) 072004, arXiv:1707.00350.


• 603. Exclusive and semi-exclusive $\pi^+\pi^-$ production in proton-proton collisions at $\sqrt{s} = 7$ TeV, Submitted to PRD, arXiv:1706.08310.


• 601. Suppression of excited $\Upsilon$ states relative to the ground state in PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV, PRL 120 (2018) 142301, arXiv:1706.05984.


• 593. Search for low mass vector resonances decaying to quark-antiquark pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV,

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• 582. Measurement of the top quark mass in the dileptonic $t\bar{t}$ decay channel using the mass observables $M_{bd}$, $M_{T2}$, and $M_{d_{\nu}}$ in pp collisions at $\sqrt{s} = 8$ TeV,
• 581. Search for $t\bar{t}$ resonances in highly-boosted lepton+jets and fully hadronic final states in proton-proton collisions at $\sqrt{s} = 13$ TeV, JHEP 07 (2017) 001, arXiv:1704.03366.

• 580. Measurements of the $pp \to W\gamma\gamma$ and $pp \to Z\gamma\gamma$ cross sections and limits on anomalous quartic gauge couplings at $\sqrt{s} = 8$ TeV, JHEP 10 (2017) 072, arXiv:1704.00366.


• 578. Measurement of the jet mass in highly boosted $t\bar{t}$ events from $pp$ collisions at $\sqrt{s} = 8$ TeV, EPJC 77 (2017) 467, arXiv:1703.06330.


• 576. Search for anomalous couplings in boosted $WW/WZ \to \ell\nu q\bar{q}$ production in proton-proton collisions at $\sqrt{s} = 8$ TeV, PLB 772 (2017) 21, arXiv:1703.06095.

• 575. Search for associated production of dark matter with a Higgs boson decaying to $b\bar{b}$ or $\gamma\gamma$ at $\sqrt{s} = 13$ TeV, JHEP 10 (2017) 180, arXiv:1703.05236.


• 562. 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, JHEP 05 (2017) 029, arXiv:1701.07409.


• 560. 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, JHEP 09 (2017) 051, arXiv:1701.06228.


• 554. Search for massive resonances decaying into WW, WZ or ZZ bosons in proton-proton collisions at $\sqrt{s} = 13$ TeV, JHEP 03 (2017) 162, arXiv:1612.09159.


• 548. Search for heavy neutrinos or third-generation leptoquarks in final states with two hadronically decaying $\tau$ leptons and two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV, JHEP 03 (2017) 077, arXiv:1612.01190.

• 547. 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, PLB 771 (2017) 80, arXiv:1612.00999.

• 546. Search for CP violation in $t\bar{t}$ production and decay in proton-proton collisions at $\sqrt{s} = 8$ TeV, JHEP 03 (2017) 101, arXiv:1611.08931.


• 542. Measurement of the $t\bar{t}$ production cross section using events in the $e\mu$ final state in pp collisions at $\sqrt{s} = 13$ TeV,

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• 532. Observation of $\Upsilon(1S)$ pair production in proton-proton collisions at $\sqrt{s} = 8$ TeV,

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• 530. Search for top quark decays via Higgs-boson-mediated flavor-changing neutral currents in pp collisions at $\sqrt{s} = 8$ TeV,


• 525. Search for high-mass $Z\gamma$ resonances in $e^+e^-\gamma$ and $\mu^+\mu^-\gamma$ final states in proton-proton collisions at $\sqrt{s} = 8$ and 13 TeV, JHEP 01 (2017) 076, arXiv:1610.02960.


• 503. Search for lepton flavour violating decays of the Higgs boson to $e\tau$ and $e\mu$ in proton-proton collisions at $\sqrt{s}=8$ TeV, PLB 763C (2016) 472, arXiv:1607.03561.


• 491. Search for top squark pair production in compressed-mass-spectrum scenarios in proton-proton collisions at $\sqrt{s}=8$ TeV using the $\alpha_T$ variable, PLB 767 (2017) 403, arXiv:1605.08993.


• 484. 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, JHEP 09 (2016) 051, arXiv:1605.02329.


• 477. Search for two Higgs bosons in final states containing two photons and two bottom quarks,

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• 463. 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, PLB 760 (2016) 448, arXiv:1602.07152.


• 455. Search for massive WH resonances decaying into the $\ell\nu b\bar{b}$ final state at $\sqrt{s} = 8$ TeV , EPJC 76 (2016) 237, arXiv:1601.06431.


• 452. Measurements of t\bar{t} spin correlations and top quark polarization using dilepton final states in pp collisions at $\sqrt{s} = 8$ TeV, PRD 93 (2016) 052007, arXiv:1601.01107.


• 437. Search for a light charged Higgs boson decaying to $c\bar{s}$ in pp collisions at $\sqrt{s} = 8$ TeV,

• 436. Transverse momentum spectra of $b$ jets in pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV,

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• 430. Search for the associated production of a Higgs boson with a single top quark in proton-proton collisions at $\sqrt{s} = 8$ TeV,

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• 415. Search for neutral MSSM Higgs bosons decaying to $\mu^+\mu^-$ in pp collisions at $\sqrt{s} = 7$ and 8 TeV, PLB 752 (2016) 221, arXiv:1508.01437.


• 413. Angular analysis of the decay $B^0 \rightarrow K^{*0}\mu^+\mu^-$ from pp collisions at $\sqrt{s} = 8$ TeV, PLB 753 (2016) 424, arXiv:1507.08126.

• 412. Measurement of the CP-violating weak phase $\phi_s$ and the decay width difference $\Delta\Gamma_s$ using the $B^0_s \rightarrow J/\psi\phi(1020)$ decay channel in pp collisions at $\sqrt{s} = 8$ TeV, PLB 757 (2016) 97, arXiv:1507.07527.

• 410. Search for pair-produced vectorlike B quarks in proton-proton collisions at $\sqrt{s} = 8$ TeV,

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• 398. 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,


• 392. Search for a pseudoscalar boson decaying into a $Z$ boson and the 125 GeV Higgs boson in $\ell^+\ell^-b\bar{b}$ final states, PLB 748 (2015) 221, arXiv:1504.04710.


• 388. Search for a Higgs boson in the mass range from 145 to 1000 GeV decaying to a pair of $W$ or $Z$ bosons, JHEP 10 (2015) 144, arXiv:1504.00936.


• 382. Measurements of the ZZ production cross sections in the $2\ell 2\nu$ channel in proton-proton collisions at $\sqrt{s} = 7$ and 8 TeV and combined constraints on triple gauge couplings, EPJC 75 (2015) 511, arXiv:1503.05467.


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