

Rebeca Gonzalez Suarez - Publication List

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Metrics

As of March 29, 2021:

	Citeable papers	Published only
Number of papers	1,038	993
Number of citations	120,262	119,886
Average citations per paper	98.8	104.2
hHEP index	157	157

The contributions listed here are labeled when it corresponds using the following convention:

[PA = Primary Author; ED = Editor, Corresponding Author; C = Contributor; R = Review]

Additionally to this, the ten most relevant peer-reviewed publications are highlighted.

I am an ATLAS Collaboration author since 2019. I was an author of the CMS collaboration from 2006 until 2018.

Main publications

Publications in which I have had a personal contribution, in reverse chronological order. The ten most relevant publications are marked with a ★ sign.

Searches for Long-Lived Particles at the FCC-ee Snowmass2021 - Letter of Interest. [PA, ED]

To catch a long-lived particle: hit selection towards a regional hardware track trigger implementation, Mikael Mårtensson, Max Isacson, Hampus Hahne, Rebeca Gonzalez Suarez, Richard Brenner, arXiv:1907.09846 JINST 14 P11009 (2019) [PA, ED]

Recent CMS results in top and Higgs physics, Rebeca Gonzalez Suarez, arXiv:1707.05054, Modern Physics Letters A, 2, Vol. 32, No. 29 (2017) 1730026 [PA, ED]

Measurement of the transverse momentum spectrum of the Higgs boson produced in pp collisions at $\sqrt{s} = 8$ TeV using H to WW decays, CMS Collaboration, arXiv:1606.01522, JHEP 03 (2017) 032 [R - Higgs to WW]

Measurement of the W boson helicity fractions in the decays of top quark pairs to lepton+jets final states produced in pp collisions at $\sqrt{s} = 8$ TeV, CMS Collaboration, arXiv:1605.09047, Phys. Lett. B 762 (2016) 512 [R - ARC]

Measurements of the Higgs boson production and decay rates and constraints on its couplings from a combined ATLAS and CMS analysis of the LHC pp collision data at $\sqrt{s} = 7$ and 8 TeV, ATLAS and CMS Collaborations, arXiv:1606.02266, JHEP 1608 (2016) 045. [C]

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, CMS Collaboration, arXiv:1605.02329, JHEP 09 (2016) 051 [R - Higgs to WW]
500th paper of CMS

Search for s channel single top quark production in pp collisions at $\sqrt{s} = 7$ and 8 TeV, CMS Collaboration, arXiv:1603.02555, JHEP 09 (2016) 027 [R - Single Top]

Search for anomalous single top quark production in association with a photon in pp collisions at $\sqrt{s} = 8$ TeV, CMS Collaboration, arXiv:1511.03951, JHEP 04 (2016) 035 [R - Single Top]

Measurement of top quark polarisation in t-channel single top quark production, CMS Collaboration, arXiv:1511.02138, JHEP 04 (2016) 073 [R - Single Top]

★ **Search for the associated production of a Higgs boson with a single top quark in proton-proton collisions at $\sqrt{s} = 8$ TeV**, CMS Collaboration, arXiv:1509.08159, JHEP06(2016)177 [C, R-ARC]
Cited by 52.

Measurement of the Charge Asymmetry in Top Quark Pair Production in pp Collisions at $\sqrt{s} = 8$ TeV using a Template Method, CMS Collaboration, arXiv:1508.03862, Phys. Rev. D 93, 034014 (2016) [R-ARC]

Search for a standard model Higgs boson produced in association with a top-quark pair and decaying to bottom quarks using a matrix element method, CMS Collaboration, arXiv:1502.02485, Eur. Phys. J. C 75 (2015) 251 [R-ARC]

Precise determination of the mass of the Higgs boson and tests of compatibility of its couplings with the standard model predictions using proton collisions at 7 and 8 TeV, CMS Collaboration, arXiv:1412.8662, Eur. Phys. J. C 75 (2015) 212 [C]

★ **Constraints on the spin-parity and anomalous HVV couplings of the Higgs boson in proton collisions at 7 and 8 TeV**, CMS Collaboration, arXiv:1411.3441, Phys. Rev. D 92, 012004 (2015) [PA, ED]
Cited by 475.

Measurement of the W boson helicity in events with a single reconstructed top quark in pp collisions at $\sqrt{s}=8$ TeV, *CMS Collaboration*, arXiv:1410.1154, JHEP01(2015)053 [R - Single Top]

★ **Search for monotop signatures in proton-proton collisions at $\sqrt{s}=8$ TeV**, *CMS Collaboration*, arXiv:1410.1149, Phys. Rev. Lett. 114, 101801 (2015) [R - Chair of the Review]
Cited by [79](#).

★ **Observation of the associated production of a single top quark and a W boson in pp collisions at $\sqrt{s}=8$ TeV**, *CMS Collaboration*, arXiv:1401.2942, Phys. Rev. Lett. 112, 231802. [PA]
Cited by [198](#).

Measurement of the t-channel single-top-quark production cross section and of the $|V_{tb}|$ CKM matrix element in pp collisions at $\sqrt{s}=8$ TeV, *CMS Collaboration*, arXiv:1403.7366, JHEP 06 (2014) 090 [R - Single top]

Searches for electroweak production of charginos, neutralinos, and sleptons decaying to leptons and W, Z, and Higgs bosons in pp collisions at 8 TeV, *CMS Collaboration*, arXiv:1405.7570, Eur. Phys. J. C 74 (2014) [R-ARC]

★ **Measurement of Higgs boson production and properties in the WW decay channel with leptonic final states**, *CMS Collaboration*, arXiv:1312.1129, JHEP 01(2014)096 [PA]
Cited by [443](#).

Snowmass 2013 Top quark working group report, (*Top Quark Working Group Collaboration*), arXiv:1311.2028 [C]

Observation of a new boson with mass near 125 GeV in pp collisions at $\sqrt{s}=7$ and 8 TeV, *CMS Collaboration*, arXiv:1303.4571, JHEP 1306 (2013) 081 [C]

★ **Evidence for associated production of a single top quark and W boson in pp collisions at 7 TeV**, *CMS Collaboration*, arXiv:1209.3489, Phys. Rev. Lett. 110, 022003 (2013) [PA, ED]
Cited by [166](#).

Search for electroweak production of charginos and neutralinos using leptonic final states in pp collisions at $\sqrt{s}=7$ TeV, *CMS Collaboration*, arXiv:1209.6620, JHEP 1211 (2012) 147 [R-ARC]

★ **Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC**, *CMS Collaboration*, arXiv:1207.7235, Phys.Lett. B716 (2012) 30-61 [C]
Cited by [11,745](#).

Search for physics beyond the standard model in events with a Z boson, jets, and missing transverse energy in pp collisions at $\sqrt{s}=7$ TeV, *CMS Collaboration*, arXiv:1204.3774, Physics Letters B 716 (2012) 260-284 [R-ARC]

★ **Search for the standard model Higgs boson decaying to a W pair in the fully leptonic final state in pp collisions at $\sqrt{s}=7$ TeV**, *CMS Collaboration*, arXiv:1202.1489, Phys.Lett. B 710 (2012) 91-113 [C]
Cited by [184](#).

★ **Measurement of the $t\bar{t}$ Production Cross Section in pp Collisions at 7 TeV in Lepton + Jets Events Using b-quark Jet Identification**, *CMS Collaboration*, arXiv:1108.3773, Phys.Rev. D84 (2011) 092004 [C]
Cited by [138](#).

★ **Measurement of W^+W^- Production and Search for the Higgs Boson in pp Collisions at $\sqrt{s}=7$ TeV**, *CMS Collaboration*, arXiv:1102.5429, Phys.Lett. B 699 (2011) 25-47 [C]
Cited by [179](#).

Publications from top

Publications submitted to journals during (or shortly after) my period as convener of the top quark physics analysis group in CMS, in reverse chronological order:

Search for new physics in top quark production in dilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, Eur. Phys. J. C 79 (2019) 886, arXiv:1903.11144

Combinations of single-top-quark production cross-section measurements and $|f_{LV}V_{tb}|$ determinations at $\sqrt{s} = 7$ and 8 TeV with the ATLAS and CMS experiments *ATLAS and CMS Collaborations*, JHEP 05 (2019) 088, arXiv:1902.07158

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 *CMS Collaboration*, Submitted to Phys. Lett. B, arXiv:1812.10514

Measurement of the top quark mass in the all-jets final state at $\sqrt{s} = 13$ TeV and combination with the lepton+jets channel *CMS Collaboration*, Eur. Phys. J. C 79 (2019) 313, arXiv:1812.10534

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 *CMS Collaboration*, Eur. Phys. J. C 79 (2019) 368, arXiv:1812.10505

Measurements of $t\bar{t}$ differential cross sections in proton-proton collisions at $\sqrt{s} = 13$ TeV using events containing two leptons *CMS Collaboration*, JHEP 02 (2019) 149, arXiv:1811.06625

Measurement of jet substructure observables in $t\bar{t}$ events from proton-proton collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, Phys. Rev. D 98, 092014 (2018), arXiv:1808.073403

Evidence for the associated production of a single top quark and a photon in proton-proton collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, Phys. Rev. Lett. 121, 221802 (2018), arXiv:1808.02913

Study of the underlying event in top quark pair production in pp collisions at 13 TeV *CMS Collaboration*, Eur. Phys. J. C 79 (2019) 123 arXiv:1807.02810

Measurement of the production cross section for single top quarks in association with W bosons in proton-proton collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, JHEP 10 (2018) 117, arXiv:1805.07399

Measurement of the top quark mass with lepton+jets final states using pp collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, Eur. Phys. J. C 78 (2018) 891, arXiv:1805.01428

Measurement of differential cross sections for the production of top quark pairs and of additional jets in lepton+jets events from pp collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, Phys. Rev. D 97, 112003 (2018), arXiv:1803.08856

Measurements of differential cross sections of top quark pair production as a function of kinematic event variables in proton-proton collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, JHEP 06 (2018) 002, arXiv:1803.03991

Measurement of the associated production of a single top quark and a Z boson in pp collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, Phys.Lett. B779 (2018) 358-384, arXiv:1712.02825

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 *CMS Collaboration*, JHEP 06 (2018) 102, arXiv:1712.02399

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 *CMS Collaboration*, JHEP 03 (2018) 115, arXiv:1711.03143

Measurement of the cross section for top quark pair production in association with a W or Z boson in proton-proton collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, JHEP 08 (2018) 011, arXiv:1711.02547

Search for standard model production of four top quarks with same-sign and multilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, Eur. Phys. J. C (2018) 78: 140, arXiv:1710.10614

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

Measurement of normalized differential $t\bar{t}$ cross sections in the dilepton channel from pp collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, JHEP 04 (2018) 060, arXiv:1708.07638

Measurement of the semileptonic $t\bar{t} + \gamma$ production cross section in pp collisions at $\sqrt{s} = 8$ TeV *CMS Collaboration*, JHEP 10 (2017) 006, arXiv:1706.08128

Measurements of $t\bar{t}$ cross sections in association with b jets and inclusive jets and their ratio using dilepton final states in pp collisions at $\sqrt{s} = 13$ TeV *CMS Collaboration*, Phys. Lett. B 776 (2017) 355, arXiv:1705.10141

Measurement of the top quark mass in the dileptonic $t\bar{t}$ decay channel using the mass observables M_{bl} , M_{T2} , and M_{lb} in pp collisions at $\sqrt{s} = 8$ TeV *CMS Collaboration*, Phys. Rev. D 96 (2017) 032002, arXiv:1704.06142

Measurement of the jet mass in highly boosted $t\bar{t}$ events from pp collisions at $\sqrt{s} = 8$ TeV *CMS Collaboration*, Eur. Phys. J. C 77 (2017) 467, arXiv:1703.06330

Measurement of the top quark mass using single top quark events in proton-proton collisions at $\sqrt{s} = 8$ TeV *CMS Collaboration*, EPJC 77 (2017) 354, arXiv:1703.02530

Measurement of double-differential cross sections for top quark pair production in pp collisions at $\sqrt{s} = 8$ TeV and impact on parton distribution functions *CMS Collaboration*, EPJC 77 (2017) 459, arXiv:1703.01630

Search for standard model production of four top quarks in proton-proton collisions at $\sqrt{s} = 13$ TeV, *CMS Collaboration*, Phys. Lett. B 772 (2017) 336, arXiv:1702.06164

Search for associated production of a Z boson with a single top quark and for tZ flavour-changing interactions in pp collisions at $\sqrt{s} = 8$ TeV, *CMS Collaboration*, JHEP 07 (2017) 003, arXiv:1702.01404

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, *CMS Collaboration*, JHEP 09 (2017) 051, arXiv:1701.06228

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

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, *CMS Collaboration*, EPJC 77 (2017) 172, arXiv:1611.04040

Measurement of the mass difference between top quark and antiquark in pp collisions at $\sqrt{s} = 8$ TeV, *CMS Collaboration*, Phys. Lett. B 770 (2017) 50, arXiv:1610.09551

Search for top quark decays via Higgs-boson-mediated flavor-changing neutral currents in pp collisions at $\sqrt{s} = 8$ TeV, *CMS Collaboration*, JHEP 02 (2017) 079, arXiv:1610.04857

Measurement of differential cross sections for top quark pair production using the lepton+jets final state in proton-proton collisions at 13 TeV, *CMS Collaboration*, Phys. Rev. D 95, 092001 (2017), arXiv:1610.04191

Cross section measurement of t-channel single top quark production in pp collisions at $\sqrt{s} = 13$ TeV, *CMS Collaboration*, Phys. Lett. B 772 (2017) 752, arXiv:1610.00678

Long-Lived Particles at Future Colliders, *Rebeca Gonzalez Suarez*, Proceedings for the XXVII Epiphany Conference, submitted to be published in the June 2021 issue of Acta Physica Polonica B, arXiv:2102.07597

Run-1 Single-top measurements at CMS, *Rebeca Gonzalez Suarez*, Proceedings DPF 2015, arXiv:1510.05235

Inclusive single top cross section at the LHC, *Rebeca Gonzalez Suarez on behalf of the CMS and ATLAS collaborations*, Proceedings TOP 2013, DOI:10.3204/DESY-PROC-2014-02/16

Single top Production at $\sqrt{s} = 7$ TeV, *Rebeca Gonzalez Suarez on behalf of the CMS, ATLAS collaborations*, Proceedings Moriond 2012, arXiv:1205.2786

Higgs search prospects at the LHC, *Rebeca Gonzalez Suarez*, Proceedings BEACH 2010, Nucl.Phys.Proc.Suppl. 210-211 (2011) 283-288

Discovery Potential for the SM Higgs Boson in the $H \rightarrow WW^* \rightarrow 2l2\nu$ channel at LHC, *Rebeca Gonzalez Suarez*, Proceedings ICHEP 2008, arXiv:0810.1468

A Software and Computing prototype for CMS Muon System alignment, (*Iban Cabrillo, Isidro Gonzalez Caballero, Rebeca Gonzalez Suarez...*), Proceedings CHEP 2007, Journal of Physics: Conference Series 119 (2008) 072008

Full Publication list

Full list of publications of which I am an author, in reverse chronological order:

- G. Aad *et al.* [ATLAS Collaboration], “Measurements of the inclusive and differential production cross sections of a top-quark-antiquark pair in association with a Z boson at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2103.12603 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Search for supersymmetry in events with four or more charged leptons in 139 fb^{-1} of $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector,” [arXiv:2103.11684 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Evidence for Higgs boson decays to a low-mass dilepton system and a photon in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2103.10322 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Measurements of $W^+W^- + \geq 1$ jet production cross-sections in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2103.10319 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Search for bottom-squark pair production in pp collision events at $\sqrt{s} = 13$ TeV with hadronically decaying τ -leptons, b -jets and missing transverse momentum using the ATLAS detector,” [arXiv:2103.08189 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Measurements of differential cross-sections in four-lepton events in 13 TeV proton-proton collisions with the ATLAS detector,” [arXiv:2103.01918 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Search for resonances decaying into photon pairs in 139 fb^{-1} of pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2102.13405 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Performance of the ATLAS RPC detector and Level-1 muon barrel trigger at $\sqrt{s} = 13$ TeV,” [arXiv:2103.01029 [physics.ins-det]].
- G. Aad *et al.* [ATLAS Collaboration], “Search for new phenomena in events with an energetic jet and missing transverse momentum in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2102.10874 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Search for charged Higgs bosons decaying into a top quark and a bottom quark at $\sqrt{s}=13$ TeV with the ATLAS detector,” [arXiv:2102.10076 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Emulating the impact of additional proton-proton interactions in the ATLAS simulation by pre-sampling sets of inelastic Monte Carlo events,” [arXiv:2102.09495 [hep-ex]].
- R. Gonzalez Suarez, “Long-Lived Particles at Future Colliders,” [arXiv:2102.07597 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Search for new phenomena in events with two opposite-charge leptons, jets and missing transverse momentum in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2102.01444 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Search for new phenomena in final states with b -jets and missing transverse momentum in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector,” [arXiv:2101.12527 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Search for doubly and singly charged Higgs bosons decaying into vector bosons in multi-lepton final states with the ATLAS detector using proton-proton collisions at $\sqrt{s} = 13$ TeV,” [arXiv:2101.11961 [hep-ex]].
- G. Aad *et al.* [ATLAS Collaboration], “Search for pair production of third-generation scalar leptoquarks decaying into a top quark and a τ -lepton in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2101.11582 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Two-particle azimuthal correlations in photonuclear ultraperipheral Pb+Pb collisions at 5.02 TeV with ATLAS,” [arXiv:2101.10771 [nucl-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Determination of the parton distribution functions of the proton from ATLAS measurements of differential W^\pm and Z boson production in association with jets,” [arXiv:2101.05095 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “The ATLAS Fast Tracker System,” [arXiv:2101.05078 [physics.ins-det]].

G. Aad *et al.* [ATLAS Collaboration], “Search for squarks and gluinos in final states with one isolated lepton, jets, and missing transverse momentum at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2101.01629 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for new phenomena with top quark pairs in final states with one lepton, jets, and missing transverse momentum in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2012.03799 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Muon reconstruction and identification efficiency in ATLAS using the full Run 2 pp collision data set at $\sqrt{s} = 13$ TeV,” [arXiv:2012.00578 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Exclusive dimuon production in ultraperipheral Pb+Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with ATLAS,” [arXiv:2011.12211 [nucl-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for trilepton resonances from chargino and neutralino pair production in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector,” [arXiv:2011.10543 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for dark matter produced in association with a single top quark in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector,” [arXiv:2011.09308 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Measurements of Higgs Bosons Decaying to Bottom Quarks from Vector Boson Fusion Production with the ATLAS Experiment at $\sqrt{s} = 13$ TeV,” [arXiv:2011.08280 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for displaced leptons in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector,” [arXiv:2011.07812 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for a heavy Higgs boson decaying into a Z boson and another heavy Higgs boson in the $\ell\ell b\bar{b}$ and $\ell\ell W W$ final states in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2011.05639 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for dark matter in association with an energetic photon in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” JHEP **02**, 226 (2021) doi:10.1007/JHEP02(2021)226 [arXiv:2011.05259 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for squarks and gluinos in final states with jets and missing transverse momentum using 139 fb^{-1} of $\sqrt{s} = 13$ TeV pp collision data with the ATLAS detector,” JHEP **02**, 143 (2021) doi:10.1007/JHEP02(2021)143 [arXiv:2010.14293 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for Higgs boson production in association with a high-energy photon via vector-boson fusion with decay into bottom quark pairs at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2010.13651 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for dark matter produced in association with a dark Higgs boson decaying into $W^\pm W^\mp$ or ZZ in fully hadronic final states from $\sqrt{s} = 13$ TeV pp collisions recorded with the ATLAS detector,” Phys. Rev. Lett. **126**, 121802 (2021) doi:10.1103/PhysRevLett.126.121802 [arXiv:2010.06548 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Observation of photon-induced W^+W^- production in pp collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector,” Phys. Lett. B **816**, 136190 (2021) doi:10.1016/j.physletb.2021.136190 [arXiv:2010.04019 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Charged-lepton-flavour violation at the LHC: a search for $Z \rightarrow e\tau/\mu\tau$ decays with the ATLAS detector,” [arXiv:2010.02566 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for pair production of scalar leptoquarks decaying into first- or second-generation leptons and top quarks in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2010.02098 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for phenomena beyond the Standard Model in events with large b -jet multiplicity using the ATLAS detector at the LHC,” Eur. Phys. J. C **81**, no.1, 11 (2021) doi:10.1140/epjc/s10052-020-08730-0 [arXiv:2010.01015 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Observation and Measurement of Forward Proton Scattering in Association with Lepton Pairs Produced via the Photon Fusion Mechanism at ATLAS,” Phys. Rev. Lett. **125**, no.26, 261801 (2020) doi:10.1103/PhysRevLett.125.261801 [arXiv:2009.14537 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for heavy resonances decaying into a pair of Z bosons in the $\ell^+\ell^-\ell'^+\ell'^-$ and $\ell^+\ell^-\nu\bar{\nu}$ final states using 139 fb^{-1} of proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2009.14791 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Optimisation of large-radius jet reconstruction for the ATLAS detector in 13 TeV proton–proton collisions,” [arXiv:2009.04986 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Medium-Induced Modification of Z -Tagged Charged Particle Yields in $Pb+Pb$ Collisions at 5.02 TeV with the ATLAS Detector,” Phys. Rev. Lett. **126**, no.7, 072301 (2021) doi:10.1103/PhysRevLett.126.072301 [arXiv:2008.09811 [nucl-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for type-III seesaw heavy leptons in dilepton final states in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” Eur. Phys. J. C **81**, no.3, 218 (2021) doi:10.1140/epjc/s10052-021-08929-9 [arXiv:2008.07949 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for new phenomena in final states with large jet multiplicities and missing transverse momentum using $\sqrt{s} = 13$ TeV proton-proton collisions recorded by ATLAS in Run 2 of the LHC,” JHEP **10**, 062 (2020) doi:10.1007/JHEP10(2020)062 [arXiv:2008.06032 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Search for heavy resonances decaying into a photon and a hadronically decaying Higgs boson in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” Phys. Rev. Lett. **125**, 251802 (2020) doi:10.1103/PhysRevLett.125.251802 [arXiv:2008.05928 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Measurement of light-by-light scattering and search for axion-like particles with 2.2 nb^{-1} of Pb+Pb data with the ATLAS detector,” [arXiv:2008.05355 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Measurement of the associated production of a Higgs boson decaying into b -quarks with a vector boson at high transverse momentum in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” [arXiv:2008.02508 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Evidence for $t\bar{t}t\bar{t}$ production in the multilepton final state in proton–proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” Eur. Phys. J. C **80**, no.11, 1085 (2020) doi:10.1140/epjc/s10052-020-08509-3 [arXiv:2007.14858 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Reconstruction and identification of boosted di- τ systems in a search for Higgs boson pairs using 13 TeV proton-proton collision data in ATLAS,” JHEP **11**, 163 (2020) doi:10.1007/JHEP11(2020)163 [arXiv:2007.14811 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Test of the universality of τ and μ lepton couplings in W -boson decays from $t\bar{t}$ events with the ATLAS detector,” [arXiv:2007.14040 [hep-ex]].

G. Aad *et al.* [ATLAS Collaboration], “Measurement of hadronic event shapes in high- p_T multijet final states at $\sqrt{s} = 13$ TeV with the ATLAS detector,” JHEP **01**, 188 (2021) doi:10.1007/JHEP01(2021)188 [arXiv:2007.12600 [hep-ex]].

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Public Analysis Summaries

CMS Public Analysis Summaries in which I had a relevant contribution in reverse chronological order. This kind of document is reviewed by a board of four referees and circulated to the Collaboration before being made public:

'Higgs to WW measurements with 15.2 fb^{-1} of 13 TeV proton-proton collisions' - HIG-16-021 - [C - Higgs to WW]

'Search for Higgs boson pair production in the $b\bar{b}l\nu l\nu$ final state at $\sqrt{s} = 13 \text{ TeV}$ ' - HIG-16-024 - [R - Higgs to WW]

'Search for high mass Higgs to WW with fully leptonic decays using 2015 data' - HIG-16-023 [R - Higgs to WW]

'Search for associated production of Higgs bosons and top quarks in multilepton final states at $\sqrt{s} = 13 \text{ TeV}$ ' - HIG-16-022 [R - Higgs to WW]

'Search for associated production of a Z boson with a single top quark and for tZ flavour-changing interactions in pp collisions at $\sqrt{s} = 8 \text{ TeV}$ ' - TOP-12-039 [R - Single top]

'Measurement of the top quark mass in the dileptonic ttbar decay channel using the Mbl, MT2, and MAOS Mblv observables'- TOP-15-008 [R-ARC] [Chair of the review]

'First results on Higgs to WW at $\sqrt{s} = 13 \text{ TeV}$ ' - HIG-15-003 [ED- HWW]

'Combination of cross-section measurements of associated production of a single top quark and a W boson at $\sqrt{s} = 8 \text{ TeV}$ with the ATLAS and CMS experiments' - TOP-15-019 [C]

'Search for resonant Higgs boson pair production in the $b\bar{b}l\nu l\nu$ final state at $\sqrt{s} = 13 \text{ TeV}$ ' - HIG-16-011 [R - Higgs to WW]

'Search for ttH production in multilepton final states at $\sqrt{s} = 13 \text{ TeV}$ ' - HIG-15-008 [C, R - HWW]

'Measurement of the top quark mass from single-top production events' - TOP-15-001 [R-ARC] [Chair of the review]

'Measurement of the transverse momentum spectrum of the Higgs boson produced in pp collisions at $\sqrt{s} = 8 \text{ TeV}$ using the $H \rightarrow WW$ decays' (CMS-PAS-HIG-15-010) [R - Higgs to WW]

'Measurement of the top-quark mass from the b jet energy spectrum' (CMS-PAS-TOP-15-002) [R-ARC] [Chair of the review]

'Measurements of the Higgs boson production and decay rates and constraints on its couplings from a combined ATLAS and CMS analysis of the LHC pp collision data at $\sqrt{s} = 7$ and 8 TeV ' (CMS-PAS-HIG-15-002) [C]

'Measurement of the W boson helicity using $t\bar{t}$ events in the dilepton final state at $\sqrt{s} = 8 \text{ TeV}$ ' CMS-PAS-TOP-14-017 [R-ARC] [Chair of the review]

'Measurements of the differential cross section of single top-quark production in the t channel in proton-proton collisions at $\sqrt{s} = 8 \text{ TeV}$ ' (CMS-PAS-TOP-14-004) [R - Single top]

'Search for $H \rightarrow b\bar{b}$ in association with single top quarks as a test of Higgs boson couplings' (CMS-PAS-HIG-14-015) [C]

'Combination of cross-section measurements of associated production of a single top-quark and a W boson at $\sqrt{s} = 8 \text{ TeV}$ with the ATLAS and CMS experiments' (CMS-PAS-TOP-14-009) [C, R - Single top]

'Constraints on Anomalous HWW Interactions using Higgs boson decays to $W+W^-$ in the fully leptonic final state' (CMS-PAS-HIG-14-012) [PA, ED]

- ‘Constraints on anomalous HVV interactions using H to $4l$ decays’ (CMS-PAS-HIG-14-014) [C]
- ‘Search for $t\bar{t}H$ events in the $H \rightarrow b\bar{b}$ final state using the Matrix Element Method’ (CMS-PAS- HIG-14-010) [R-ARC]
- ‘Search for anomalous Wtb couplings and top FCNC in t-channel single-top-quark events’ (CMS-PAS-TOP-14-007) [R - Single top]
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- ‘Search for new physics with monotop final states in pp collisions at $\sqrt{s} = 8$ TeV’ (CMS-PAS- B2G-12-022) [R-ARC] [Chair of the review]
- ‘Search for associated production of a single top quark and a Higgs boson in events where the Higgs boson decays to two photons at $\sqrt{s} = 8$ TeV’ (CMS-PAS-HIG-14-001) [R-ARC]
- ‘Projections for Top FCNC Searches in $3000fb^{-1}$ at the LHC’ (CMS-PAS-FTR-13-016) [R-ARC]
- ‘Sensitivity study of the prospects for searching for heavy vector-like charge $2/3$ quarks at $\sqrt{s} = 14$ TeV with the upgraded CMS detector’ (CMS-PAS-FTR-13-026) [R-ARC]
- ‘Projected improvement of the accuracy of top-quark mass measurements at the upgraded LHC’ (CMS-PAS-FTR-13-017) [R-ARC]
- ‘CMS reach in $B_s^0 \rightarrow \mu^+\mu^-$ and $B^0 \rightarrow \mu^+\mu^-$ branching fractions for the new LHC runs’ (CMS-PAS-FTR-13-022) [R-ARC]
- ‘Search for s-channel single top-quark production in pp collisions at $\sqrt{s} = 8\text{TeV}$ ’ (CMS-PAS-TOP-13-009) [R - Single top]
- ‘Measurement of top quark polarization in t-channel single-top production’ (CMS-PAS-TOP-13-001) [R - Single top]
- ‘Combination of single top-quark cross-sections measurements in the t-channel at $\sqrt{s} = 8\text{TeV}$ with the ATLAS and CMS experiments’ (CMS-PAS-TOP-12-002) [R - Single top]
- ‘Search for electroweak production of charginos and neutralinos using leptonic final states’ (CMS-PAS-SUS-13-006) [R-ARC]
- ‘Observation of Associated Production of a Single Top Quark and W Boson in pp Collisions at $\sqrt{s} = 8\text{TeV}$ ’ (CMS-PAS-TOP-12-040) [PA]
- ‘Search for Flavor-Changing Neutral Currents in tZ events in proton-proton collisions at $\sqrt{s} = 7\text{TeV}$ ’ (CMS-PAS-TOP-12-021) [R - Single top]
- ‘Search for electroweak production of charginos, neutralinos and sleptons using leptonic final states in pp collisions at $\sqrt{s} = 8$ TeV’ (CMS-PAS-SUS-12-022) [R-ARC]
- ‘Measurement of the single-top t-channel charge ratio at 8 TeV’ (CMS-PAS-TOP-12-038) [R - Single top]
- ‘Measurement of W-helicity fractions in single top events topology’ (CMS-PAS-TOP-12-020) [R - Single top]
- ‘Search for single top tW associated production in the dilepton decay channel in pp collisions at $\sqrt{s} = 7$ TeV’ (CMS-PAS-TOP-11-022) [PA, ED]
- ‘Search for Physics Beyond the Standard Model in $Z+\text{MET}+\text{Jets}$ events at the LHC’ (CMS-PAS-SUS-11-019) [R-ARC]

'Measurement of the top-quark pair-production cross section in the lepton+jets channel with the use of b-tagging' (CMS-PAS-TOP-10-003) [C]

'Measurement of the top-quark pair-production cross section in the di-lepton channel at 7 TeV' (CMS-PAS-TOP-10-005) [C]

'Search for $H \rightarrow WW \rightarrow 2l 2\nu$ ' (CMS-PAS-HIG-10-003) [C]

'Observation of WW final state' (CMS-PAS-EWK-009) [C]

'Performance of muon identification in pp collisions at $\sqrt{s} = 7$ TeV' (CMS-PAS-MUO-10-002) [PA]

'Search Strategy for a Standard Model Higgs Boson Decaying to Two W Bosons in the Fully Leptonic Final State' (CMS-PAS-HIG-08-006) [PA]

'Search for the Higgs boson in the WW decay channel with the CMS experiment' (CMS-PAS-HIG-07-001) [PA]

Public top results

Public analysis summaries made public during my convenership of the top quark physics analysis group in CMS, in reverse chronological order:

- 'Measurement of the single top quark and antiquark production cross sections in the t channel and their ratio in pp collisions at $\sqrt{s} = 13$ TeV' TOP-17-011
- 'Measurement of the top quark mass in the all-jets final state at $\sqrt{s} = 13$ TeV' TOP-17-008
- 'Measurements of differential cross sections for $t\bar{t}$ production in proton-proton collisions at $\sqrt{s} = 13$ TeV using events containing two leptons' TOP-17-014
- 'Search for top+photon production in pp collisions at 13 TeV in the muon+jets channel' TOP-17-016
- 'Study of the underlying event in top quark pair production at $\sqrt{s} = 13$ TeV' TOP-17-015
- 'Measurement of jet substructure observables in $t\bar{t}$ events from pp collisions at $\sqrt{s} = 13$ TeV' TOP-17-013
- 'Search for the flavor-changing interactions of the top quark with the Higgs boson in $H \rightarrow b\bar{b}$ channel at $\sqrt{s} = 13$ TeV' TOP-17-003
- 'Evidence for the standard model production of a Z boson with a single top quark in pp collisions at $\sqrt{s} = 13$ TeV' TOP-16-020
- 'Measurement of the production cross section for single top quarks in association with W bosons in pp collisions at $\sqrt{s} = 13$ TeV' TOP-17-018
- 'Measurement of the top quark mass with lepton+jets final states in pp collisions at $\sqrt{s} = 13$ TeV' TOP-17-007
- 'Measurement of differential cross sections for top quark pair production and associated jets using the lepton+jets final state in proton-proton collisions at 13 TeV' TOP-17-002
- 'Search for the standard model production of four top quarks with same-sign and multilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV ' TOP-17-009
- 'Measurement of the differential $t\bar{t}$ cross section with high- p_T top-quark jets in the all-hadronic channel at $\sqrt{s} = 8$ TeV ' TOP-16-018
- 'Measurement of the differential cross sections of top quark pair production as a function of kinematic event variables in pp collisions at $\sqrt{s} = 13$ TeV' TOP-16-014
- 'Measurement of top quark pair-production in association with a W or Z boson in pp collisions at 13 TeV' TOP-17-005
- 'Measurement of the inclusive $t\bar{t}$ cross section at $\sqrt{s} = 5.02$ TeV' TOP-16-023
- 'Measurement of the top quark mass with muon+jets final states in pp collisions at $\sqrt{s} = 13$ TeV' (TOP-16-022)
- 'Investigations of the impact of the parton shower tuning in Pythia 8 in the modelling of $t\bar{t}$ at $\sqrt{s} = 8$ and 13 TeV' (TOP-16-021)
- 'Combinations of the CMS alternative technique measurements of the top quark mass' (TOP-15-012)
- 'Bounding the top quark width using final states with two charged leptons and two jets at $\sqrt{s} = 13$ TeV ' (TOP-16-019)
- 'Measurement of the $t\bar{t} + \gamma$ production cross-section in pp collisions at $\sqrt{s} = 8$ TeV' (TOP-14-008)

'Measurement of the jet mass distribution in boosted $t\bar{t}$ production at $\sqrt{s} = 8$ TeV' (TOP-15-015)

Internal Analysis Notes

Internal notes that I am an author of in reverse chronological order:

- CMS AN-2015/300** - 'Higgs Boson decaying to WW in the leptonic final state at 13 TeV' (*HWW team*) [ED]
- CMS AN-2015/299** - 'Common analysis object definitions and triggers efficiencies for the $H \rightarrow WW$ Run-2 analysis' (*HWW team*) [ED]
- CMS AN-2015/321** - 'Search for ttH in multilepton final states at 13 TeV' (*Anne-Catherine Le Bihan et al.*) [C]
- CMS AN-2013/113** - 'Search for $H \rightarrow b\bar{b}$ in association with single top quarks as a test of Higgs boson couplings' (*A. Anuar, A. Bean et al.*) [C]
- CMS AN-2014/083** - 'Spin Parity of the Higgs Boson and Tensor Structure of the HWW interaction in the $H \rightarrow WW$ dileptonic decay channel' (*Rebeca Gonzalez Suarez et al.*) [PA-ED]
- CMS AN-2013/096** - 'Study of associated Higgs boson (ZH) production in the three leptons, two jets final state at 7 and 8 TeV' (*Rebeca Gonzalez Suarez et al.*) [PA-ED]
- CMS AN-2012/458** - 'Single top associated tW production at 8 TeV' (*Rebeca Gonzalez Suarez et al.*) [PA-ED]
- CMS AN-2012/060** - 'Search for single top tW production using a boosted decision tree method in the dilepton channel' (*Rebeca Gonzalez Suarez et al.*) [C]
- CMS AN-2011/465** - 'Search for the Single top tW associated production in the dilepton decay channel with the full 2011 dataset' (*Rebeca Gonzalez Suarez et al.*) [PA-ED]
- CMS AN-2011/253** - 'Search for the Single top tW associated production in the dilepton decay channel' (*Rebeca Gonzalez Suarez et al.*) [PA-ED]
- CMS AN2010/281** - 'A measurement of $t\bar{t}$ cross section in early 7 TeV data using the semileptonic topology: electron plus jets with one or more b-tags, using 36 pb^{-1} of CMS data.' (*M. Barrett, F. Blekman et al.*) [C-ED]
- CMS AN2010/411** - 'Search for Higgs Boson Decays to Two W Bosons in the Fully Leptonic Final State at $\sqrt{s} = 7 \text{ TeV}$ ' (*G. Bauer, J. Bendavid et al.*) [C]
- CMS AN2010/344** - 'First Measurement of $pp \rightarrow WW$ Production Cross-Section at $\sqrt{s} = 7 \text{ TeV}$ ' (*W. Andrews, D. Barge et al.*) [C]
- CMS AN2010/406** - 'Measurement of the $t\bar{t}$ cross section in the dilepton final state using b-tagging at $\sqrt{s} = 7 \text{ TeV}$ ' (*J. Brochero, A. Calderón et al.*) [C-ED]
- CMS AN 2010/008** - 'The CMS physics reach for searches at 7 TeV' (*CMS Collaboration*) [PA]
- CMS AN 2009/139** - 'Search Strategy for a Standard Model Higgs Boson Decaying to Two W Bosons in the Fully Leptonic Final State at $\sqrt{s} = 10 \text{ TeV}$ ' (*G. Bauer, J. Bendavid et al.*)
- CMS AN-2009/185** - 'Analysis strategy for the measurement of the $WW \rightarrow \mu\nu\mu\nu$ cross-section with 200 pb^{-1} at center of mass energy of 10 TeV' (*C.Jorda, R. Villar et al.*) [C]
- CMS AN-2009/025** - 'Analysis strategy for the measurement of the $WW \rightarrow \mu\nu\mu\nu$ cross-section' (*C.Jorda, R. Villar et al.*) [C]
- CMS AN-2009/020** - 'Projected exclusion limits on the SM Higgs boson cross sections obtained by combining

the $H \rightarrow WW$ and ZZ decay channels' (*S. Baffioni, C. Botta et al.*) [PA]

CMS AN-2008/074 - 'Measurement of muon charge asymmetry in the $W \rightarrow \mu\nu$ channel' (*J. Alcaraz, M.I. Josa et al.*) [C]

CMS AN-2008/039 - 'Search Strategy for a Standard Model Higgs Boson Decaying to Two W Bosons in the Fully Leptonic Final State' (*C. Charlot, J. Cuevas et al.*) [PA]

CMS AN-2007/037 - 'Search for the Higgs boson in the WW decay channel with the CMS experiment' (*C. Charlot, J. Cuevas et al.*) [PA]

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