

# Muhammad Gul

## List of Publications by Year in descending order

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110  
papers

5,375  
citations

94433

37  
h-index

85541

71  
g-index

112  
all docs

112  
docs citations

112  
times ranked

6521  
citing authors

#	ARTICLE	IF	CITATIONS
1	Event generator tunes obtained from underlying event and multiparton scattering measurements. European Physical Journal C, 2016, 76, 155.	3.9	499
2	Particle-flow reconstruction and global event description with the CMS detector. Journal of Instrumentation, 2017, 12, P10003-P10003.	1.2	348
3	The CMS trigger system. Journal of Instrumentation, 2017, 12, P01020-P01020.	1.2	307
4	Identification of heavy-flavour jets with the CMS detector in pp collisions at 13 TeV. Journal of Instrumentation, 2018, 13, P05011-P05011.	1.2	241
5	Jet energy scale and resolution in the CMS experiment in pp collisions at 8 TeV. Journal of Instrumentation, 2017, 12, P02014-P02014.	1.2	216
6	Observation of $t\bar{t}H$ Production. Physical Review Letters, 2018, 120, 231801.	7.8	209
7	Extraction and validation of a new set of CMS pythia8 tunes from underlying-event measurements. European Physical Journal C, 2020, 80, 4.	3.9	198
8	Performance of the CMS muon detector and muon reconstruction with proton-proton collisions at $\sqrt{s}=13$ TeV. Journal of Instrumentation, 2018, 13, P06015-P06015.	1.2	180
9	Search for invisible decays of a Higgs boson produced through vector boson fusion in proton-proton collisions at $\sqrt{s}=13$ TeV. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2019, 793, 520-551.	1.2	146
10	Precision luminosity measurement in proton-proton collisions at $\sqrt{s}=13$ TeV in 2015 and 2016 at CMS. European Physical Journal C, 2021, 81, 800.	3.9	123
11	Measurements of properties of the Higgs boson decaying into the four-lepton final state in pp collisions at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2017, 2017, 1.	4.7	101
12	Measurement of the top quark mass using proton-proton data at $\sqrt{s}=13$ TeV. Physical Review D, 2016, 93, .	4.7	97
13	Search for a Higgs boson in the mass range from 145 to 1000 GeV decaying to a pair of W or Z bosons. Journal of High Energy Physics, 2015, 2015, 1.	4.7	92
14	Observation of Electroweak Production of Same-Sign $W$ Boson Pairs in the Two Jet and Two Same-Sign Lepton Final State in Proton-Proton Collisions at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	7.8	86
15	Search for high-mass resonances in dilepton final states in proton-proton collisions at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	86
16	Performance of missing transverse momentum reconstruction in proton-proton collisions at $\sqrt{s}=13$ TeV using the CMS detector. Journal of Instrumentation, 2019, 14, P07004-P07004.	1.2	83
17	Search for a Higgs boson decaying to a pair of $W$ or $Z$ boson and transverse momentum imbalance at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	78
18	Performance of reconstruction and identification of $\tau$ , leptons decaying to hadrons and $\tau$ in pp collisions at $\sqrt{s}=13$ TeV. Journal of Instrumentation, 2018, 13, P10005-P10005.	1.2	69

#	ARTICLE	IF	CITATIONS
19	Measurements of the Higgs boson width and anomalous $\kappa_{\tau\tau}$ couplings from on-shell and off-shell production in the four-lepton final state. Physical Review D, 2019, 99.	3.9	69
20	Measurement of the $\sigma(\text{pp} \rightarrow t\bar{t}\hat{A})$ production cross section, the top quark mass, and the strong coupling constant using dilepton events in pp collisions at. European Physical Journal C, 2019, 79, 368.	3.9	68
21	Search for new physics in same-sign dilepton events in proton-proton collisions at $\sqrt{s} = 13$ TeV. European Physical Journal C, 2016, 76, 439.	3.9	64
22	Search for electroweak production of charginos and neutralinos in multilepton final states in proton-proton collisions at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	63
23	Measurement of differential cross sections for Higgs boson production in the diphoton decay channel in pp collisions at $\sqrt{s} = 8$ TeV. European Physical Journal C, 2016, 76, 13.	3.9	62
24	Measurement of the inelastic proton-proton cross section at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	62
25	Measurements of Higgs boson properties in the diphoton decay channel in proton-proton collisions at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	57
26	Limits on the Higgs boson lifetime and width from its decay to four charged leptons. Physical Review D, 2015, 92, .	4.7	55
27	Measurement of the double-differential inclusive jet cross section in proton-proton collisions at $\sqrt{s} = 13$ TeV. European Physical Journal C, 2016, 76, 451.	3.9	55
28	Measurement and QCD analysis of double-differential inclusive jet cross sections in pp collisions at $\sqrt{s} = 8$ TeV and cross section ratios to 2.76 and 7 TeV. Journal of High Energy Physics, 2017, 2017, 1.	4.7	54
29	Search for Charged Higgs Bosons Produced via Vector Boson Fusion and Decaying into a Pair of W and Z Bosons Using pp Collisions at $\sqrt{s} = 13$ TeV. Physical Review Letters, 2017, 119, 141802.	7.8	54
30	Measurements of the $\sigma(\text{pp} \rightarrow Z Z)$ production cross section and the $\sigma(\text{pp} \rightarrow Z \ell\bar{\ell})$ branching fraction, and constraints on anomalous triple gauge couplings at. European Physical Journal C, 2018, 78, 165.	3.9	52
31	Pseudorapidity distribution of charged hadrons in proton-proton collisions at $\sqrt{s} = 13$ TeV. Physical Review Letters, 2017, 119, 141802.	4.1	45
32	Measurements of properties of the Higgs boson decaying to a W boson pair in pp collisions at $\sqrt{s} = 13$ TeV. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2019, 791, 96-129.	4.1	44
33	Measurement of the $\sigma(\text{pp} \rightarrow t\bar{t}\hat{A})$ production cross section in the $e\bar{e}\mu\mu$ channel in proton-proton collisions at $\sqrt{s} = 7$ and 8 TeV. Journal of High Energy Physics, 2016, 2016, 1.	4.7	41
34	Constraints on anomalous Higgs boson couplings using production and decay information in the four-lepton final state. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2017, 775, 1-24.	4.1	40
35	Measurement of the Higgs boson production rate in association with top quarks in final states with electrons, muons, and hadronically decaying tau leptons at $\sqrt{s} = 13$ TeV. European Physical Journal C, 2021, 81, 378.	3.9	40
36	Measurement of differential cross sections for $Z$ boson production in association with jets in proton-proton collisions at $\sqrt{s} = 13$ TeV. European Physical Journal C, 2018, 78, 965.	3.9	39

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37	Search for heavy resonances that decay into a vector boson and a Higgs boson in hadronic final states at $\sqrt{s} = 13$ TeV. European Physical Journal C, 2017, 77, 636.	3.9	38
38	Evidence for associated production of a Higgs boson with a top quark pair in final states with electrons, muons, and hadronically decaying $l, \nu$ leptons at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	38
39	Search for top squarks and dark matter particles in opposite-charge dilepton final states at $\sqrt{s}=13$ TeV. Physical Review D, 2018, 97, 115011.	4.7	36
40	Search for anomalous electroweak production of vector boson pairs in association with two jets in proton-proton collisions at 13 TeV. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2019, 798, 134985.	4.1	36
41	Search for anomalous production and search for new physics in $WZ + \text{two jets}$ events in pp collisions at $\sqrt{s}=13$ TeV. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2019, 795, 281-307.	4.1	36
42	Measurements of production cross sections of the Higgs boson in the four-lepton final state in proton-proton collisions at $\sqrt{s} = 13$ TeV. European Physical Journal C, 2021, 81, 488.	3.9	35
43	Search for dark matter produced in association with a leptonically decaying $Z$ boson in proton-proton collisions at $\sqrt{s}=13$ TeV. European Physical Journal C, 2021, 81, 13.	3.9	33
44	Search for top squark pair production using dilepton final states in collision data collected at $\sqrt{s}=13$ TeV. European Physical Journal C, 2021, 81, 3.	3.9	33
45	Searches for pair production of third-generation squarks in $\sqrt{s}=13$ TeV pp collisions. European Physical Journal C, 2017, 77, 327.	3.9	32
46	Search for top squark pair production in pp collisions at $\sqrt{s}=13$ TeV using single lepton events. Journal of High Energy Physics, 2017, 2017, 1.	4.7	31
47	Measurement of differential cross sections for the production of top quark pairs and of additional jets in $pp$ collisions at $\sqrt{s}=13$ TeV using single lepton events from $pp$ collisions at $\sqrt{s}=13$ TeV. Physical Review D, 2018, 98, 115011.	4.7	30
48	Search for light bosons in decays of the 125 GeV Higgs boson in proton-proton collisions at $\sqrt{s}=8$ TeV. Journal of High Energy Physics, 2017, 2017, 1.	4.7	29
49	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. European Physical Journal C, 2019, 79, 280.	3.9	29
50	Search for $\overline{t}t\overline{b}b$ production in the $\overline{t}t\overline{b}b$ decay channel with leptonic $\overline{t}t$ decays in proton-proton collisions at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2019, 2019, 1.	4.7	28
51	Search for new physics in events with a leptonically decaying Z boson and a large transverse momentum imbalance in proton-proton collisions at $\sqrt{s} = 13$ TeV. European Physical Journal C, 2018, 78, 291.	3.9	27
52	Measurements of Higgs boson production cross sections and couplings in the diphoton decay channel at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2021, 2021, 1.	4.7	27
53	Search for high-mass resonances in final states with a lepton and missing transverse momentum at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	25
54	Measurement of jet substructure observables in $pp$ collisions at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2019, 2019, 1.	4.7	24

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55	Measurements of $\sigma(\text{pp} \rightarrow \text{ZZ})$ production cross sections and constraints on anomalous triple gauge couplings at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . European Physical Journal C, 2021, 81, 200.	3.9	24
56	Search for supersymmetry in proton-proton collisions at $13\text{ TeV}$ using identified top quarks. Physical Review D, 2018, 97, .	4.7	23
57	Measurement of the ZZ production cross section and $Z \rightarrow \tau^+ \tau^-$ branching fraction in pp collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2016, 763, 280-303.	4.1	22
58	Search for direct production of supersymmetric partners of the top quark in the all-jets final state in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . Journal of High Energy Physics, 2017, 2017, 1.	4.7	22
59	Search for $\text{pp} \rightarrow \text{t} \bar{\text{t}} \text{H}$ production in the all-jet final state in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . Journal of High Energy Physics, 2018, 2018, 1.	4.7	20
60	Search for dark matter in events with energetic, hadronically decaying top quarks and missing transverse momentum at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . Journal of High Energy Physics, 2018, 2018, 1.	4.7	20
61	Search for associated production of a Higgs boson and a single top quark in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . Physical Review D, 2019, 99, .	4.7	20
62	Measurement of differential and integrated fiducial cross sections for Higgs boson production in the four-lepton decay channel in pp collisions at $\sqrt{s} = 7, \text{ext}\{\text{TeV}\}$ and $8, \text{ext}\{\text{TeV}\}$ . Journal of High Energy Physics, 2016, 2016, 1.	4.7	19
63	Search for a very light NMSSM Higgs boson produced in decays of the $125, \text{ext}\{\text{GeV}\}$ scalar boson and decaying into $l, \text{ext}\{\text{leptons}\}$ in pp collisions at $\sqrt{s} = 8, \text{ext}\{\text{TeV}\}$ . Journal of High Energy Physics, 2016, 2016, 1.	4.7	19
64	Measurement of the differential cross sections for the associated production of a $W$ boson and jets in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2018, 778, 262-291.	4.7	19
65	Search for charged dark and dark neutralino in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2018, 778, 262-291.	4.1	19
66	Search for charged Higgs bosons produced in vector boson fusion processes and decaying into vector boson pairs in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . European Physical Journal C, 2021, 81, 723.	3.9	19
67	Search for top squark pair production in compressed-mass-spectrum scenarios in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ using the $l \pm T$ variable. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 2017, 767, 402-420.	4.7	18
68	Measurement of the differential Drell-Yan cross section in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . Journal of High Energy Physics, 2019, 2019, 1.	4.7	18
69	MUSIC: a model-unspecific search for new physics in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . European Physical Journal C, 2021, 81, 629.	3.9	18
70	Combined searches for the production of supersymmetric top quark partners in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . European Physical Journal C, 2021, 81, 970.	3.9	18
71	Search for low-mass dilepton resonances in Higgs boson decays to four-lepton final states in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . European Physical Journal C, 2022, 82, 290.	3.9	18
72	Search for $Z^{\prime 3}$ resonances using leptonic and hadronic final states in proton-proton collisions at $\sqrt{s} = 13, \text{ext}\{\text{TeV}\}$ . Journal of High Energy Physics, 2018, 2018, 1.	4.7	17

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73	Measurement of charged particle spectra in minimum-bias events from proton-proton collisions at $\sqrt{s}=13$ TeV. European Physical Journal C, 2018, 78, 697.	3.9	17
74	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. Journal of High Energy Physics, 2019, 2019, 1.	4.7	17
75	Measurement of the $t\bar{t}\hat{A}$ production cross section using events with one lepton and at least one jet in pp collisions at $s = 13$ TeV. Journal of High Energy Physics, 2017, 2017, 1.	4.7	15
76	Search for black holes and sphalerons in high-multiplicity final states in proton-proton collisions at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	14
77	Measurements of the $pp \rightarrow WZ$ inclusive and differential production cross sections and constraints on charged anomalous triple gauge couplings at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2019, 2019, 1.	4.7	14
78	Search for long-lived particles decaying to leptons with large impact parameter in proton-proton collisions at $\sqrt{s} = 13$ TeV. European Physical Journal C, 2022, 82, 153.	3.9	14
79	Search for the associated production of a Higgs boson with a single top quark in proton-proton collisions at $s = 8$ TeV. Journal of High Energy Physics, 2016, 2016, 1.	4.7	13
80	Measurement of the underlying event activity in inclusive Z boson production in proton-proton collisions at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	13
81	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. Journal of High Energy Physics, 2018, 2018, 1.	4.7	13
82	Search for supersymmetry in final states with two or three soft leptons and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	13
83	Search for decays of stopped exotic long-lived particles produced in proton-proton collisions at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	12
84	Search for dark matter produced in association with a Higgs boson decaying to $\tilde{\chi}_1^0$ or $\tilde{\chi}_1^\pm, \tilde{\chi}_2^0$ at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	12
85	Search for Dark Matter Particles Produced in Association with a Top Quark Pair at $\sqrt{s}=13$ TeV. Physical Review Letters, 2019, 122, 011803.	7.8	12
86	Search for heavy resonances decaying into two Higgs bosons or into a Higgs boson and a W or Z boson in proton-proton collisions at 13 TeV. Journal of High Energy Physics, 2019, 2019, 1.	4.7	12
87	Development and validation of HERWIG7 tunes from CMS underlying-event measurements. European Physical Journal C, 2021, 81, 312.	3.9	12
88	Search for a right-handed W boson and a heavy neutrino in proton-proton collisions at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	12
89	Search for heavy resonances decaying into a vector boson and a Higgs boson in final states with charged leptons, neutrinos and b quarks at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	11
90	Precision measurement of the structure of the CMS inner tracking system using nuclear interactions. Journal of Instrumentation, 2018, 13, P10034-P10034.	1.2	11

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91	Search for a heavy resonance decaying into a Z boson and a vector boson in the $\overline{u}\overline{q}\overline{q}$ final state. Journal of High Energy Physics, 2018, 2018, 1.	4.7	10
92	Search for a heavy vector resonance decaying to a $Z\gamma$ boson and a Higgs boson in proton-proton collisions at $\sqrt{s} = 13, \text{ext } \{Te\} \text{ext } \{V\}$ TeV. European Physical Journal C, 2021, 81, 688.	3.9	9
93	Search for a heavy resonance decaying into a Z boson and a Z or W boson in $2q$ final states at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2018, 2018, 1.	4.7	8
94	Search for direct pair production of scalar top quarks in the single- and dilepton channels in proton-proton collisions at $\sqrt{s}=8$ TeV. Journal of High Energy Physics, 2016, 2016, 1.	4.7	7
95	Inclusive and differential cross section measurements of single top quark production in association with a Z boson in proton-proton collisions at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	6
96	Search for heavy resonances decaying to ZZ or ZW and axion-like particles mediating nonresonant ZZ or ZH production at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	6
97	Search for the pair production of light top squarks in the $e^+e^- \rightarrow t\bar{t}$ final state in proton-proton collisions at $\sqrt{s}=13$ TeV. Journal of High Energy Physics, 2019, 2019, 1.	4.7	5
98	Measurement of single-diffractive dijet production in proton-proton collisions at $\sqrt{s} = 8, \text{ext } \{Te\} \text{ext } \{V\}$ TeV with the CMS and TOTEM experiments. European Physical Journal C, 2020, 80, 1164.	3.9	5
99	Search for flavor-changing neutral current interactions of the top quark and the Higgs boson decaying to a bottom quark-antiquark pair at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	5
100	Search for long-lived particles decaying into muon pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV collected with a dedicated high-rate data stream. Journal of High Energy Physics, 2022, 2022, .	4.7	5
101	Measurement and QCD analysis of double-differential inclusive jet cross sections in proton-proton collisions at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	5
102	Search for electroweak production of charginos and neutralinos in proton-proton collisions at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	5
103	Search for higgsinos decaying to two Higgs bosons and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, .	4.7	4
104	Measurements of the $(p) \rightarrow (Z)$ production cross section and the $(Z) \rightarrow 4\ell$ branching fraction, and constraints on anomalous triple gauge couplings at $(\sqrt{s} = 13, \text{ext } \{TeV\})$ . , 2018, 78, 1.		3
105	Measurements of angular distance and momentum ratio distributions in three-jet and $\{Z\}$ + two-jet final states in $\{p\}\{p\}$ collisions. European Physical Journal C, 2021, 81, 852.	3.9	2
106	Search for a heavy resonance decaying into a top quark and a W boson in the lepton+jets final state at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	2
107	Measurement of the inclusive $\overline{t}t$ production cross section in proton-proton collisions at $\sqrt{s} = 5.02$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	2
108	Search for heavy resonances decaying to a pair of Lorentz-boosted Higgs bosons in final states with leptons and a bottom quark pair at $\sqrt{s} = 13$ TeV. Journal of High Energy Physics, 2022, 2022, .	4.7	2

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109	Study of dijet events with large rapidity separation in proton-proton collisions at $\sqrt{s} = 2.76$ TeV. Journal of High Energy Physics, 2022, 2022, 1.	4.7	1
110	Observation of $B^0 \rightarrow \psi(2S)K^0_{\text{S}} \text{uppi}^+ \text{uppi}^-$ and $B^0_{\text{S}} \rightarrow \psi(2S)K^0_{\text{S}}$ decays. European Physical Journal C, 2022, 82, .	3.9	1