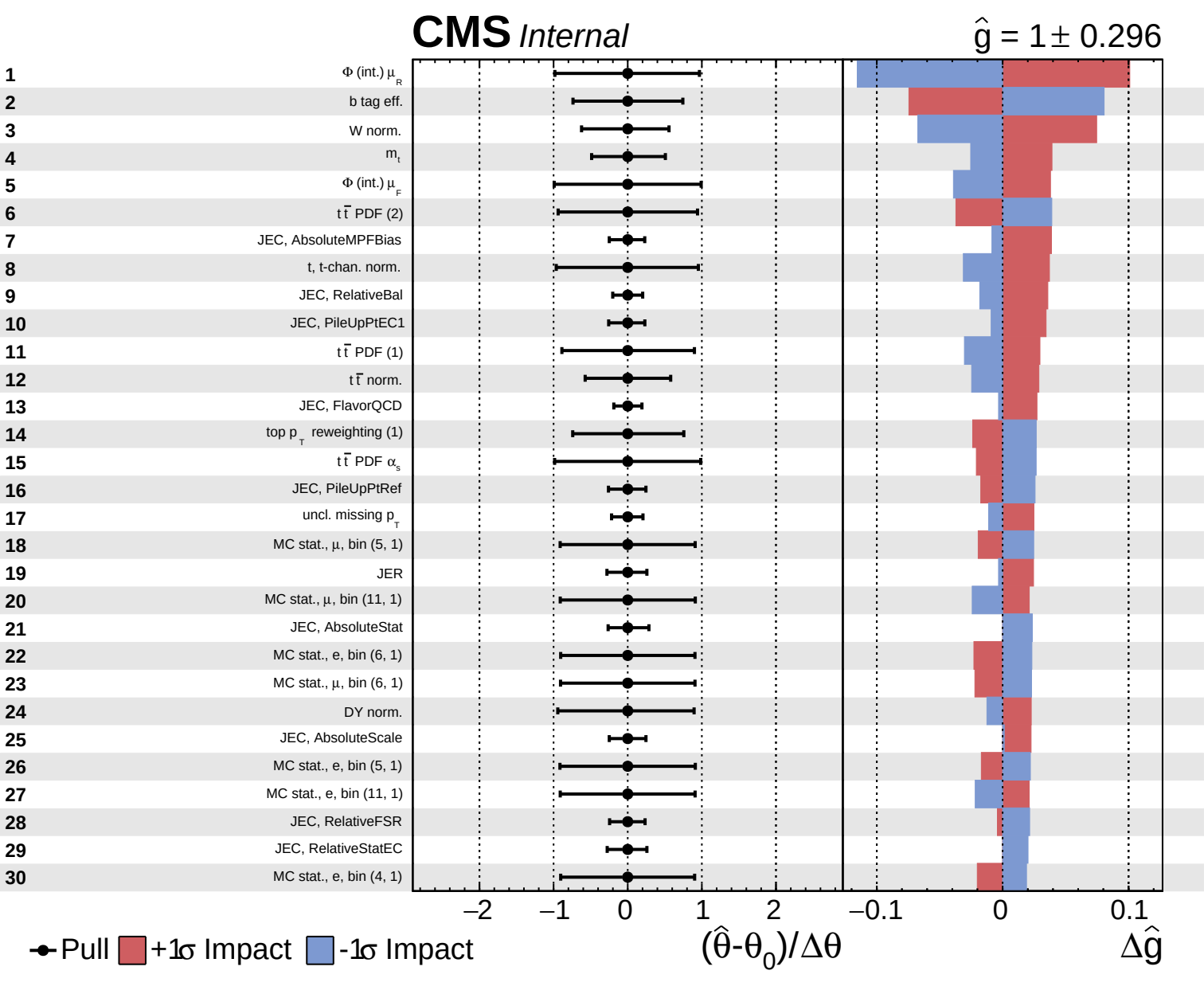
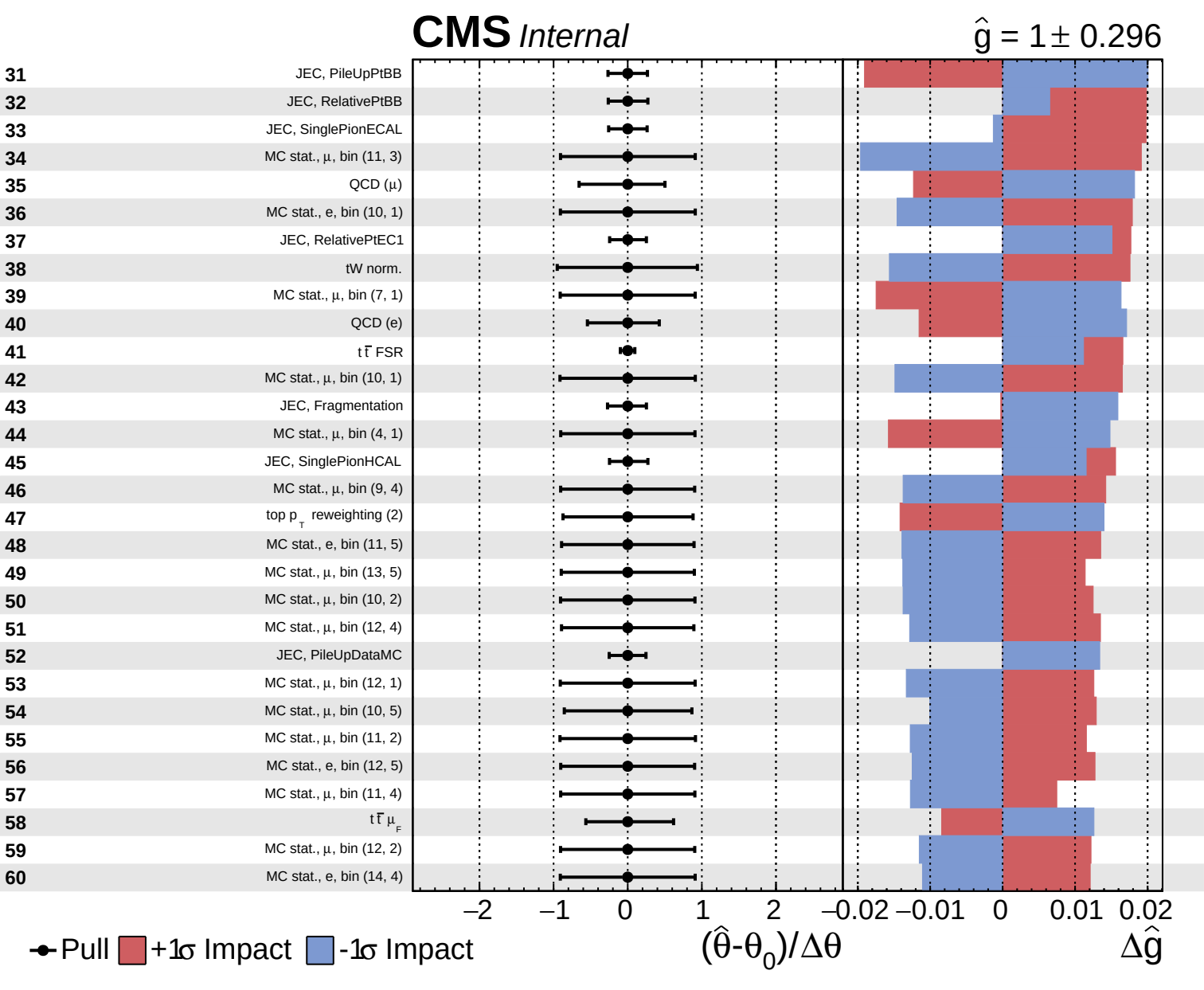
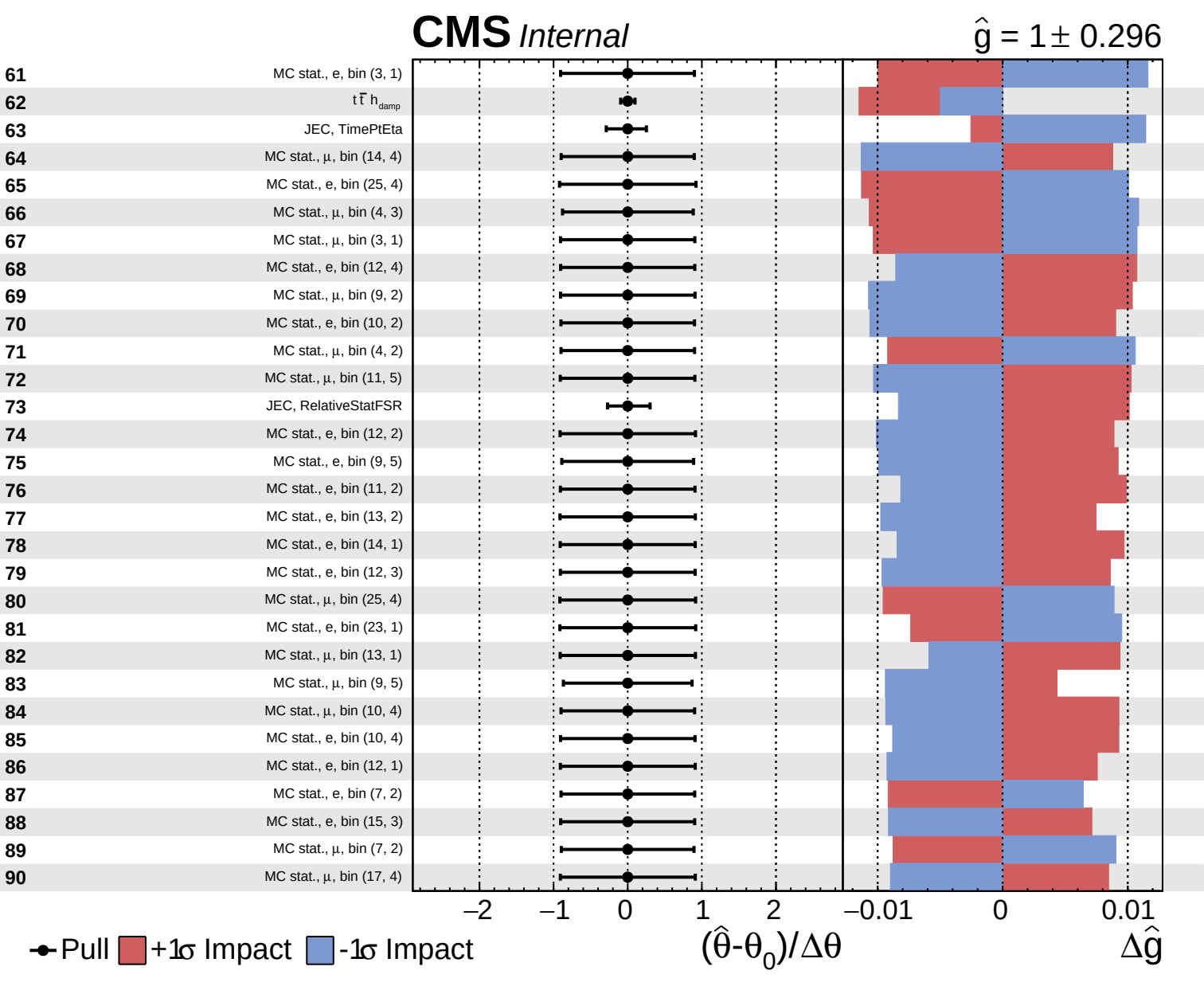
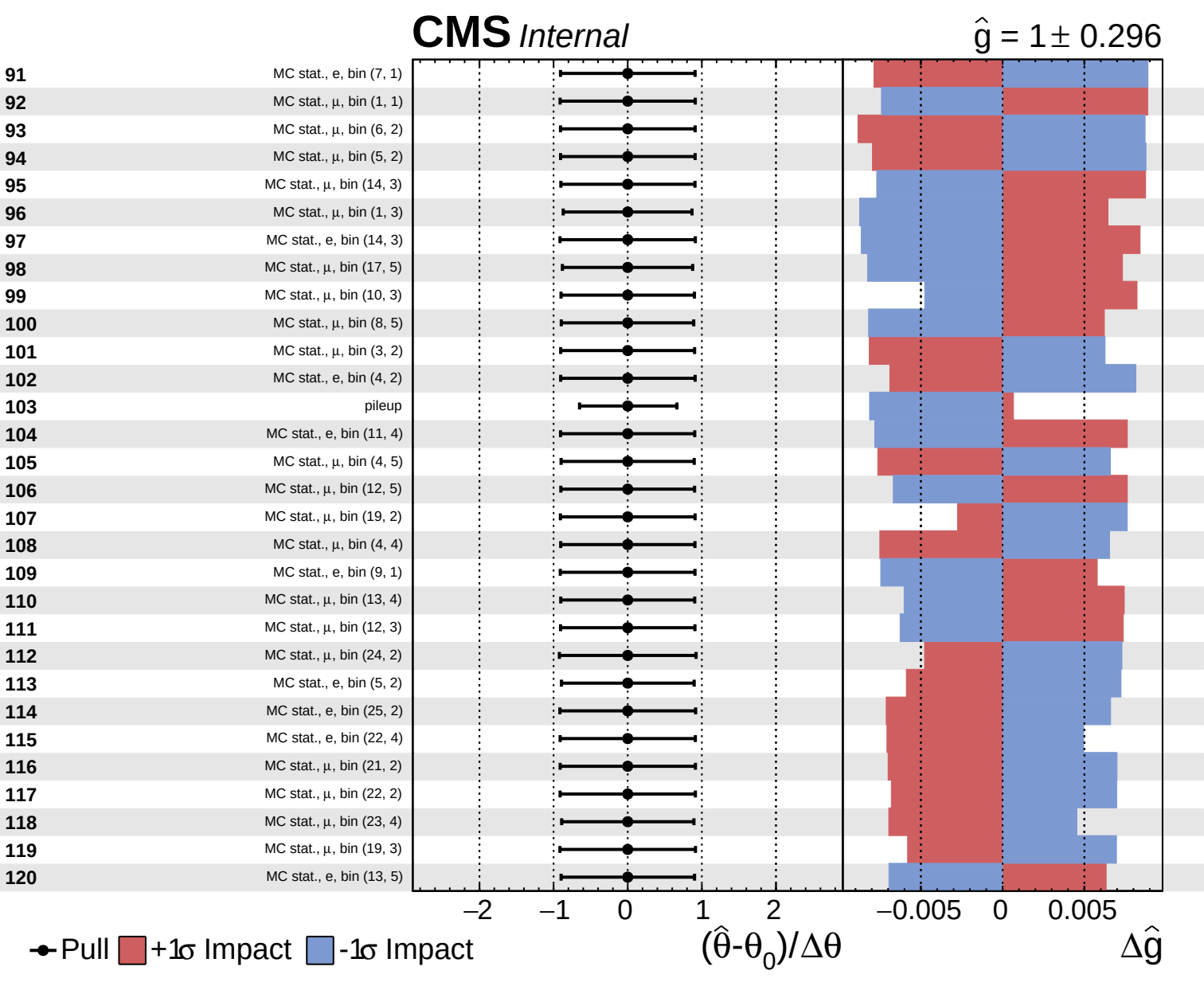
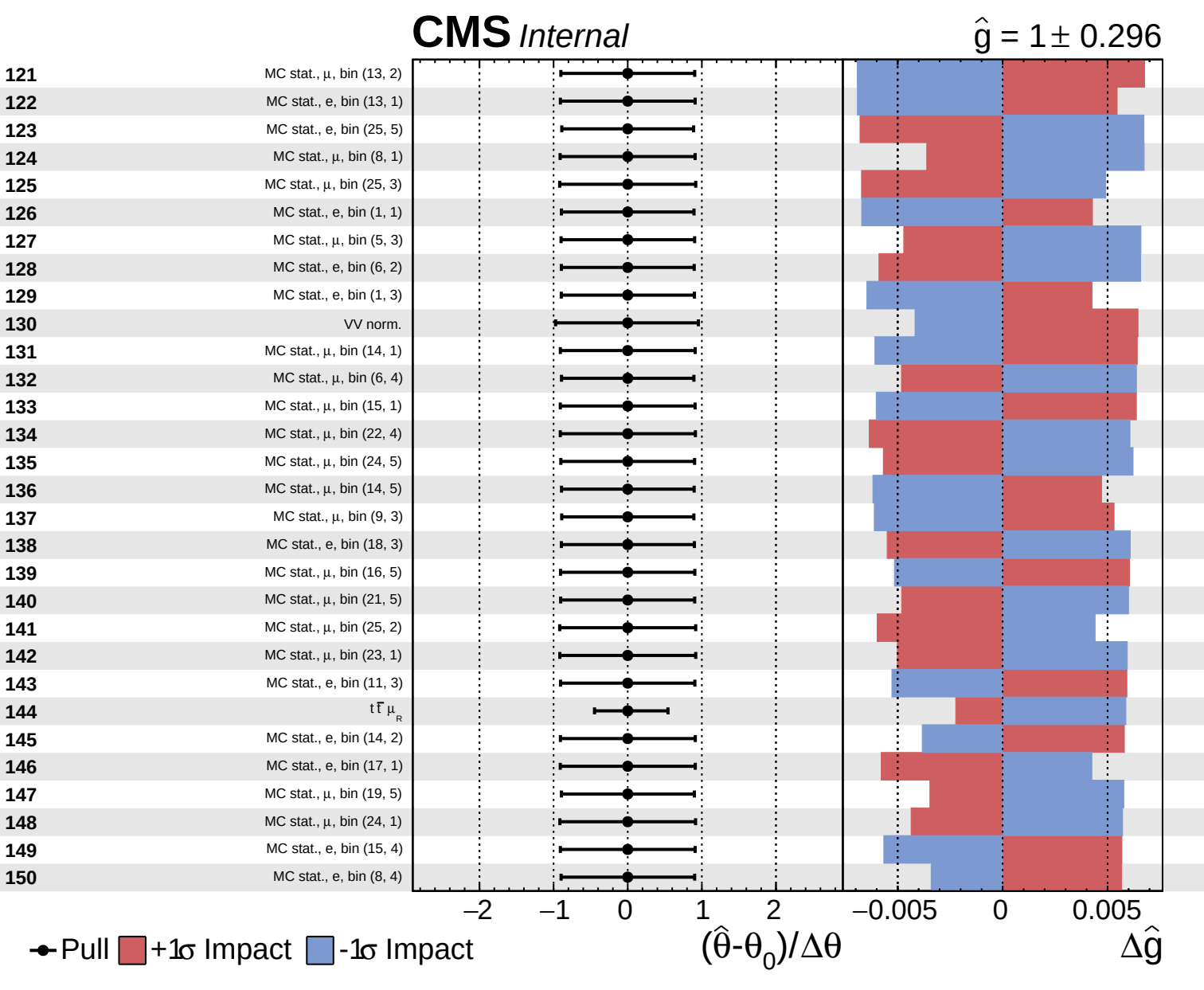
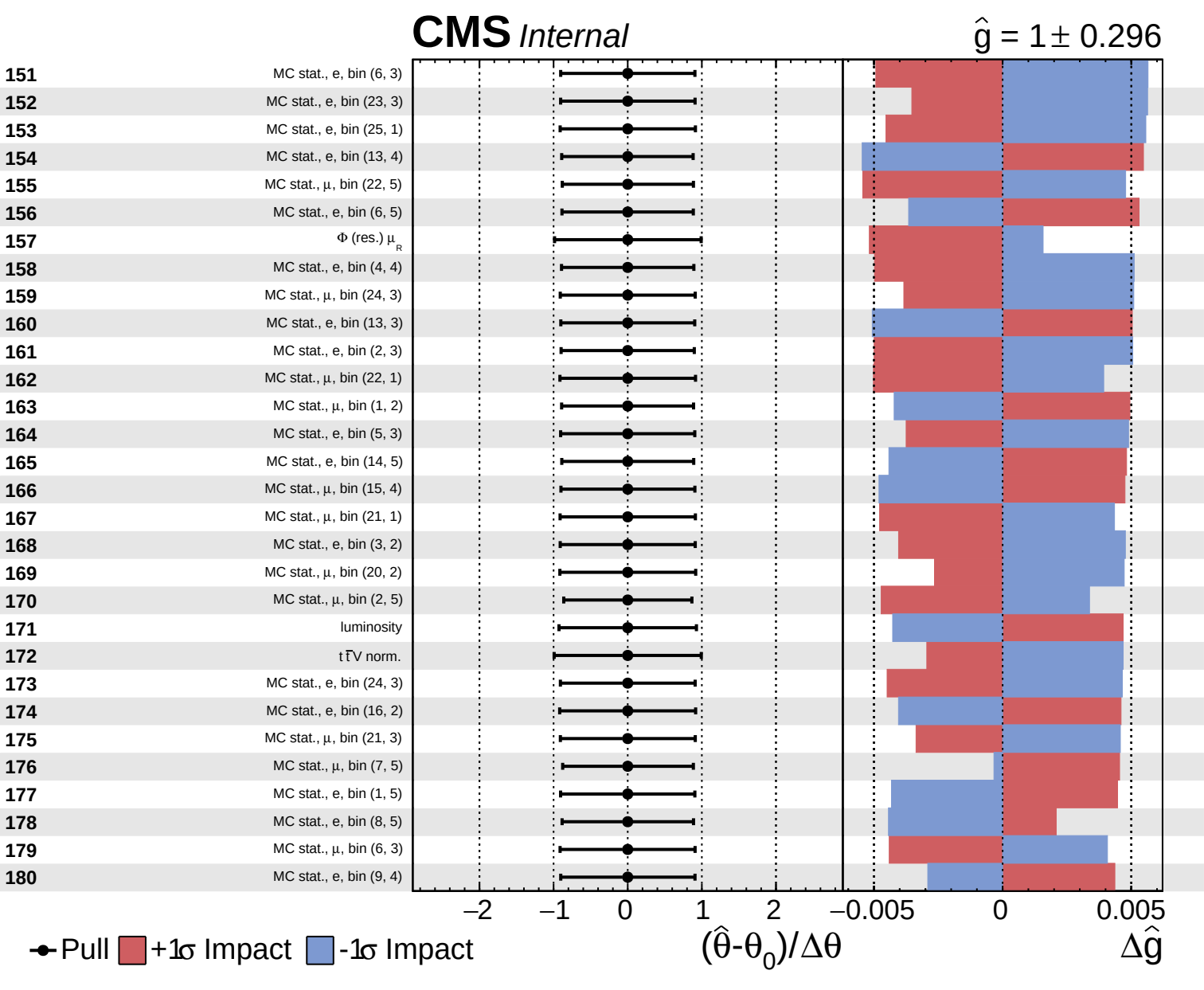

CMS Internal
$\hat{g} = 1 \pm 0.296$
1 Φ (int.) μR
2 b tag eff.
3 W norm.
4 mt
5 Φ (int.) μF
6 tt̄ PDF (2)
7 JEC, AbsoluteMPFBias
8 t, t-chan. norm.
9 JEC, RelativeBal
10 JEC, PileUpPtEC1
11 tt̄ PDF (1)
12 tt̄ norm.
13 JEC, FlavorQCD
14 top pT reweighting (1)
15 tt̄ PDF αs
16 JEC, PileUpPtRef
17 uncl. missing pT
18 MC stat., μ, bin (5, 1)
19 JER
20 MC stat., μ, bin (11, 1)
21 JEC, AbsoluteStat
22 MC stat., e, bin (6, 1)
23 MC stat., μ, bin (6, 1)
24 DY norm.
25 JEC, AbsoluteScale
26 MC stat., e, bin (5, 1)
27 MC stat., e, bin (11, 1)
28 JEC, RelativeFSR
29 JEC, RelativeStatEC
30 MC stat., e, bin (4, 1)
−2 −1 0 1 2
−0.1 0 0.1
Pull +1σ Impact -1σ Impact
$(\hat{\theta}-\theta_0)/\Delta\theta$
$\Delta\hat{g}$

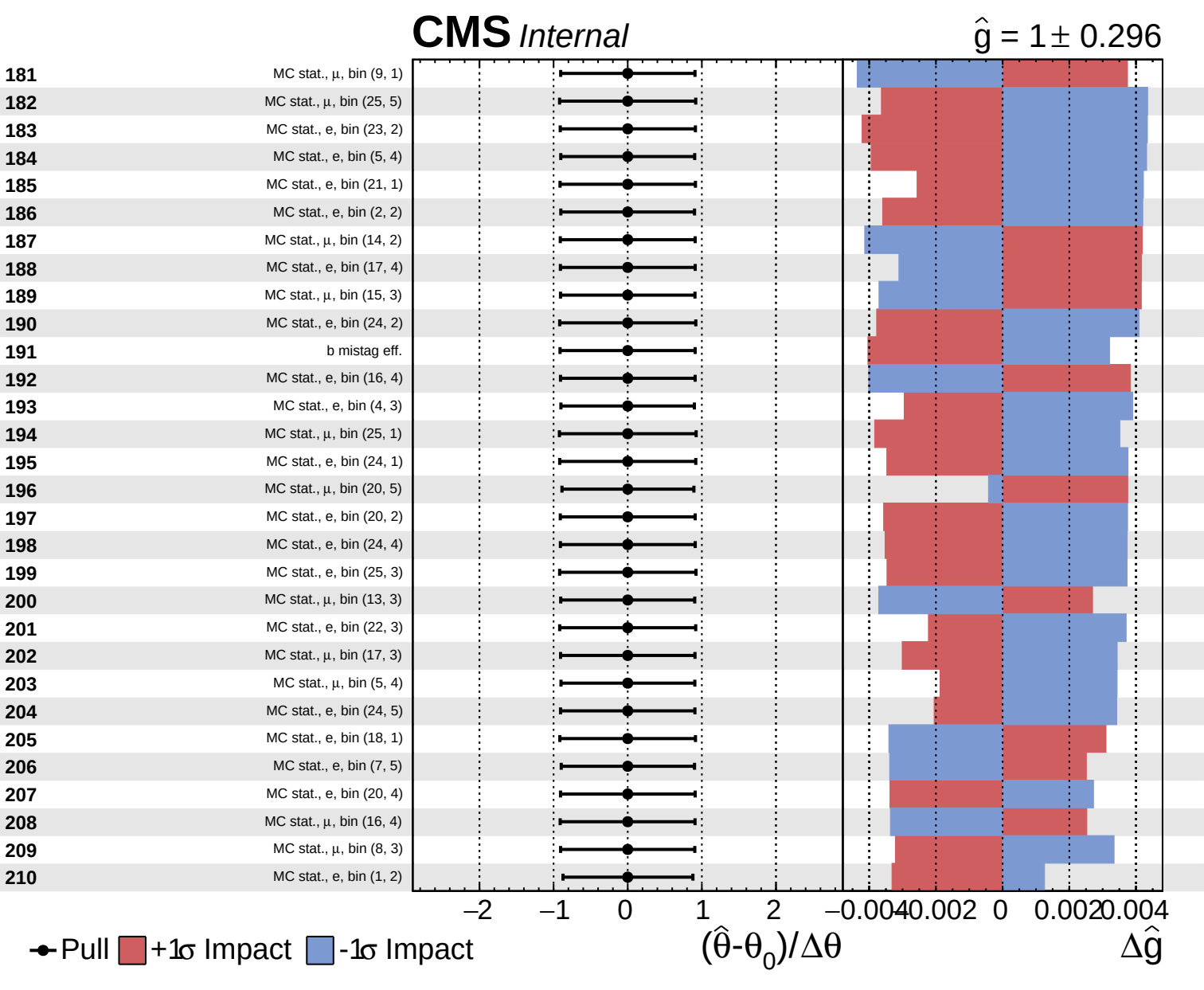

CMS Internal
ĝ = 1 ± 0.296
31 JEC, PileUpPtBB
32 JEC, RelativePtBB
33 JEC, SinglePionECAL
34 MC stat., μ, bin (11, 3)
35 QCD (μ)
36 MC stat., e, bin (10, 1)
37 JEC, RelativePtEC1
38 tW norm.
39 MC stat., μ, bin (7, 1)
40 QCD (e)
41 tt̄ FSR
42 MC stat., μ, bin (10, 1)
43 JEC, Fragmentation
44 MC stat., μ, bin (4, 1)
45 JEC, SinglePionHCAL
46 MC stat., μ, bin (9, 4)
47 top p_T reweighting (2)
48 MC stat., e, bin (11, 5)
49 MC stat., μ, bin (13, 5)
50 MC stat., μ, bin (10, 2)
51 MC stat., μ, bin (12, 4)
52 JEC, PileUpDataMC
53 MC stat., μ, bin (12, 1)
54 MC stat., μ, bin (10, 5)
55 MC stat., μ, bin (11, 2)
56 MC stat., e, bin (12, 5)
57 MC stat., μ, bin (11, 4)
58 tt̄ μ_F
59 MC stat., μ, bin (12, 2)
60 MC stat., e, bin (14, 4)
–2 –1 0 1 2
–0.02 –0.01 0 0.01 0.02
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δĝ

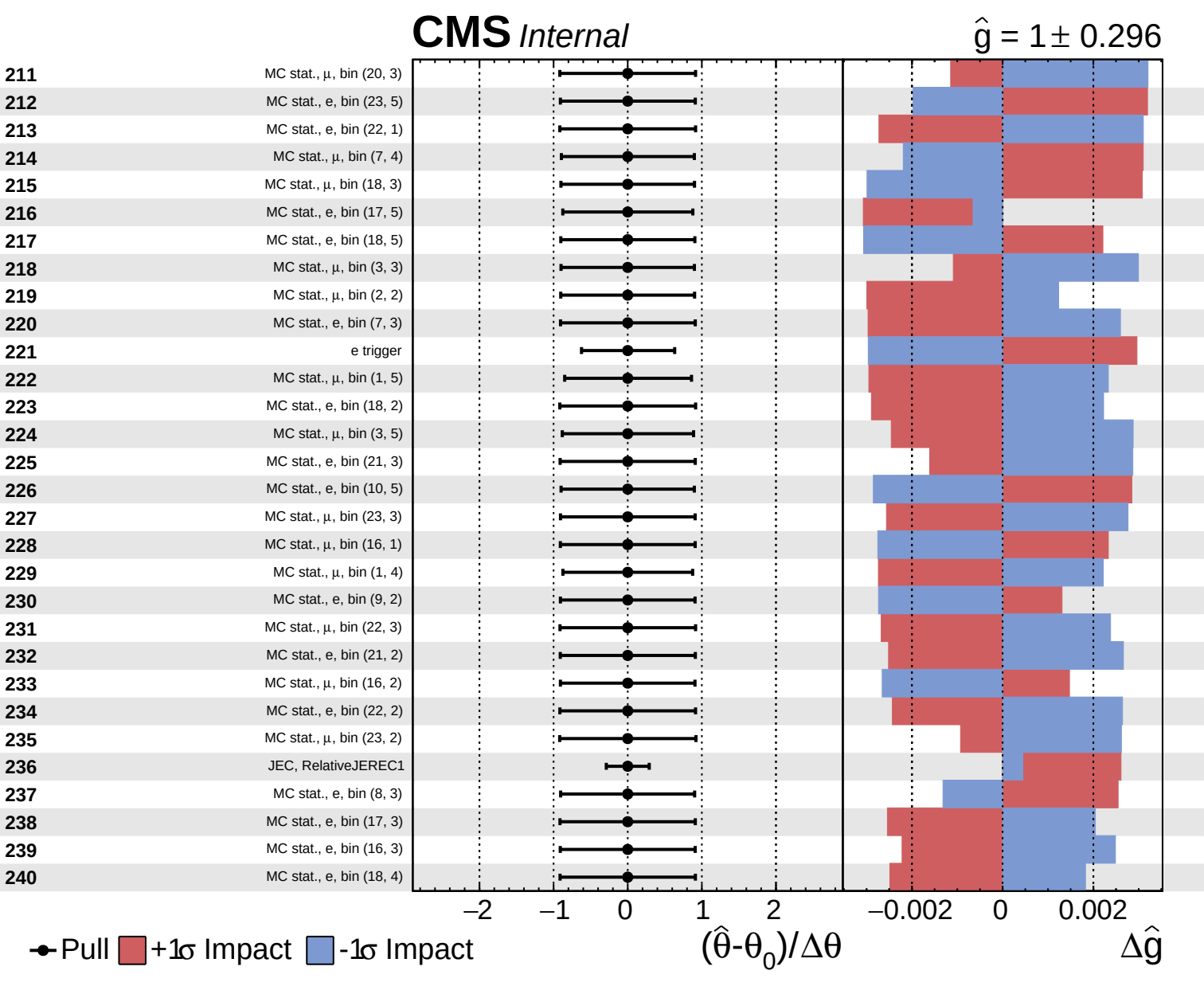

CMS Internal
$\hat{g} = 1 \pm 0.296$
61 MC stat., e, bin (3, 1)
62 $t\bar{t}\,h_{damp}$
63 JEC, TimePtEta
64 MC stat., μ, bin (14, 4)
65 MC stat., e, bin (25, 4)
66 MC stat., μ, bin (4, 3)
67 MC stat., μ, bin (3, 1)
68 MC stat., e, bin (12, 4)
69 MC stat., μ, bin (9, 2)
70 MC stat., e, bin (10, 2)
71 MC stat., μ, bin (4, 2)
72 MC stat., μ, bin (11, 5)
73 JEC, RelativeStatFSR
74 MC stat., e, bin (12, 2)
75 MC stat., e, bin (9, 5)
76 MC stat., e, bin (11, 2)
77 MC stat., e, bin (13, 2)
78 MC stat., e, bin (14, 1)
79 MC stat., e, bin (12, 3)
80 MC stat., μ, bin (25, 4)
81 MC stat., e, bin (23, 1)
82 MC stat., μ, bin (13, 1)
83 MC stat., μ, bin (9, 5)
84 MC stat., μ, bin (10, 4)
85 MC stat., e, bin (10, 4)
86 MC stat., e, bin (12, 1)
87 MC stat., e, bin (7, 2)
88 MC stat., e, bin (15, 3)
89 MC stat., μ, bin (7, 2)
90 MC stat., μ, bin (17, 4)
−2 −1 0 1 2
−0.01 0 0.01
Pull +1σ Impact -1σ Impact
$(\hat{\theta}-\theta_0)/\Delta\theta$
$\Delta\hat{g}$

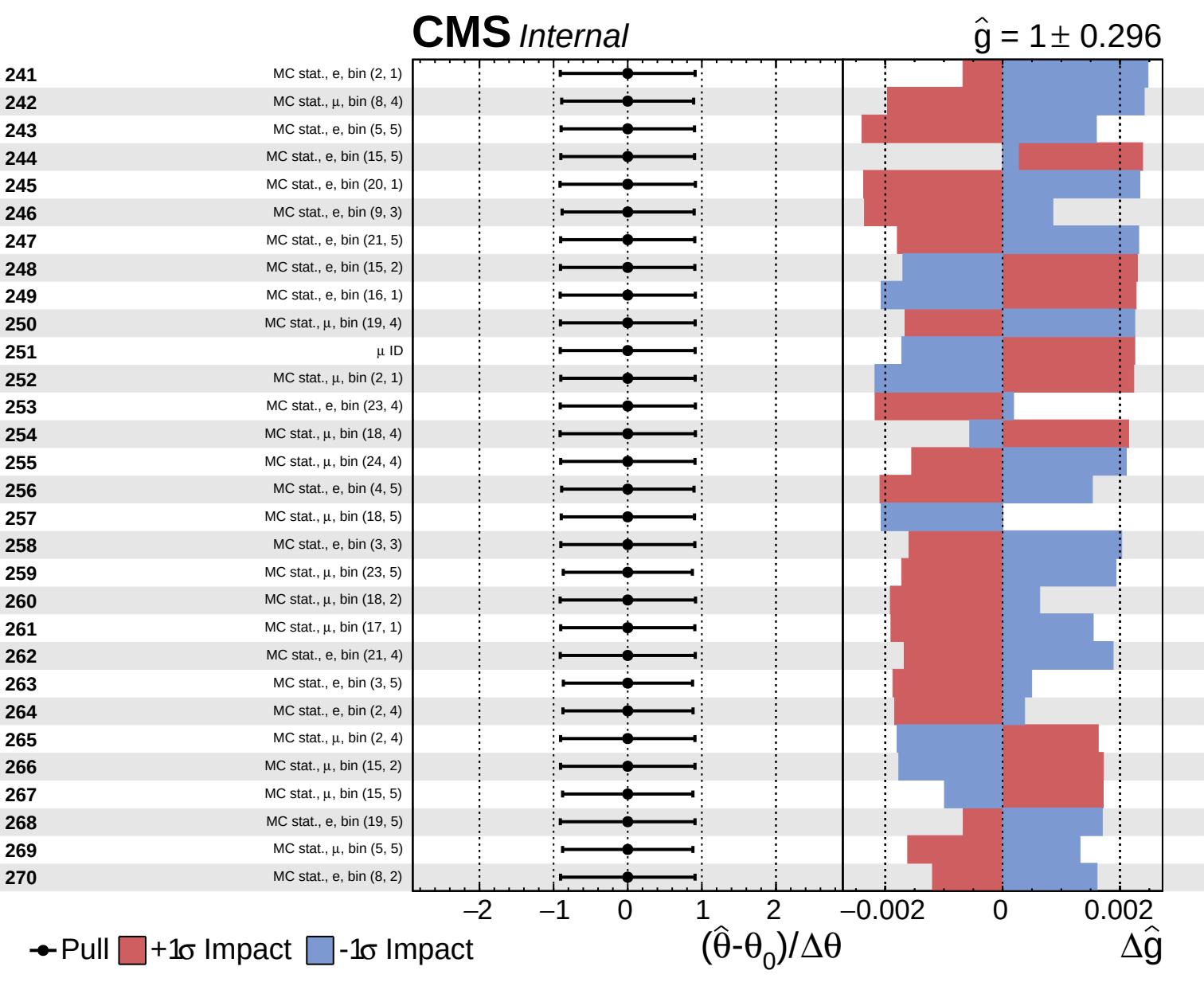

CMS Internal
$\hat{g} = 1 \pm 0.296$
91 MC stat., e, bin (7, 1)
92 MC stat., μ, bin (1, 1)
93 MC stat., μ, bin (6, 2)
94 MC stat., μ, bin (5, 2)
95 MC stat., μ, bin (14, 3)
96 MC stat., μ, bin (1, 3)
97 MC stat., e, bin (14, 3)
98 MC stat., μ, bin (17, 5)
99 MC stat., μ, bin (10, 3)
100 MC stat., μ, bin (8, 5)
101 MC stat., μ, bin (3, 2)
102 MC stat., e, bin (4, 2)
103 pileup
104 MC stat., e, bin (11, 4)
105 MC stat., μ, bin (4, 5)
106 MC stat., μ, bin (12, 5)
107 MC stat., μ, bin (19, 2)
108 MC stat., μ, bin (4, 4)
109 MC stat., e, bin (9, 1)
110 MC stat., μ, bin (13, 4)
111 MC stat., μ, bin (12, 3)
112 MC stat., μ, bin (24, 2)
113 MC stat., e, bin (5, 2)
114 MC stat., e, bin (25, 2)
115 MC stat., e, bin (22, 4)
116 MC stat., μ, bin (21, 2)
117 MC stat., μ, bin (22, 2)
118 MC stat., μ, bin (23, 4)
119 MC stat., μ, bin (19, 3)
120 MC stat., e, bin (13, 5)
−2
−1
0
1
2
−0.005
0
0.005
Pull
+1σ Impact
-1σ Impact
$(\hat{\theta}-\theta_0)/\Delta\theta$
$\Delta\hat{g}$

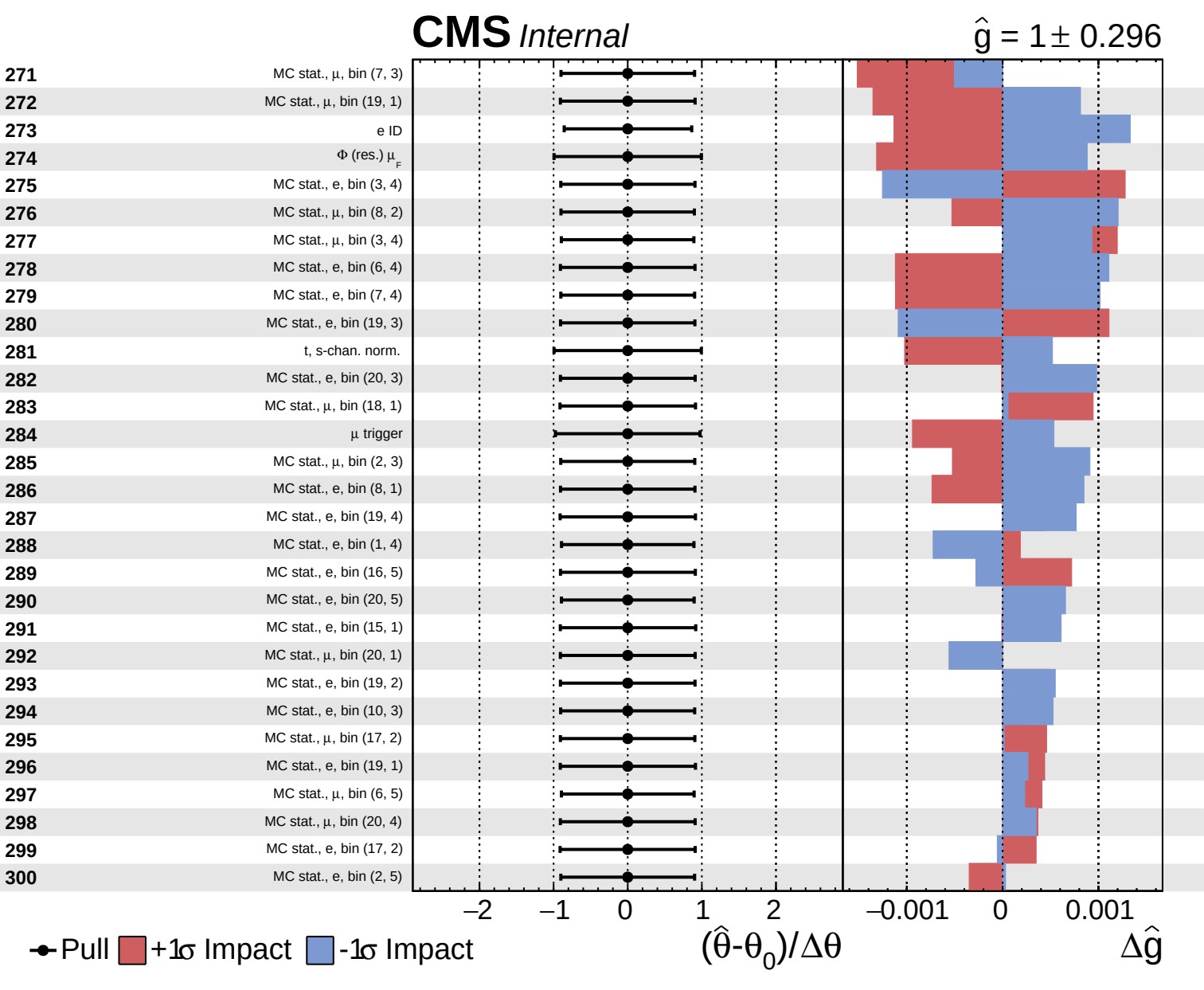

CMS Internal
ĝ = 1 ± 0.296
121 MC stat., μ, bin (13, 2)
122 MC stat., e, bin (13, 1)
123 MC stat., e, bin (25, 5)
124 MC stat., μ, bin (8, 1)
125 MC stat., μ, bin (25, 3)
126 MC stat., e, bin (1, 1)
127 MC stat., μ, bin (5, 3)
128 MC stat., e, bin (6, 2)
129 MC stat., e, bin (1, 3)
130 VV norm.
131 MC stat., μ, bin (14, 1)
132 MC stat., μ, bin (6, 4)
133 MC stat., μ, bin (15, 1)
134 MC stat., μ, bin (22, 4)
135 MC stat., μ, bin (24, 5)
136 MC stat., μ, bin (14, 5)
137 MC stat., μ, bin (9, 3)
138 MC stat., e, bin (18, 3)
139 MC stat., μ, bin (16, 5)
140 MC stat., μ, bin (21, 5)
141 MC stat., μ, bin (25, 2)
142 MC stat., μ, bin (23, 1)
143 MC stat., e, bin (11, 3)
144 $t\bar{t}\,\mu_R$
145 MC stat., e, bin (14, 2)
146 MC stat., e, bin (17, 1)
147 MC stat., μ, bin (19, 5)
148 MC stat., μ, bin (24, 1)
149 MC stat., e, bin (15, 4)
150 MC stat., e, bin (8, 4)
−2
−1
0
1
2
−0.005
0
0.005
Pull
+1σ Impact
-1σ Impact
$(\hat{\theta}-\theta_0)/\Delta\theta$
$\Delta\hat{g}$

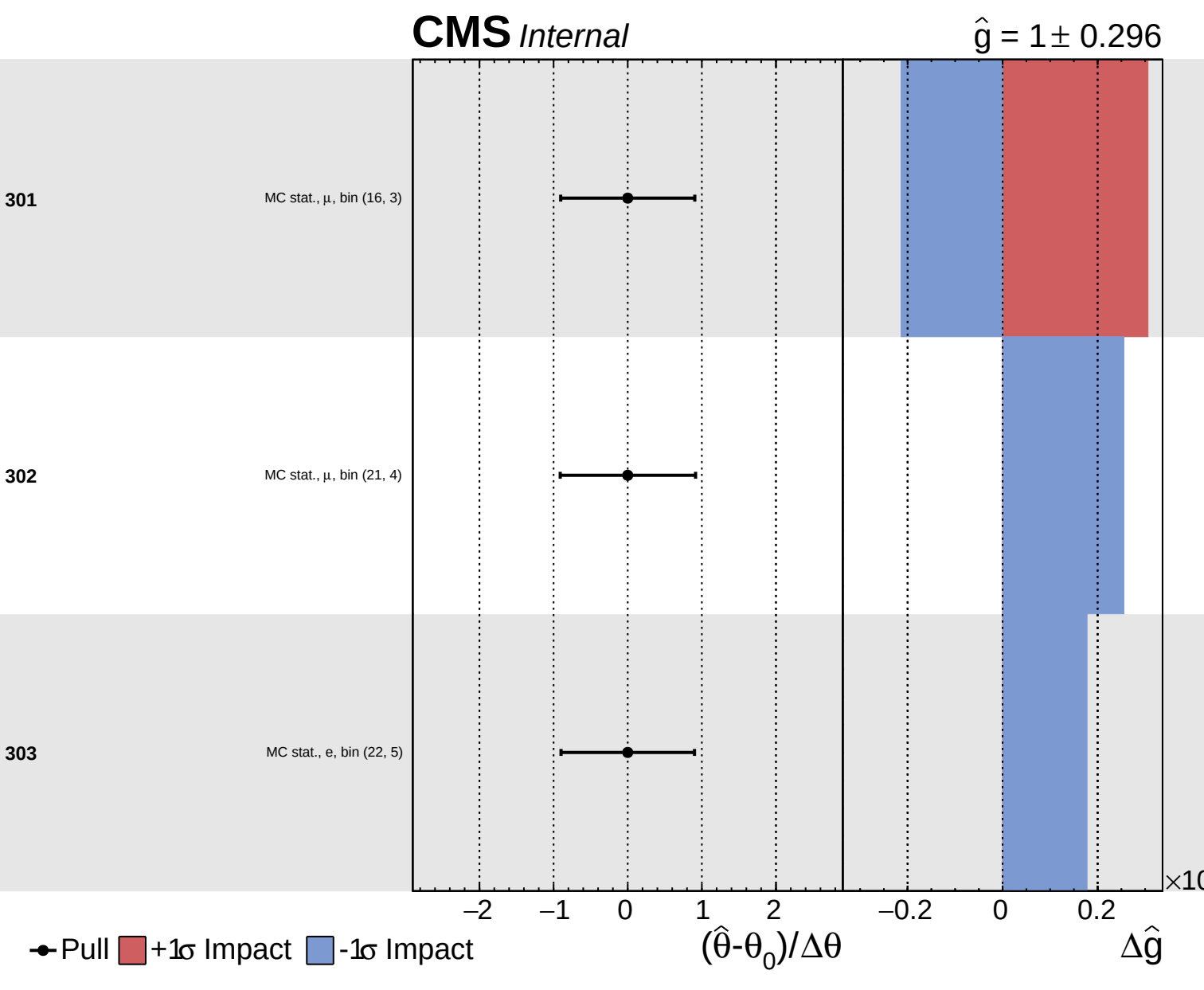

CMS Internal
ĝ = 1 ± 0.296
151 MC stat., e, bin (6, 3)
152 MC stat., e, bin (23, 3)
153 MC stat., e, bin (25, 1)
154 MC stat., e, bin (13, 4)
155 MC stat., μ, bin (22, 5)
156 MC stat., e, bin (6, 5)
157 Φ (res.) μR
158 MC stat., e, bin (4, 4)
159 MC stat., μ, bin (24, 3)
160 MC stat., e, bin (13, 3)
161 MC stat., e, bin (2, 3)
162 MC stat., μ, bin (22, 1)
163 MC stat., μ, bin (1, 2)
164 MC stat., e, bin (5, 3)
165 MC stat., e, bin (14, 5)
166 MC stat., μ, bin (15, 4)
167 MC stat., μ, bin (21, 1)
168 MC stat., e, bin (3, 2)
169 MC stat., μ, bin (20, 2)
170 MC stat., μ, bin (2, 5)
171 luminosity
172 tt̄V norm.
173 MC stat., e, bin (24, 3)
174 MC stat., e, bin (16, 2)
175 MC stat., μ, bin (21, 3)
176 MC stat., μ, bin (7, 5)
177 MC stat., e, bin (1, 5)
178 MC stat., e, bin (8, 5)
179 MC stat., μ, bin (6, 3)
180 MC stat., e, bin (9, 4)
−2
−1
0
1
2
−0.005
0
0.005
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δĝ


CMS Internal
ĝ = 1 ± 0.296
181 MC stat., μ, bin (9, 1)
182 MC stat., μ, bin (25, 5)
183 MC stat., e, bin (23, 2)
184 MC stat., e, bin (5, 4)
185 MC stat., e, bin (21, 1)
186 MC stat., e, bin (2, 2)
187 MC stat., μ, bin (14, 2)
188 MC stat., e, bin (17, 4)
189 MC stat., μ, bin (15, 3)
190 MC stat., e, bin (24, 2)
191 b mistag eff.
192 MC stat., e, bin (16, 4)
193 MC stat., e, bin (4, 3)
194 MC stat., μ, bin (25, 1)
195 MC stat., e, bin (24, 1)
196 MC stat., μ, bin (20, 5)
197 MC stat., e, bin (20, 2)
198 MC stat., e, bin (24, 4)
199 MC stat., e, bin (25, 3)
200 MC stat., μ, bin (13, 3)
201 MC stat., e, bin (22, 3)
202 MC stat., μ, bin (17, 3)
203 MC stat., μ, bin (5, 4)
204 MC stat., e, bin (24, 5)
205 MC stat., e, bin (18, 1)
206 MC stat., e, bin (7, 5)
207 MC stat., e, bin (20, 4)
208 MC stat., μ, bin (16, 4)
209 MC stat., μ, bin (8, 3)
210 MC stat., e, bin (1, 2)
−2
−1
0
1
2
−0.004
−0.002
0
0.002
0.004
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δĝ


CMS Internal
$\hat{g} = 1 \pm 0.296$
211 MC stat., μ, bin (20, 3)
212 MC stat., e, bin (23, 5)
213 MC stat., e, bin (22, 1)
214 MC stat., μ, bin (7, 4)
215 MC stat., μ, bin (18, 3)
216 MC stat., e, bin (17, 5)
217 MC stat., e, bin (18, 5)
218 MC stat., μ, bin (3, 3)
219 MC stat., μ, bin (2, 2)
220 MC stat., e, bin (7, 3)
221 e trigger
222 MC stat., μ, bin (1, 5)
223 MC stat., e, bin (18, 2)
224 MC stat., μ, bin (3, 5)
225 MC stat., e, bin (21, 3)
226 MC stat., e, bin (10, 5)
227 MC stat., μ, bin (23, 3)
228 MC stat., μ, bin (16, 1)
229 MC stat., μ, bin (1, 4)
230 MC stat., e, bin (9, 2)
231 MC stat., μ, bin (22, 3)
232 MC stat., e, bin (21, 2)
233 MC stat., μ, bin (16, 2)
234 MC stat., e, bin (22, 2)
235 MC stat., μ, bin (23, 2)
236 JEC, RelativeJEREC1
237 MC stat., e, bin (8, 3)
238 MC stat., e, bin (17, 3)
239 MC stat., e, bin (16, 3)
240 MC stat., e, bin (18, 4)
−2
−1
0
1
2
−0.002
0
0.002
Pull
+1σ Impact
-1σ Impact
$(\hat{\theta}-\theta_0)/\Delta\theta$
$\Delta\hat{g}$


CMS Internal
ĝ = 1 ± 0.296
241 MC stat., e, bin (2, 1)
242 MC stat., μ, bin (8, 4)
243 MC stat., e, bin (5, 5)
244 MC stat., e, bin (15, 5)
245 MC stat., e, bin (20, 1)
246 MC stat., e, bin (9, 3)
247 MC stat., e, bin (21, 5)
248 MC stat., e, bin (15, 2)
249 MC stat., e, bin (16, 1)
250 MC stat., μ, bin (19, 4)
251 μ ID
252 MC stat., μ, bin (2, 1)
253 MC stat., e, bin (23, 4)
254 MC stat., μ, bin (18, 4)
255 MC stat., μ, bin (24, 4)
256 MC stat., e, bin (4, 5)
257 MC stat., μ, bin (18, 5)
258 MC stat., e, bin (3, 3)
259 MC stat., μ, bin (23, 5)
260 MC stat., μ, bin (18, 2)
261 MC stat., μ, bin (17, 1)
262 MC stat., e, bin (21, 4)
263 MC stat., e, bin (3, 5)
264 MC stat., e, bin (2, 4)
265 MC stat., μ, bin (2, 4)
266 MC stat., μ, bin (15, 2)
267 MC stat., μ, bin (15, 5)
268 MC stat., e, bin (19, 5)
269 MC stat., μ, bin (5, 5)
270 MC stat., e, bin (8, 2)
−2
−1
0
1
2
−0.002
0
0.002
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δĝ


CMS Internal
$\hat{g} = 1 \pm 0.296$
271 MC stat., μ, bin (7, 3)
272 MC stat., μ, bin (19, 1)
273 e ID
274 Φ (res.) μ_F
275 MC stat., e, bin (3, 4)
276 MC stat., μ, bin (8, 2)
277 MC stat., μ, bin (3, 4)
278 MC stat., e, bin (6, 4)
279 MC stat., e, bin (7, 4)
280 MC stat., e, bin (19, 3)
281 t, s-chan. norm.
282 MC stat., e, bin (20, 3)
283 MC stat., μ, bin (18, 1)
284 μ trigger
285 MC stat., μ, bin (2, 3)
286 MC stat., e, bin (8, 1)
287 MC stat., e, bin (19, 4)
288 MC stat., e, bin (1, 4)
289 MC stat., e, bin (16, 5)
290 MC stat., e, bin (20, 5)
291 MC stat., e, bin (15, 1)
292 MC stat., μ, bin (20, 1)
293 MC stat., e, bin (19, 2)
294 MC stat., e, bin (10, 3)
295 MC stat., μ, bin (17, 2)
296 MC stat., e, bin (19, 1)
297 MC stat., μ, bin (6, 5)
298 MC stat., μ, bin (20, 4)
299 MC stat., e, bin (17, 2)
300 MC stat., e, bin (2, 5)
−2
−1
0
1
2
−0.001
0
0.001
Pull
+1σ Impact
-1σ Impact
$(\hat{\theta}-\theta_0)/\Delta\theta$
$\Delta\hat{g}$


CMS Internal
ĝ = 1 ± 0.296
301
MC stat., μ, bin (16, 3)
302
MC stat., μ, bin (21, 4)
303
MC stat., e, bin (22, 5)
×10
−2
−1
0
1
2
−0.2
0
0.2
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δĝ