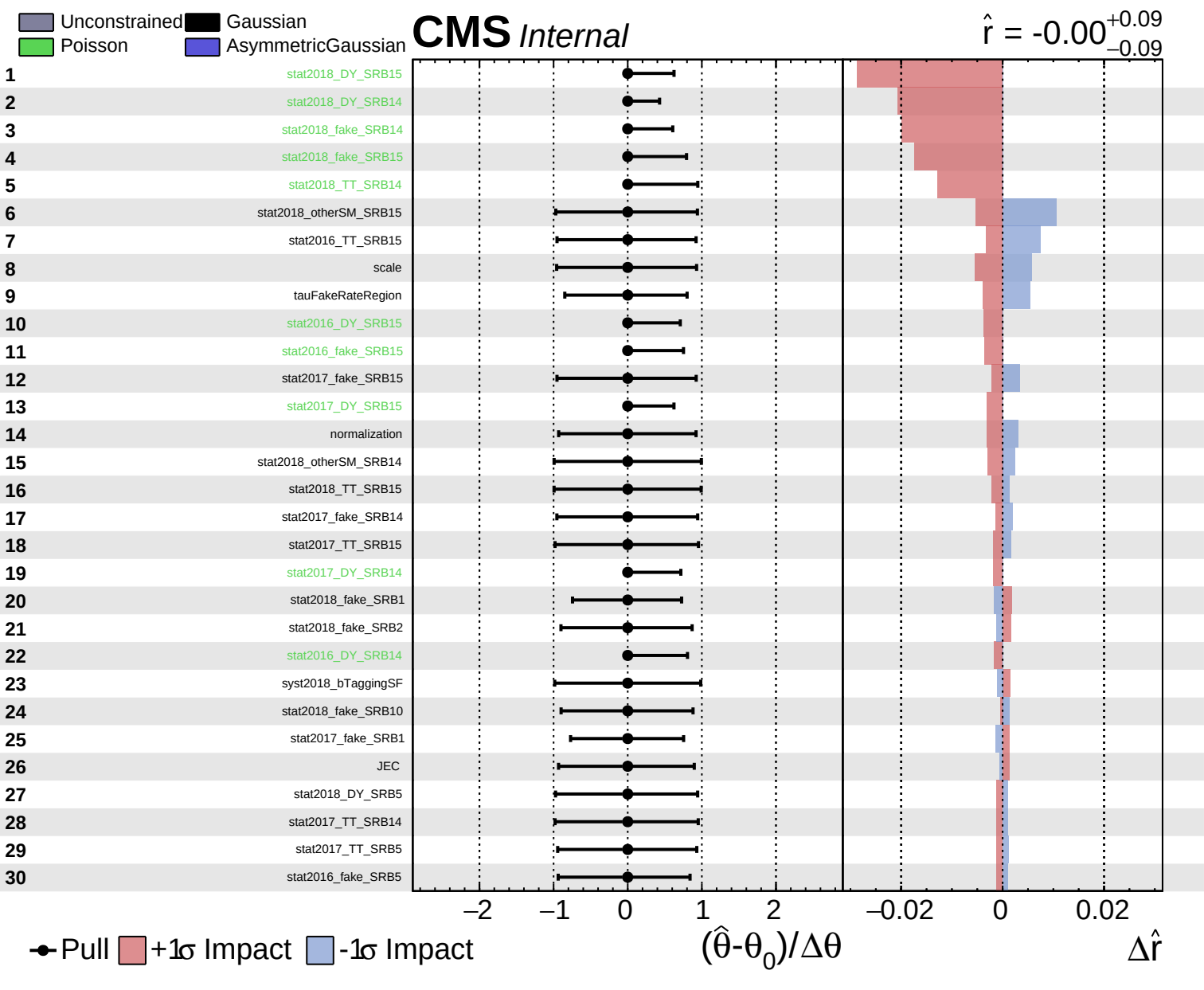
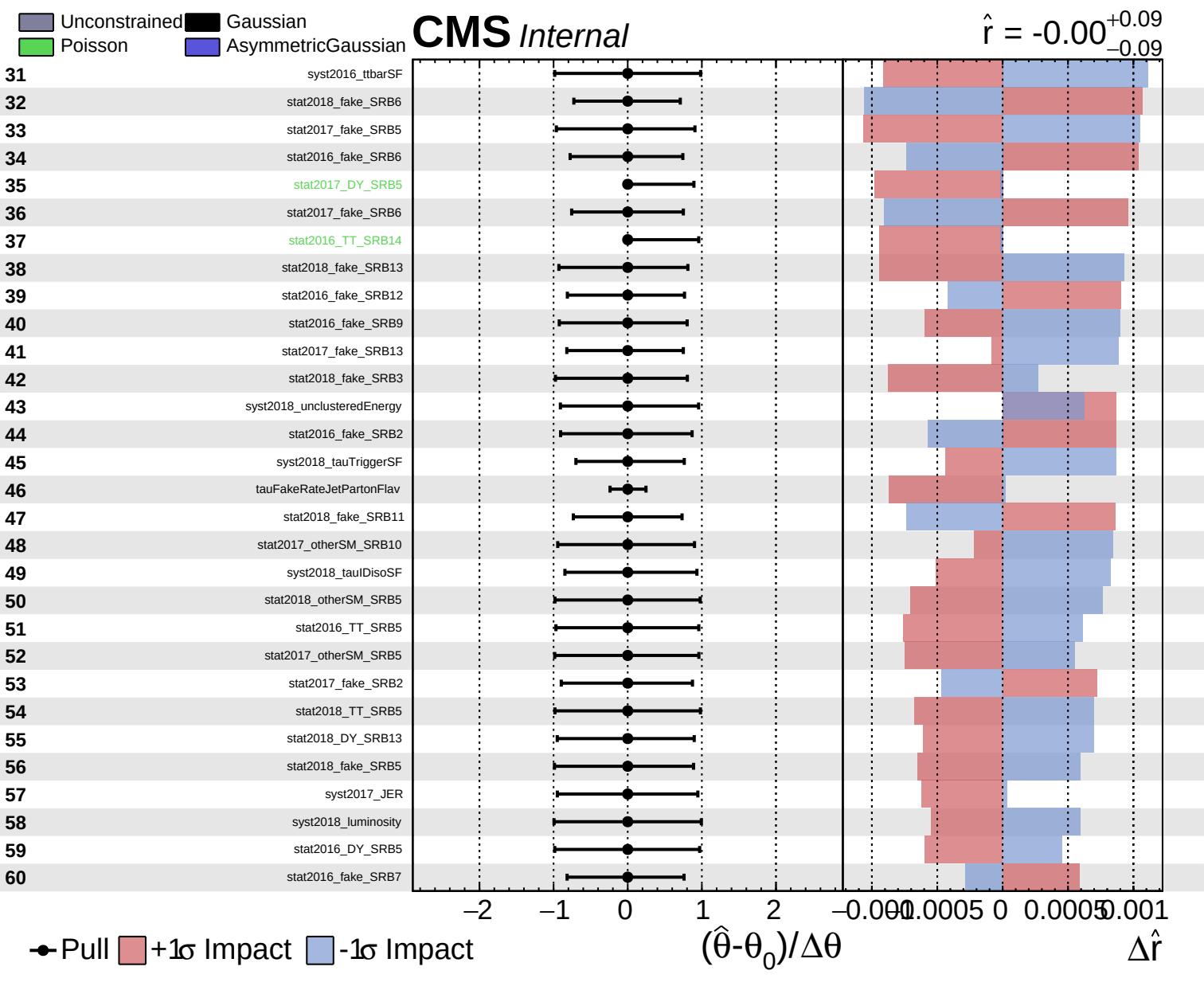

Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r̂ = -0.00 +0.09 −0.09
1 stat2018_DY_SRB15
2 stat2018_DY_SRB14
3 stat2018_fake_SRB14
4 stat2018_fake_SRB15
5 stat2018_TT_SRB14
6 stat2018_otherSM_SRB15
7 stat2016_TT_SRB15
8 scale
9 tauFakeRateRegion
10 stat2016_DY_SRB15
11 stat2016_fake_SRB15
12 stat2017_fake_SRB15
13 stat2017_DY_SRB15
14 normalization
15 stat2018_otherSM_SRB14
16 stat2018_TT_SRB15
17 stat2017_fake_SRB14
18 stat2017_TT_SRB15
19 stat2017_DY_SRB14
20 stat2018_fake_SRB1
21 stat2018_fake_SRB2
22 stat2016_DY_SRB14
23 syst2018_bTaggingSF
24 stat2018_fake_SRB10
25 stat2017_fake_SRB1
26 JEC
27 stat2018_DY_SRB5
28 stat2017_TT_SRB14
29 stat2017_TT_SRB5
30 stat2016_fake_SRB5
−2
−1
0
1
2
−0.02
0
0.02
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr̂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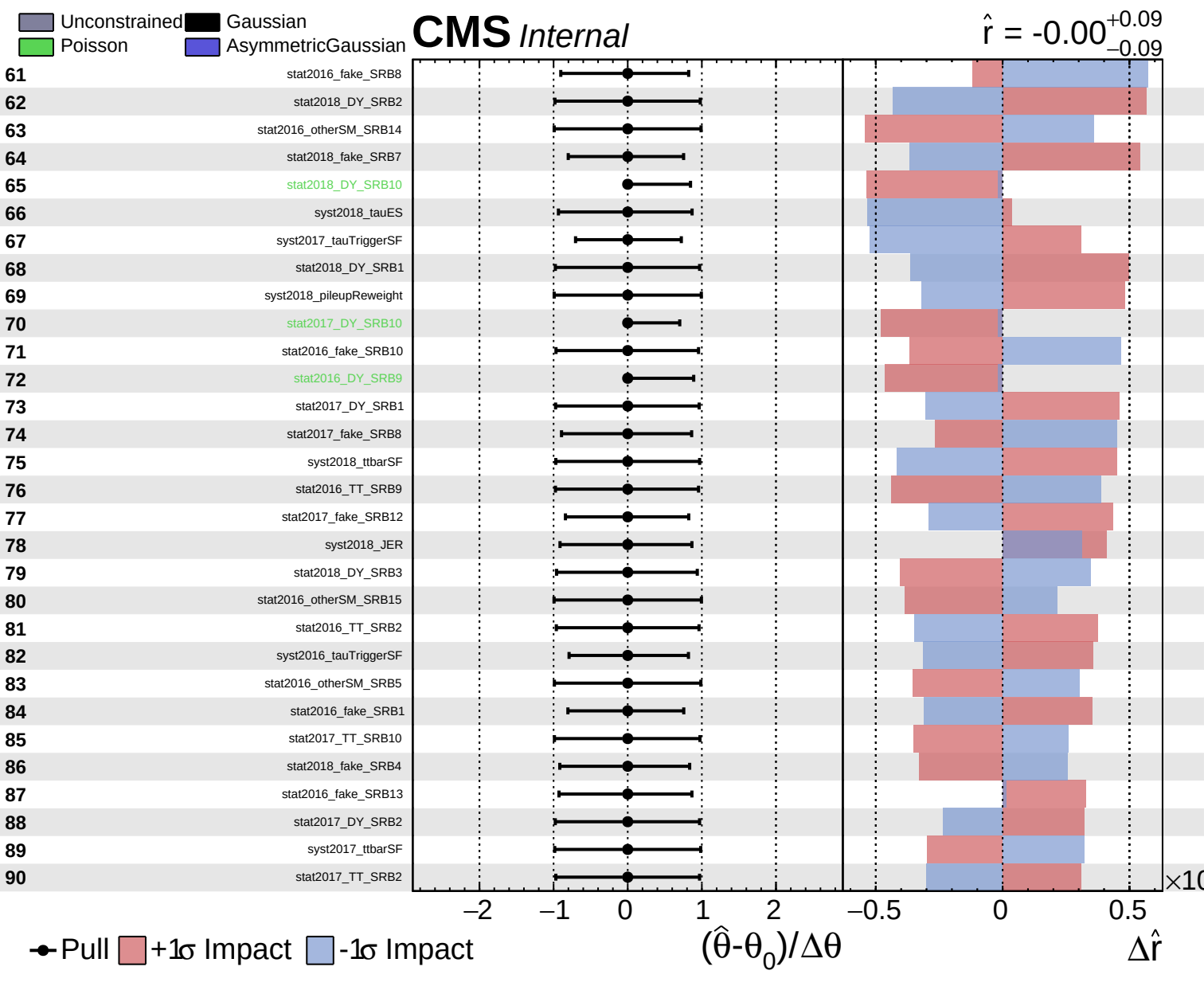
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r̂ = -0.00 +0.09 −0.09
31 syst2016_ttbarSF
32 stat2018_fake_SRB6
33 stat2017_fake_SRB5
34 stat2016_fake_SRB6
35 stat2017_DY_SRB5
36 stat2017_fake_SRB6
37 stat2016_TT_SRB14
38 stat2018_fake_SRB13
39 stat2016_fake_SRB12
40 stat2016_fake_SRB9
41 stat2017_fake_SRB13
42 stat2018_fake_SRB3
43 syst2018_unclusteredEnergy
44 stat2016_fake_SRB2
45 syst2018_tauTriggerSF
46 tauFakeRateJetPartonFlav
47 stat2018_fake_SRB11
48 stat2017_otherSM_SRB10
49 syst2018_tauIDisoSF
50 stat2018_otherSM_SRB5
51 stat2016_TT_SRB5
52 stat2017_otherSM_SRB5
53 stat2017_fake_SRB2
54 stat2018_TT_SRB5
55 stat2018_DY_SRB13
56 stat2018_fake_SRB5
57 syst2017_JER
58 syst2018_luminosity
59 stat2016_DY_SRB5
60 stat2016_fake_SRB7
−2 −1 0 1 2
−0.001 −0.0005 0 0.0005 0.001
Pull +1σ Impact -1σ Impact
(θ̂-θ0)/Δθ
Δr̂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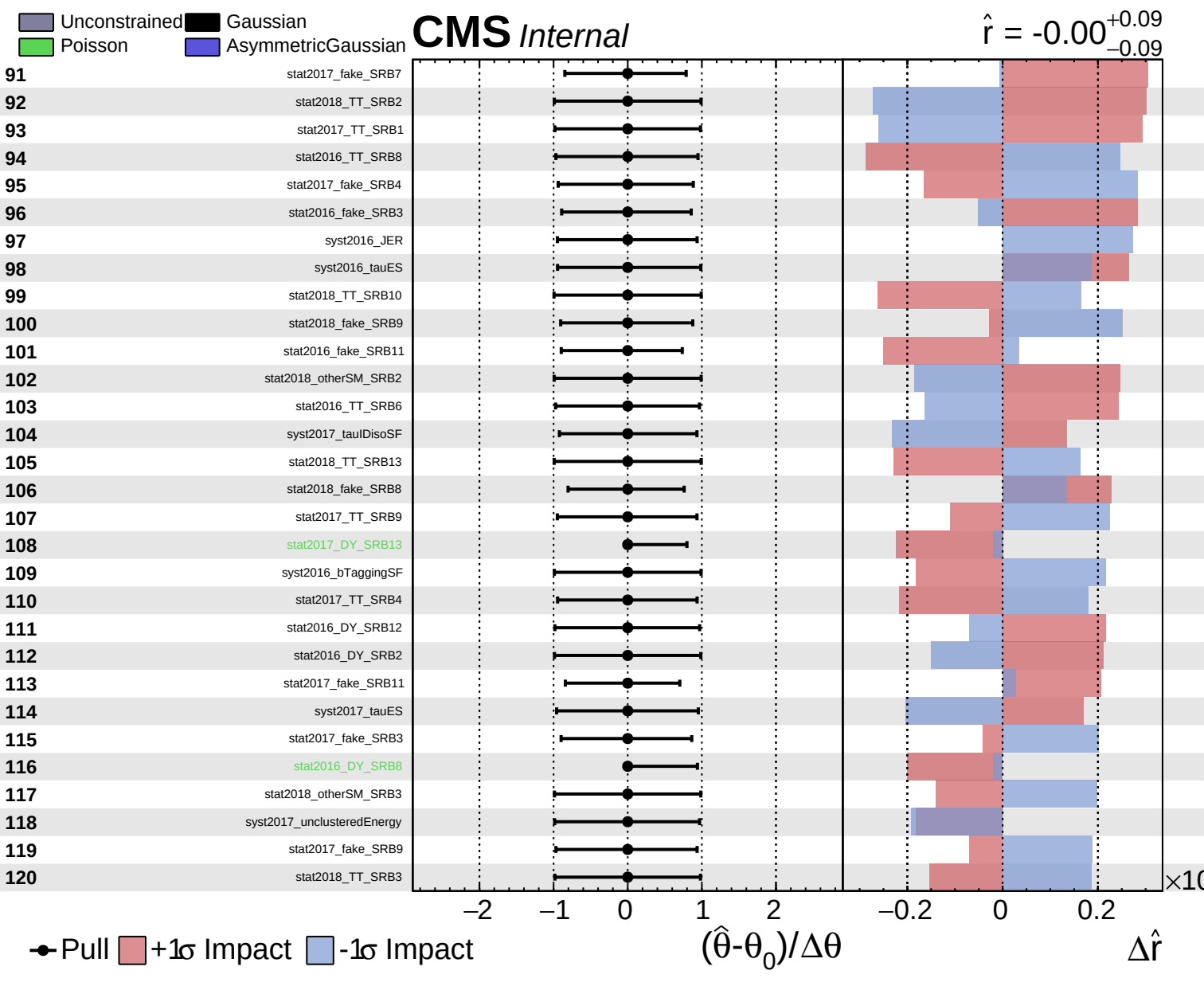
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r̂ = -0.00 +0.09 −0.09
61 stat2016_fake_SRB8
62 stat2018_DY_SRB2
63 stat2016_otherSM_SRB14
64 stat2018_fake_SRB7
65 stat2018_DY_SRB10
66 syst2018_tauES
67 syst2017_tauTriggerSF
68 stat2018_DY_SRB1
69 syst2018_pileupReweight
70 stat2017_DY_SRB10
71 stat2016_fake_SRB10
72 stat2016_DY_SRB9
73 stat2017_DY_SRB1
74 stat2017_fake_SRB8
75 syst2018_ttbarSF
76 stat2016_TT_SRB9
77 stat2017_fake_SRB12
78 syst2018_JER
79 stat2018_DY_SRB3
80 stat2016_otherSM_SRB15
81 stat2016_TT_SRB2
82 syst2016_tauTriggerSF
83 stat2016_otherSM_SRB5
84 stat2016_fake_SRB1
85 stat2017_TT_SRB10
86 stat2018_fake_SRB4
87 stat2016_fake_SRB13
88 stat2017_DY_SRB2
89 syst2017_ttbarSF
90 stat2017_TT_SRB2
−2 −1 0 1 2
−0.5 0 0.5
×10
Pull +1σ Impact -1σ Impact
(θ̂-θ0)/Δθ
Δr̂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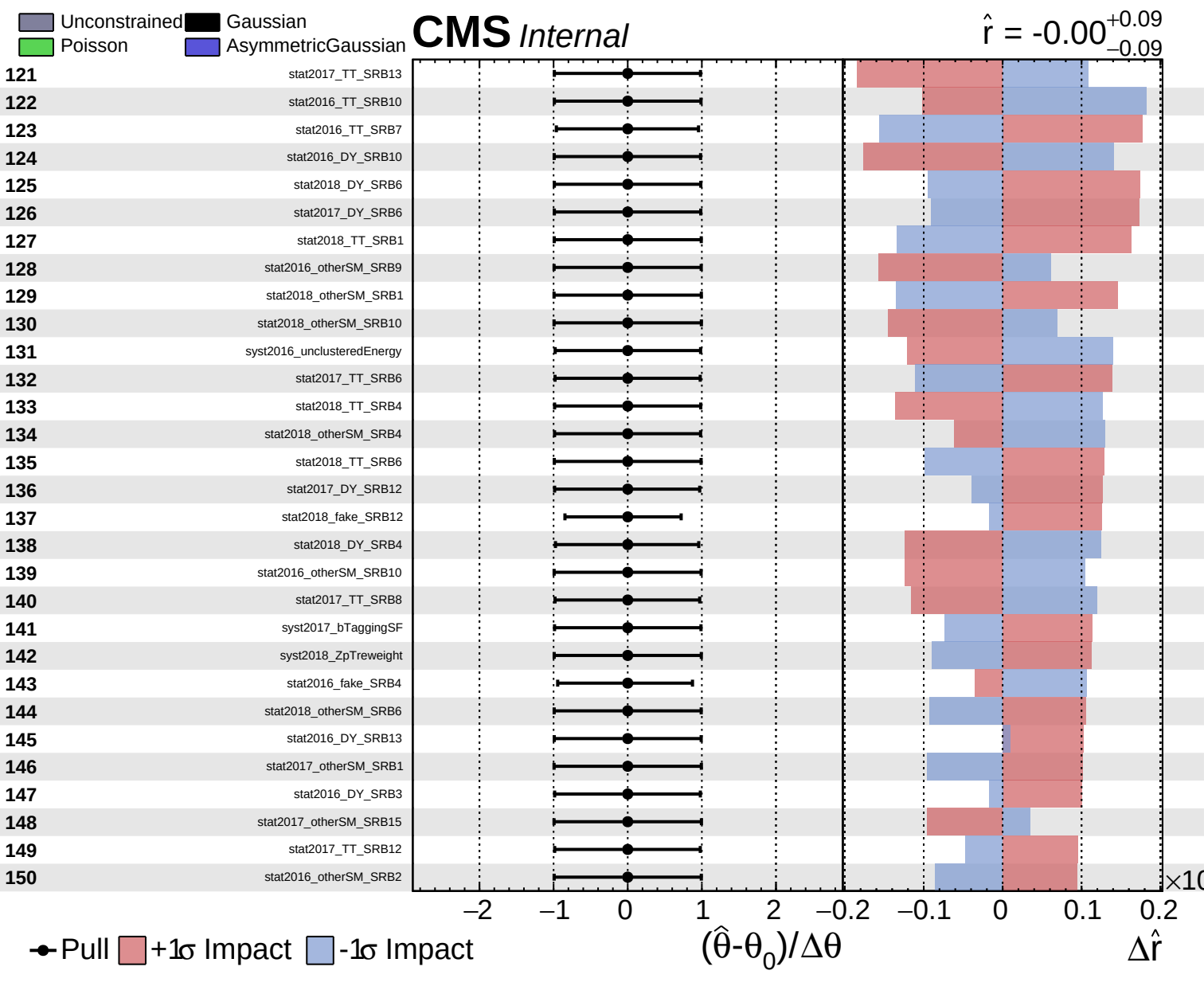
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r̂ = -0.00 +0.09 −0.09
91 stat2017_fake_SRB7
92 stat2018_TT_SRB2
93 stat2017_TT_SRB1
94 stat2016_TT_SRB8
95 stat2017_fake_SRB4
96 stat2016_fake_SRB3
97 syst2016_JER
98 syst2016_tauES
99 stat2018_TT_SRB10
100 stat2018_fake_SRB9
101 stat2016_fake_SRB11
102 stat2018_otherSM_SRB2
103 stat2016_TT_SRB6
104 syst2017_tauIDisoSF
105 stat2018_TT_SRB13
106 stat2018_fake_SRB8
107 stat2017_TT_SRB9
108 stat2017_DY_SRB13
109 syst2016_bTaggingSF
110 stat2017_TT_SRB4
111 stat2016_DY_SRB12
112 stat2016_DY_SRB2
113 stat2017_fake_SRB11
114 syst2017_tauES
115 stat2017_fake_SRB3
116 stat2016_DY_SRB8
117 stat2018_otherSM_SRB3
118 syst2017_unclusteredEnergy
119 stat2017_fake_SRB9
120 stat2018_TT_SRB3
−2 −1 0 1 2
−0.2 0 0.2
×10
Pull +1σ Impact -1σ Impact
(θ̂-θ0)/Δθ
Δr̂


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r̂ = -0.00 +0.09 −0.09
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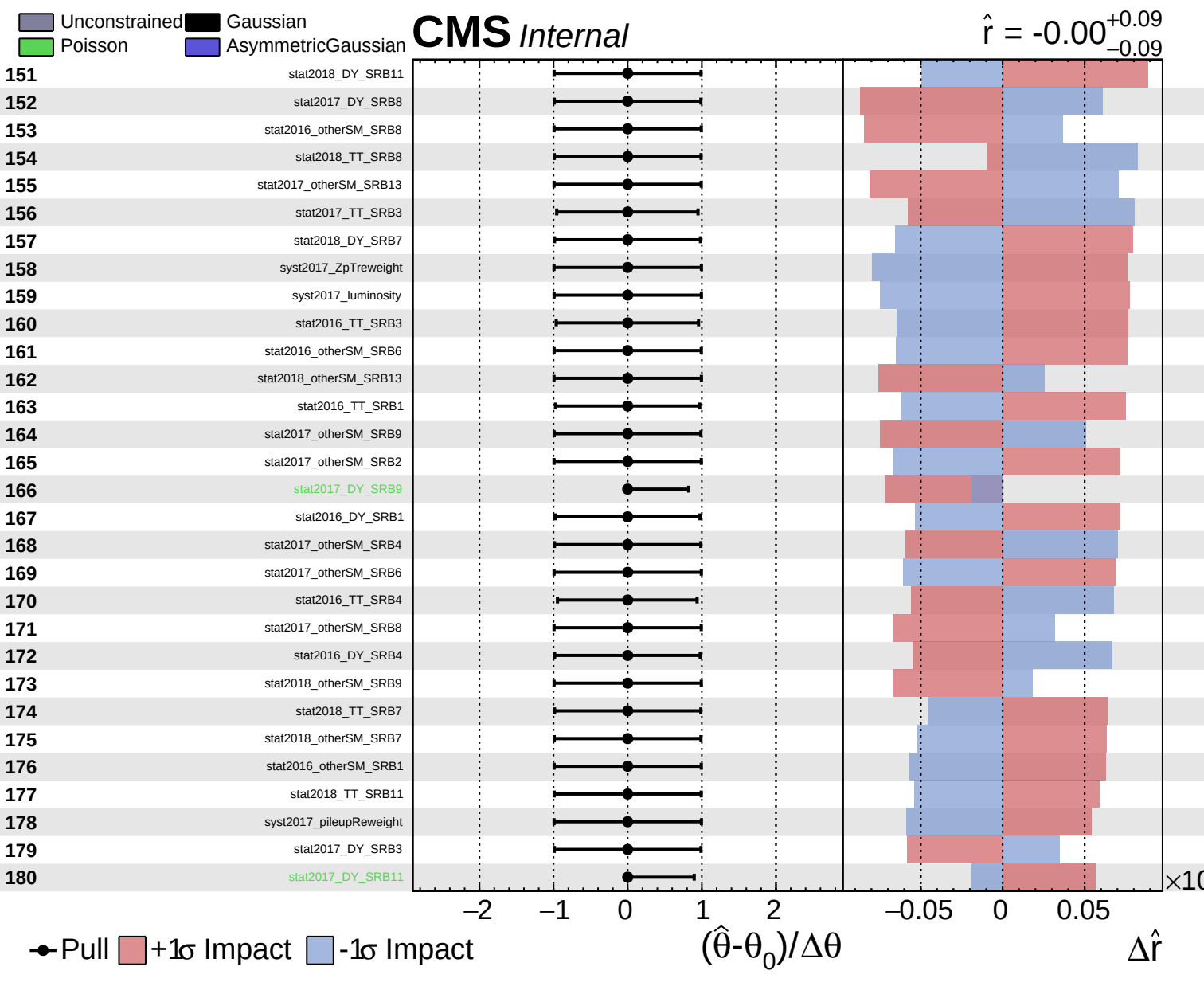
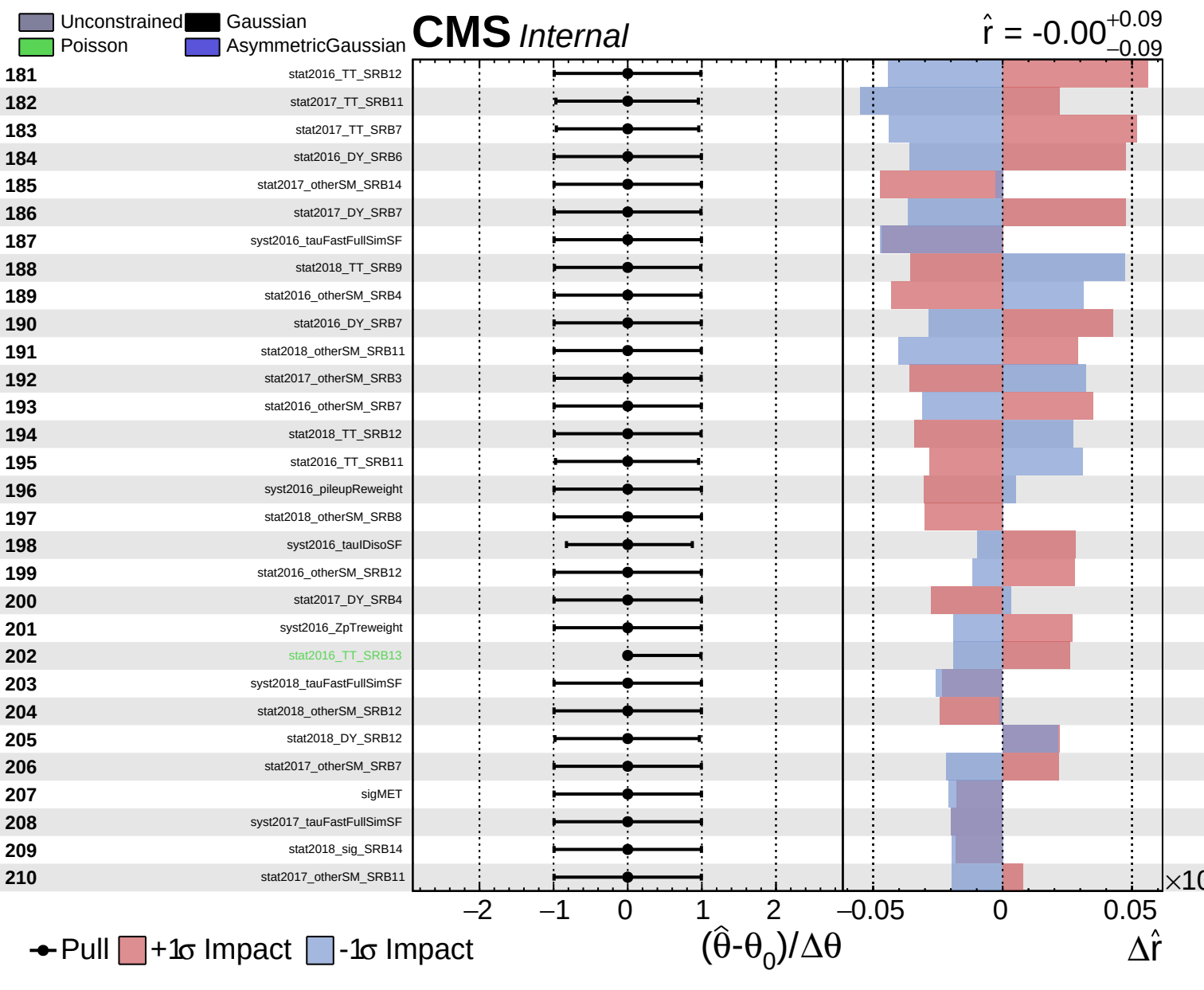
122 stat2016_TT_SRB10
123 stat2016_TT_SRB7
124 stat2016_DY_SRB10
125 stat2018_DY_SRB6
126 stat2017_DY_SRB6
127 stat2018_TT_SRB1
128 stat2016_otherSM_SRB9
129 stat2018_otherSM_SRB1
130 stat2018_otherSM_SRB10
131 syst2016_unclusteredEnergy
132 stat2017_TT_SRB6
133 stat2018_TT_SRB4
134 stat2018_otherSM_SRB4
135 stat2018_TT_SRB6
136 stat2017_DY_SRB12
137 stat2018_fake_SRB12
138 stat2018_DY_SRB4
139 stat2016_otherSM_SRB10
140 stat2017_TT_SRB8
141 syst2017_bTaggingSF
142 syst2018_ZpTreweight
143 stat2016_fake_SRB4
144 stat2018_otherSM_SRB6
145 stat2016_DY_SRB13
146 stat2017_otherSM_SRB1
147 stat2016_DY_SRB3
148 stat2017_otherSM_SRB15
149 stat2017_TT_SRB12
150 stat2016_otherSM_SRB2
−2 −1 0 1 2
−0.2 −0.1 0 0.1 0.2
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr̂


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r̂ = -0.00 +0.09 −0.09
151 stat2018_DY_SRB11
152 stat2017_DY_SRB8
153 stat2016_otherSM_SRB8
154 stat2018_TT_SRB8
155 stat2017_otherSM_SRB13
156 stat2017_TT_SRB3
157 stat2018_DY_SRB7
158 syst2017_ZpTreweight
159 syst2017_luminosity
160 stat2016_TT_SRB3
161 stat2016_otherSM_SRB6
162 stat2018_otherSM_SRB13
163 stat2016_TT_SRB1
164 stat2017_otherSM_SRB9
165 stat2017_otherSM_SRB2
166 stat2017_DY_SRB9
167 stat2016_DY_SRB1
168 stat2017_otherSM_SRB4
169 stat2017_otherSM_SRB6
170 stat2016_TT_SRB4
171 stat2017_otherSM_SRB8
172 stat2016_DY_SRB4
173 stat2018_otherSM_SRB9
174 stat2018_TT_SRB7
175 stat2018_otherSM_SRB7
176 stat2016_otherSM_SRB1
177 stat2018_TT_SRB11
178 syst2017_pileupReweight
179 stat2017_DY_SRB3
180 stat2017_DY_SRB11
−2 −1 0 1 2
−0.05 0 0.05
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr̂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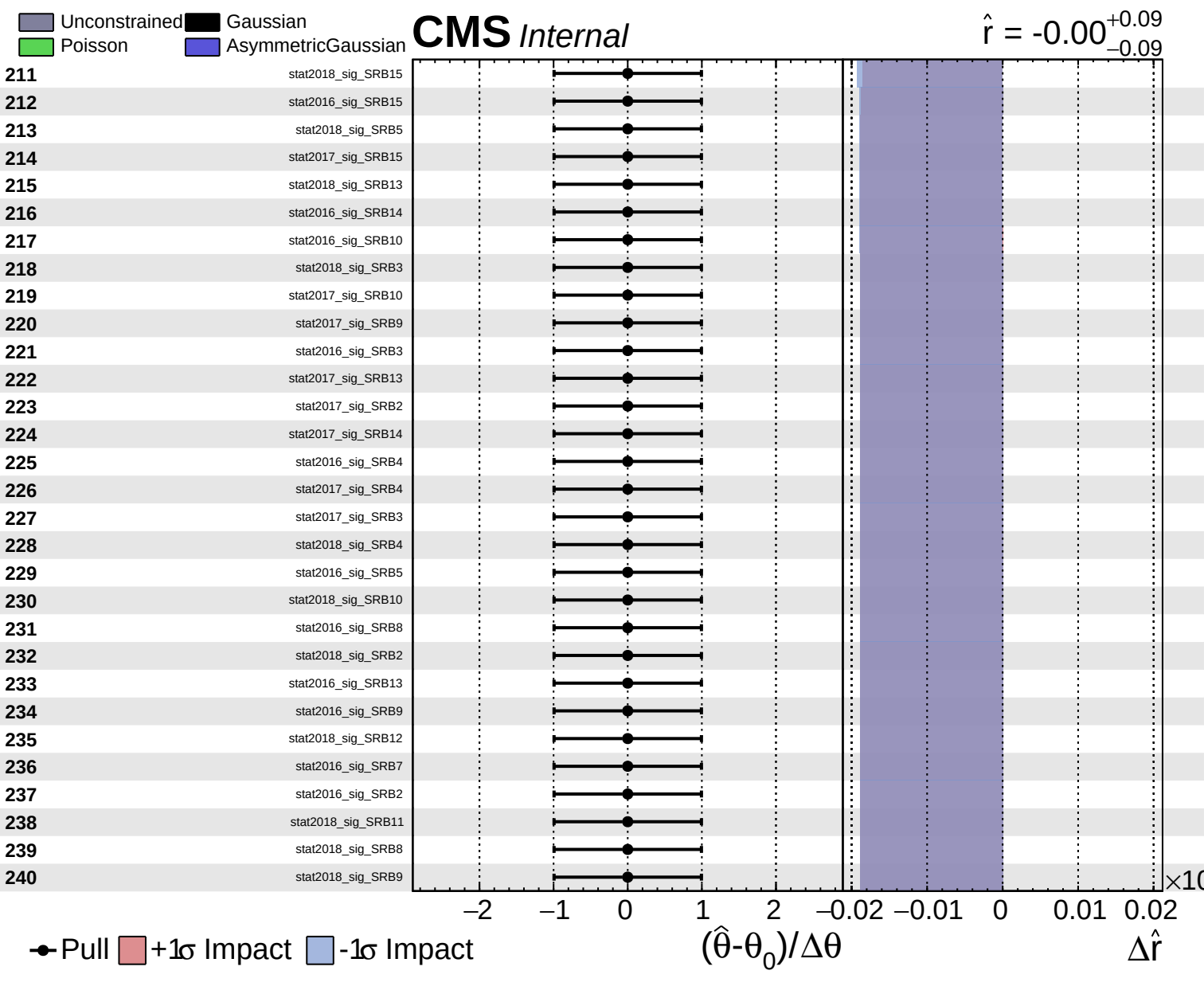
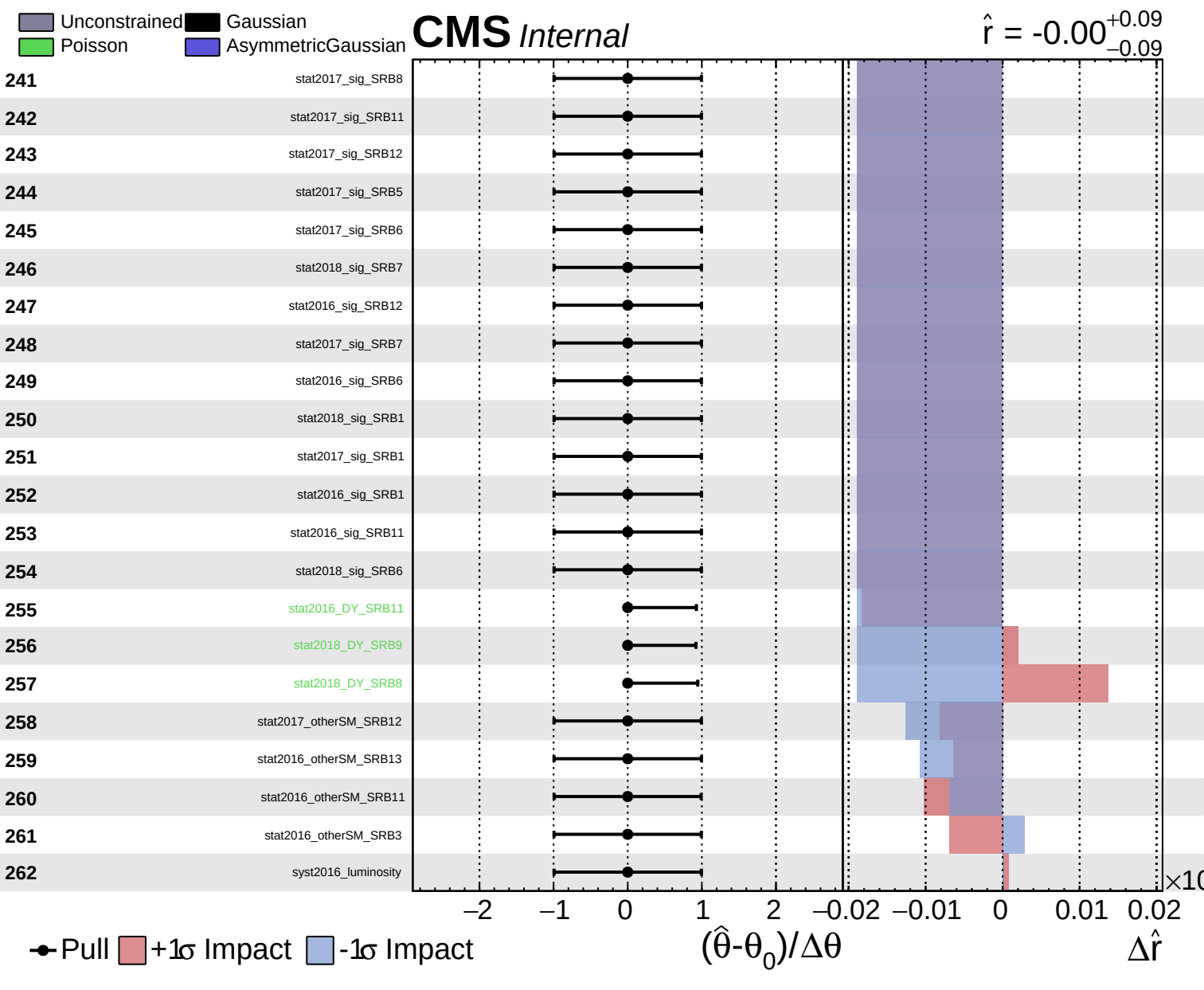
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r̂ = -0.00 +0.09 −0.09
181 stat2016_TT_SRB12
182 stat2017_TT_SRB11
183 stat2017_TT_SRB7
184 stat2016_DY_SRB6
185 stat2017_otherSM_SRB14
186 stat2017_DY_SRB7
187 syst2016_tauFastFullSimSF
188 stat2018_TT_SRB9
189 stat2016_otherSM_SRB4
190 stat2016_DY_SRB7
191 stat2018_otherSM_SRB11
192 stat2017_otherSM_SRB3
193 stat2016_otherSM_SRB7
194 stat2018_TT_SRB12
195 stat2016_TT_SRB11
196 syst2016_pileupReweight
197 stat2018_otherSM_SRB8
198 syst2016_tauIDisoSF
199 stat2016_otherSM_SRB12
200 stat2017_DY_SRB4
201 syst2016_ZpTreweight
202 stat2016_TT_SRB13
203 syst2018_tauFastFullSimSF
204 stat2018_otherSM_SRB12
205 stat2018_DY_SRB12
206 stat2017_otherSM_SRB7
207 sigMET
208 syst2017_tauFastFullSimSF
209 stat2018_sig_SRB14
210 stat2017_otherSM_SRB11
×10
−2 −1 0 1 2
−0.05 0 0.05
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr̂


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r̂ = -0.00 +0.09 −0.09
211 stat2018_sig_SRB15
212 stat2016_sig_SRB15
213 stat2018_sig_SRB5
214 stat2017_sig_SRB15
215 stat2018_sig_SRB13
216 stat2016_sig_SRB14
217 stat2016_sig_SRB10
218 stat2018_sig_SRB3
219 stat2017_sig_SRB10
220 stat2017_sig_SRB9
221 stat2016_sig_SRB3
222 stat2017_sig_SRB13
223 stat2017_sig_SRB2
224 stat2017_sig_SRB14
225 stat2016_sig_SRB4
226 stat2017_sig_SRB4
227 stat2017_sig_SRB3
228 stat2018_sig_SRB4
229 stat2016_sig_SRB5
230 stat2018_sig_SRB10
231 stat2016_sig_SRB8
232 stat2018_sig_SRB2
233 stat2016_sig_SRB13
234 stat2016_sig_SRB9
235 stat2018_sig_SRB12
236 stat2016_sig_SRB7
237 stat2016_sig_SRB2
238 stat2018_sig_SRB11
239 stat2018_sig_SRB8
240 stat2018_sig_SRB9
×10
−2 −1 0 1 2
−0.02 −0.01 0 0.01 0.02
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr̂


Unconstrained
Gaussian
Poisson
AsymmetricGaussian
CMS Internal
r̂ = -0.00 +0.09 −0.09
241 stat2017_sig_SRB8
242 stat2017_sig_SRB11
243 stat2017_sig_SRB12
244 stat2017_sig_SRB5
245 stat2017_sig_SRB6
246 stat2018_sig_SRB7
247 stat2016_sig_SRB12
248 stat2017_sig_SRB7
249 stat2016_sig_SRB6
250 stat2018_sig_SRB1
251 stat2017_sig_SRB1
252 stat2016_sig_SRB1
253 stat2016_sig_SRB11
254 stat2018_sig_SRB6
255 stat2016_DY_SRB11
256 stat2018_DY_SRB9
257 stat2018_DY_SRB8
258 stat2017_otherSM_SRB12
259 stat2016_otherSM_SRB13
260 stat2016_otherSM_SRB11
261 stat2016_otherSM_SRB3
262 syst2016_luminosity
−2 −1 0 1 2
−0.02 −0.01 0 0.01 0.02
×10
Pull
+1σ Impact
-1σ Impact
(θ̂-θ0)/Δθ
Δr̂