CMS *Internal*
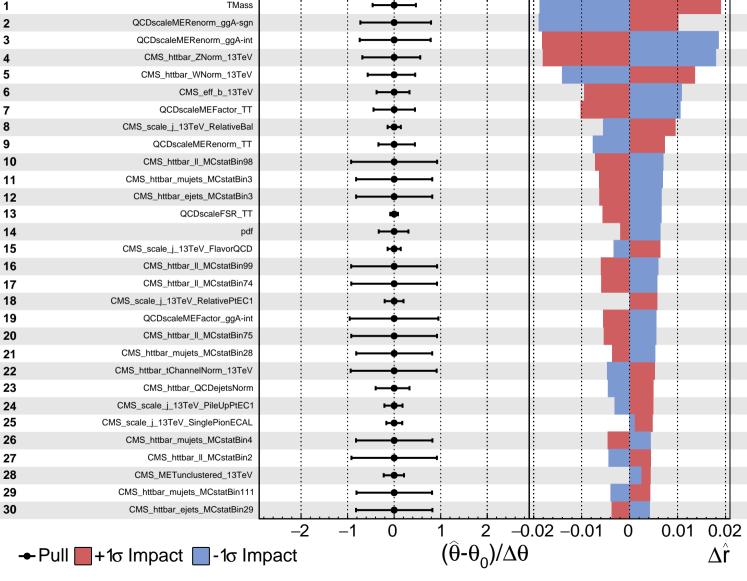
$\hat{r} = 1 \pm 0.0562$

1	TMass
2	QCDscaleMERenorm_ggA-sgn
3	QCDscaleMERenorm_ggA-int
4	CMS_httbar_ZNorm_13TeV
5	CMS_httbar_WNorm_13TeV
6	CMS_eff_b_13TeV
7	QCDscaleMEFactor_TT
8	CMS_scale_j_13TeV_RelativeBal
9	QCDscaleMERenorm_TT
10	CMS_httbar_ll_MCstatBin98
11	CMS_httbar_mujets_MCstatBin3
12	CMS_httbar_ejets_MCstatBin3
13	QCDscaleFSR_TT
14	pdf
15	CMS_scale_j_13TeV_FlavorQCD
16	CMS_httbar_ll_MCstatBin99
17	CMS_httbar_ll_MCstatBin74
18	CMS_scale_j_13TeV_RelativePtEC1
19	QCDscaleMEFactor_ggA-int
20	CMS_httbar_ll_MCstatBin75
21	CMS_httbar_mujets_MCstatBin28
22	CMS_httbar_tChannelNorm_13TeV
23	CMS_httbar_QCDejetsNorm
24	CMS_scale_j_13TeV_PileUpPtEC1
25	CMS_scale_j_13TeV_SinglePionECAL
26	CMS_httbar_mujets_MCstatBin4
27	CMS_httbar_ll_MCstatBin2
28	CMS_METunclustered_13TeV
29	CMS_httbar_mujets_MCstatBin111
30	CMS_httbar_ejets_MCstatBin29

Pull ▪ +1σ Impact ▪ -1σ Impact

$(\hat{\theta}-\theta_0)/\Delta\theta$

$\Delta\hat{r}$

CMS *Internal*

$\hat{r} = 1 \pm 0.0562$

31	CMS_httbar_mujets_MCstatBin84	
32	lumi	
33	CMS_scale_j_13TeV_TimePtEta	
34	CMS_httbar_ejets_MCstatBin103	
35	CMS_httbar_mujets_MCstatBin104	
36	CMS_httbar_mujets_MCstatBin2	
37	CMS_httbar_ejets_MCstatBin53	
38	CMS_httbar_ejets_MCstatBin100	
39	CMS_httbar_mujets_MCstatBin21	
40	CMS_scale_j_13TeV_SinglePionHCAL	
41	CMS_scale_j_13TeV_RelativePtBB	
42	CMS_res_j_13TeV	
43	TTXsec	
44	CMS_httbar_QCDmujetsNorm	
45	CMS_httbar_mujets_MCstatBin46	
46	CMS_eff_m	
47	CMS_httbar_ejets_MCstatBin4	
48	CMS_httbar_mujets_MCstatBin82	
49	QCDscaleMEFactor_ggA-sgn	
50	CMS_httbar_mujets_MCstatBin26	
51	CMS_httbar_ejets_MCstatBin67	
52	CMS_scale_j_13TeV_RelativeFSR	
53	CMS_httbar_mujets_MCstatBin8	
54	CMS_scale_j_13TeV_PileUpPtBB	
55	CMS_httbar_ejets_MCstatBin23	
56	CMS_pileup	
57	CMS_httbar_mujets_MCstatBin102	
58	Hdamp_TT	
59	CMS_httbar_mujets_MCstatBin23	
60	CMS_scale_j_13TeV_AbsoluteScale	

$(\hat{\theta}-\theta_0)/\Delta\theta$

$\Delta\hat{r}$

→ Pull ■ +1σ Impact ■ -1σ Impact

CMS *Internal* $\hat{r} = 1 \pm 0.0562$

61	CMS_httbar_ll_MCstatBin25	
62	CMS_httbar_mujets_MCstatBin83	
63	CMS_httbar_mujets_MCstatBin57	
64	CMS_httbar_ll_MCstatBin54	
65	CMS_httbar_ejets_MCstatBin85	
66	CMS_httbar_ejets_MCstatBin8	
67	CMS_httbar_ejets_MCstatBin58	
68	CMS_httbar_ejets_MCstatBin82	
69	CMS_scale_j_13TeV_RelativeStatEC	
70	CMS_httbar_ejets_MCstatBin19	
71	CMS_httbar_mujets_MCstatBin43	
72	CMS_httbar_ejets_MCstatBin7	
73	CMS_httbar_mujets_MCstatBin33	
74	CMS_scale_j_13TeV_AbsoluteMPFBias	
75	CMS_fake_b_13TeV	
76	CMS_httbar_mujets_MCstatBin32	
77	CMS_httbar_mujets_MCstatBin76	
78	CMS_scale_j_13TeV_PileUpDataMC	
79	CMS_httbar_ll_MCstatBin1	
80	CMS_httbar_ejets_MCstatBin76	
81	CMS_httbar_mujets_MCstatBin81	
82	CMS_httbar_ejets_MCstatBin26	
83	CMS_httbar_mujets_MCstatBin12	
84	CMS_httbar_mujets_MCstatBin36	
85	CMS_httbar_ejets_MCstatBin113	
86	CMS_httbar_ejets_MCstatBin47	
87	CMS_httbar_mujets_MCstatBin51	
88	CMS_httbar_mujets_MCstatBin108	
89	CMS_httbar_ejets_MCstatBin33	
90	CMS_httbar_mujets_MCstatBin85	

— Pull ■ +1σ Impact ■ −1σ Impact $(\hat{\theta}-\theta_0)/\Delta\theta$ $\Delta\hat{r}$

CMS *Internal* $\hat{r} = 1 \pm 0.0562$

91	CMS_httbar_mujets_MCstatBin103	
92	CMS_httbar_ll_MCstatBin97	
93	CMS_httbar_ll_MCstatBin50	
94	CMS_httbar_ejets_MCstatBin28	
95	CMS_httbar_ejets_MCstatBin1	
96	CMS_httbar_mujets_MCstatBin53	
97	CMS_httbar_mujets_MCstatBin87	
98	CMS_httbar_ejets_MCstatBin111	
99	CMS_httbar_mujets_MCstatBin30	
100	CMS_httbar_ll_MCstatBin104	
101	CMS_scale_j_13TeV_RelativeJEREC1	
102	CMS_httbar_ll_MCstatBin3	
103	CMS_httbar_ejets_MCstatBin125	
104	CMS_httbar_ejets_MCstatBin17	
105	CMS_httbar_ejets_MCstatBin57	
106	CMS_httbar_ejets_MCstatBin106	
107	CMS_eff_e	
108	CMS_httbar_ejets_MCstatBin88	
109	CMS_httbar_mujets_MCstatBin52	
110	CMS_httbar_mujets_MCstatBin116	
111	CMS_scale_j_13TeV_AbsoluteStat	
112	CMS_httbar_ejets_MCstatBin87	
113	CMS_httbar_mujets_MCstatBin17	
114	CMS_httbar_mujets_MCstatBin121	
115	CMS_httbar_mujets_MCstatBin100	
116	CMS_httbar_mujets_MCstatBin69	
117	CMS_httbar_ejets_MCstatBin124	
118	CMS_httbar_ejets_MCstatBin101	
119	CMS_httbar_ejets_MCstatBin115	
120	CMS_httbar_ejets_MCstatBin116	

$(\hat{\theta}-\theta_0)/\Delta\theta$ $\Delta\hat{r}$

Pull   +1σ Impact   -1σ Impact

CMS *Internal*

$\hat{r} = 1 \pm 0.0562$

151	CMS_httbar_ejets_MCstatBin64		
152	CMS_httbar_mujets_MCstatBin48		
153	CMS_httbar_mujets_MCstatBin9		
154	CMS_httbar_ejets_MCstatBin42		
155	CMS_httbar_mujets_MCstatBin79		
156	CMS_httbar_mujets_MCstatBin15		
157	CMS_httbar_mujets_MCstatBin49		
158	CMS_scale_j_13TeV_Fragmentation		
159	CMS_httbar_mujets_MCstatBin1		
160	CMS_httbar_ejets_MCstatBin105		
161	CMS_httbar_mujets_MCstatBin89		
162	CMS_httbar_mujets_MCstatBin60		
163	CMS_httbar_ejets_MCstatBin11		
164	CMS_httbar_VVNorm_13TeV		
165	CMS_httbar_mujets_MCstatBin59		
166	CMS_httbar_mujets_MCstatBin67		
167	CMS_httbar_mujets_MCstatBin71		
168	CMS_httbar_tWChannelNorm_13TeV		
169	CMS_httbar_mujets_MCstatBin101		
170	CMS_httbar_mujets_MCstatBin50		
171	CMS_httbar_ll_MCstatBin30		
172	CMS_httbar_ll_MCstatBin26		
173	CMS_httbar_mujets_MCstatBin114		
174	CMS_httbar_mujets_MCstatBin31		
175	CMS_httbar_ejets_MCstatBin21		
176	CMS_httbar_ejets_MCstatBin70		
177	CMS_httbar_ejets_MCstatBin65		
178	CMS_httbar_ejets_MCstatBin56		
179	CMS_httbar_mujets_MCstatBin61		
180	CMS_httbar_ejets_MCstatBin79		

$-2 \quad -1 \quad 0 \quad 1 \quad 2$

$-0.001 \quad 0 \quad 0.001$

$\leftarrow$ Pull ■ +1σ Impact ■ -1σ Impact

$(\hat{\theta}-\theta_0)/\Delta\theta$

$\Delta\hat{r}$

CMS *Internal* $\hat{r} = 1 \pm 0.0562$

181	CMS_httbar_ll_MCstatBin76	
182	CMS_httbar_mujets_MCstatBin25	
183	CMS_httbar_mujets_MCstatBin14	
184	CMS_httbar_ejets_MCstatBin52	
185	CMS_httbar_ejets_MCstatBin119	
186	CMS_eff_trigger_e	
187	CMS_httbar_ejets_MCstatBin108	
188	CMS_httbar_mujets_MCstatBin7	
189	CMS_httbar_mujets_MCstatBin10	
190	CMS_httbar_ll_MCstatBin100	
191	CMS_httbar_ejets_MCstatBin91	
192	CMS_httbar_mujets_MCstatBin125	
193	CMS_httbar_mujets_MCstatBin19	
194	CMS_httbar_mujets_MCstatBin20	
195	CMS_httbar_ll_MCstatBin106	
196	CMS_httbar_ll_MCstatBin103	
197	CMS_httbar_mujets_MCstatBin78	
198	CMS_httbar_ll_MCstatBin79	
199	CMS_scale_j_13TeV_PileUpPtRef	
200	CMS_httbar_mujets_MCstatBin124	
201	CMS_httbar_ll_MCstatBin9	
202	CMS_httbar_mujets_MCstatBin24	
203	CMS_httbar_ejets_MCstatBin51	
204	CMS_httbar_ejets_MCstatBin54	
205	CMS_httbar_ejets_MCstatBin25	
206	CMS_httbar_ejets_MCstatBin5	
207	CMS_httbar_mujets_MCstatBin39	
208	CMS_httbar_mujets_MCstatBin18	
209	CMS_httbar_mujets_MCstatBin110	
210	CMS_httbar_ll_MCstatBin32	

$(\hat{\theta}-\theta_0)/\Delta\theta$ $\Delta\hat{r}$

• Pull   ■ +1σ Impact   ■ -1σ Impact

CMS *Internal*

$\hat{r} = 1 \pm 0.0562$

211	CMS_httbar_ejets_MCstatBin97	
212	CMS_httbar_mujets_MCstatBin113	
213	CMS_httbar_ll_MCstatBin80	
214	CMS_httbar_ejets_MCstatBin34	
215	CMS_httbar_mujets_MCstatBin97	
216	CMS_httbar_ll_MCstatBin101	
217	CMS_httbar_ejets_MCstatBin38	
218	CMS_httbar_mujets_MCstatBin99	
219	CMS_httbar_mujets_MCstatBin92	
220	CMS_httbar_ll_MCstatBin5	
221	CMS_httbar_ejets_MCstatBin16	
222	CMS_httbar_ll_MCstatBin39	
223	CMS_httbar_ll_MCstatBin105	
224	CMS_httbar_ejets_MCstatBin92	
225	CMS_httbar_ejets_MCstatBin112	
226	CMS_httbar_ejets_MCstatBin32	
227	CMS_httbar_mujets_MCstatBin105	
228	CMS_httbar_mujets_MCstatBin16	
229	CMS_httbar_mujets_MCstatBin72	
230	CMS_httbar_ejets_MCstatBin39	
231	CMS_httbar_ll_MCstatBin83	
232	CMS_httbar_ll_MCstatBin82	
233	CMS_httbar_mujets_MCstatBin64	
234	CMS_httbar_mujets_MCstatBin40	
235	CMS_httbar_ejets_MCstatBin77	
236	CMS_httbar_ejets_MCstatBin36	
237	CMS_httbar_mujets_MCstatBin80	
238	CMS_httbar_ejets_MCstatBin43	
239	CMS_httbar_ejets_MCstatBin122	
240	CMS_TopPt1_TT	

$\leftarrow$ Pull ■ +1σ Impact ■ -1σ Impact

$(\hat{\theta}-\theta_0)/\Delta\theta$

$\Delta\hat{r}$

CMS *Internal*

$\hat{r} = 1 \pm 0.0562$

241	CMS_httbar_mujets_MCstatBin6
242	CMS_httbar_mujets_MCstatBin109
243	CMS_httbar_mujets_MCstatBin27
244	CMS_httbar_ll_MCstatBin55
245	CMS_httbar_ll_MCstatBin110
246	CMS_httbar_ejets_MCstatBin9
247	CMS_httbar_ejets_MCstatBin63
248	CMS_httbar_ll_MCstatBin58
249	CMS_httbar_ll_MCstatBin108
250	CMS_httbar_mujets_MCstatBin98
251	CMS_httbar_ll_MCstatBin49
252	CMS_httbar_ejets_MCstatBin123
253	CMS_httbar_ejets_MCstatBin14
254	CMS_httbar_ejets_MCstatBin120
255	CMS_httbar_ll_MCstatBin24
256	CMS_httbar_ejets_MCstatBin35
257	CMS_httbar_ll_MCstatBin53
258	CMS_httbar_mujets_MCstatBin123
259	CMS_httbar_ll_MCstatBin31
260	CMS_httbar_mujets_MCstatBin75
261	CMS_httbar_ll_MCstatBin72
262	CMS_httbar_ll_MCstatBin77
263	CMS_httbar_ll_MCstatBin57
264	CMS_httbar_ejets_MCstatBin72
265	CMS_httbar_mujets_MCstatBin88
266	CMS_httbar_ejets_MCstatBin114
267	CMS_httbar_ejets_MCstatBin121
268	CMS_httbar_ll_MCstatBin94
269	CMS_httbar_mujets_MCstatBin63
270	CMS_httbar_mujets_MCstatBin115

$(\hat{\theta}-\theta_0)/\Delta\theta$

$\Delta\hat{r}$

- Pull +1σ Impact -1σ Impact

CMS *Internal* $\hat{r} = 1 \pm 0.0562$

271	CMS_httbar_mujets_MCstatBin122	
272	CMS_httbar_ejets_MCstatBin75	
273	CMS_TopPt2_TT	
274	CMS_httbar_ll_MCstatBin48	
275	CMS_httbar_ll_MCstatBin119	
276	CMS_httbar_ll_MCstatBin84	
277	CMS_httbar_ll_MCstatBin120	
278	CMS_httbar_ejets_MCstatBin95	
279	CMS_httbar_ll_MCstatBin20	
280	CMS_httbar_ejets_MCstatBin61	
281	CMS_httbar_ll_MCstatBin111	
282	CMS_httbar_ejets_MCstatBin24	
283	CMS_httbar_ejets_MCstatBin10	
284	CMS_httbar_ll_MCstatBin4	
285	CMS_httbar_mujets_MCstatBin120	
286	CMS_httbar_mujets_MCstatBin119	
287	CMS_httbar_ll_MCstatBin15	
288	CMS_httbar_mujets_MCstatBin35	
289	CMS_httbar_ll_MCstatBin40	
290	CMS_httbar_ll_MCstatBin107	
291	CMS_httbar_ll_MCstatBin63	
292	CMS_httbar_ll_MCstatBin68	
293	CMS_httbar_mujets_MCstatBin74	
294	CMS_httbar_ejets_MCstatBin74	
295	CMS_httbar_ejets_MCstatBin37	
296	CMS_httbar_mujets_MCstatBin65	
297	CMS_httbar_ejets_MCstatBin6	
298	CMS_httbar_ejets_MCstatBin50	
299	CMS_httbar_ll_MCstatBin61	
300	CMS_httbar_ll_MCstatBin51	

Pull ◆ +1σ Impact ☐ -1σ Impact

$(\hat{\theta}-\theta_0)/\Delta\theta$ $\Delta\hat{r}$ $\times 10$

CMS *Internal* — $\hat{r} = 1 \pm 0.0562$

301	CMS_httbar_ll_MCstatBin7	
302	CMS_httbar_mujets_MCstatBin62	
303	CMS_httbar_mujets_MCstatBin22	
304	CMS_httbar_ejets_MCstatBin41	
305	CMS_httbar_mujets_MCstatBin13	
306	CMS_httbar_mujets_MCstatBin37	
307	CMS_httbar_ll_MCstatBin23	
308	CMS_httbar_ll_MCstatBin37	
309	CMS_httbar_TTVNorm_13TeV	
310	CMS_httbar_ll_MCstatBin11	
311	CMS_httbar_ll_MCstatBin44	
312	CMS_httbar_ejets_MCstatBin60	
313	CMS_httbar_ll_MCstatBin21	
314	CMS_httbar_mujets_MCstatBin118	
315	CMS_httbar_ll_MCstatBin64	
316	CMS_httbar_ll_MCstatBin67	
317	CMS_httbar_ejets_MCstatBin84	
318	CMS_httbar_ejets_MCstatBin46	
319	CMS_httbar_ejets_MCstatBin90	
320	CMS_httbar_ejets_MCstatBin40	
321	CMS_httbar_ll_MCstatBin62	
322	CMS_eff_trigger_m	
323	CMS_httbar_ll_MCstatBin13	
324	CMS_httbar_ll_MCstatBin41	
325	CMS_httbar_ll_MCstatBin33	
326	CMS_httbar_ll_MCstatBin46	
327	CMS_httbar_mujets_MCstatBin68	
328	CMS_httbar_mujets_MCstatBin5	
329	CMS_httbar_ejets_MCstatBin86	
330	CMS_httbar_ll_MCstatBin14	

$(\hat{\theta}-\theta_0)/\Delta\theta$

$\Delta\hat{r}$

$\times 10$

← Pull ■ +1σ Impact ■ -1σ Impact

CMS *Internal* $\hat{r} = 1 \pm 0.0562$

331	CMS_httbar_ll_MCstatBin92	
332	CMS_httbar_mujets_MCstatBin70	
333	CMS_httbar_ll_MCstatBin38	
334	CMS_httbar_ejets_MCstatBin62	
335	CMS_httbar_ll_MCstatBin71	
336	CMS_httbar_mujets_MCstatBin90	
337	CMS_httbar_ll_MCstatBin86	
338	CMS_httbar_ll_MCstatBin95	
339	CMS_httbar_ejets_MCstatBin13	
340	CMS_httbar_ejets_MCstatBin107	
341	CMS_httbar_ejets_MCstatBin98	
342	CMS_httbar_ejets_MCstatBin93	
343	CMS_httbar_ll_MCstatBin8	
344	CMS_httbar_ll_MCstatBin36	
345	CMS_httbar_ejets_MCstatBin27	
346	CMS_httbar_ejets_MCstatBin118	
347	CMS_httbar_ejets_MCstatBin44	
348	CMS_httbar_ll_MCstatBin91	
349	CMS_httbar_ejets_MCstatBin104	
350	CMS_httbar_ejets_MCstatBin69	
351	CMS_httbar_ll_MCstatBin59	
352	CMS_httbar_ll_MCstatBin60	
353	CMS_httbar_ll_MCstatBin109	
354	CMS_httbar_mujets_MCstatBin41	
355	CMS_httbar_mujets_MCstatBin73	
356	CMS_httbar_ejets_MCstatBin49	
357	CMS_httbar_ll_MCstatBin34	
358	CMS_httbar_mujets_MCstatBin34	
359	CMS_httbar_ll_MCstatBin115	
360	CMS_httbar_ll_MCstatBin28	

-2 -1 0 1 2 -0.5 0 0.5

$\times 10$

$(\hat{\theta}-\theta_0)/\Delta\theta$ $\Delta\hat{r}$

Pull ■ +1σ Impact ■ -1σ Impact

CMS *Internal* $\hat{r} = 1 \pm 0.0562$

361	CMS_httbar_ejets_MCstatBin48	
362	CMS_httbar_ll_MCstatBin16	
363	CMS_httbar_ejets_MCstatBin117	
364	CMS_httbar_ejets_MCstatBin2	
365	CMS_httbar_mujets_MCstatBin96	
366	CMS_httbar_ll_MCstatBin73	
367	CMS_httbar_ejets_MCstatBin102	
368	CMS_httbar_mujets_MCstatBin44	
369	CMS_httbar_mujets_MCstatBin95	
370	CMS_httbar_ll_MCstatBin47	
371	CMS_httbar_ll_MCstatBin81	
372	CMS_httbar_ll_MCstatBin118	
373	CMS_httbar_mujets_MCstatBin58	
374	CMS_httbar_ll_MCstatBin87	
375	CMS_httbar_mujets_MCstatBin94	
376	CMS_httbar_ll_MCstatBin29	
377	CMS_httbar_ejets_MCstatBin99	
378	CMS_httbar_ll_MCstatBin12	
379	CMS_httbar_ejets_MCstatBin20	
380	CMS_httbar_ll_MCstatBin93	
381	CMS_httbar_mujets_MCstatBin11	
382	CMS_httbar_ll_MCstatBin114	
383	CMS_httbar_ejets_MCstatBin55	
384	CMS_httbar_ejets_MCstatBin59	
385	CMS_httbar_mujets_MCstatBin66	
386	CMS_httbar_ejets_MCstatBin78	
387	CMS_httbar_ll_MCstatBin117	
388	CMS_httbar_ll_MCstatBin10	
389	CMS_httbar_ll_MCstatBin89	
390	CMS_httbar_ll_MCstatBin113	

$-2 \quad -1 \quad 0 \quad 1 \quad 2$

$(\hat{\theta}-\theta_0)/\Delta\theta$

$-0.2 \quad 0 \quad 0.2$

$\Delta\hat{r}$

$\times 10$

→ Pull ▉ +1σ Impact ▉ -1σ Impact

CMS *Internal* $\hat{r} = 1 \pm 0.0562$

391	CMS_httbar_ll_MCstatBin19
392	CMS_httbar_ll_MCstatBin35
393	CMS_httbar_ll_MCstatBin56
394	CMS_httbar_ll_MCstatBin17
395	CMS_httbar_ll_MCstatBin45
396	CMS_httbar_ejets_MCstatBin94
397	CMS_httbar_ejets_MCstatBin66
398	CMS_httbar_ll_MCstatBin27
399	CMS_httbar_ll_MCstatBin85
400	CMS_httbar_ll_MCstatBin42
401	CMS_httbar_ll_MCstatBin70
402	CMS_httbar_mujets_MCstatBin107
403	CMS_httbar_mujets_MCstatBin77
404	CMS_httbar_ejets_MCstatBin110
405	CMS_httbar_ll_MCstatBin96
406	CMS_httbar_ll_MCstatBin65
407	CMS_httbar_ll_MCstatBin88
408	CMS_httbar_sChannelNorm_13TeV
409	CMS_httbar_ll_MCstatBin90
410	CMS_httbar_ll_MCstatBin43
411	CMS_httbar_ll_MCstatBin69
412	CMS_eff_trigger_l
413	CMS_httbar_ll_MCstatBin66
414	CMS_httbar_ll_MCstatBin112
415	CMS_httbar_mujets_MCstatBin91
416	CMS_httbar_ll_MCstatBin116
417	CMS_httbar_ll_MCstatBin6
418	CMS_httbar_ll_MCstatBin22
419	CMS_httbar_ll_MCstatBin18
420	CMS_httbar_ejets_MCstatBin30

$-2 \quad -1 \quad 0 \quad 1 \quad 2$

$-0.2 \qquad 0 \qquad 0.2$

$\times 10$

← Pull ■ +1σ Impact ■ -1σ Impact

$(\hat{\theta}-\theta_0)/\Delta\theta$

$\Delta\hat{r}$

CMS *Internal* $\hat{r} = 1 \pm 0.0562$

421   CMS_httbar_ejets_MCstatBin15

422   CMS_httbar_ll_MCstatBin52

-2 -1 0 1 2 -0.05 0 0.05

$\times 10$

$(\hat{\theta}-\theta_0)/\Delta\theta$ $\Delta\hat{r}$

→ Pull ■ +1σ Impact ■ -1σ Impact