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WH/ZH Higgs Associated Production Process

Goal of the group

Group Members

- Stefan Dittmaier
- Robert Harlander
- Michael Krämer
- Clara Matteuzzi
- Sven Moch
- Jim Olsen
- Giacinto Piacquadio

Available Tools

- V2HV [↗](#) (M. Spira)
- vh@nnlo [↗](#) (Brein, Harlander, Zirke)

Documents

Meetings

- CERN InDico Agenda [↗](#)

Results

Cross section with uncertainties: Includes NNLO QCD corrections (evaluated using vh@nnlo [↗](#)), and EW corrections (see below). PDF+as uncertainties taken over from 7 TeV numbers (and PDF-error ($m_h < 90$) = PDF-error ($m_h = 90$)).

- WH cross sections at 8 TeV
- ZH cross sections at 8 TeV
- WH cross sections at 33 TeV
- ZH cross sections at 33 TeV
- EW correction factors

WH cross sections at 8 TeV

MH (GeV)	sigma(WH) (pb)	+ error (%)	- error (%)	+ scale (%)	- scale (%)	+ (PDF+as) (%)	- (PDF+as) (%)
80.0	2.784	3.2	-3.5	0.2	-0.5	3.0	-3.0
81.0	2.687	3.2	-3.5	0.2	-0.5	3.0	-3.0
82.0	2.595	3.2	-3.5	0.1	-0.5	3.0	-3.0
83.0	2.505	3.2	-3.5	0.1	-0.5	3.0	-3.0
84.0	2.420	3.1	-3.5	0.1	-0.5	3.0	-3.0
85.0	2.338	3.1	-3.5	0.1	-0.5	3.0	-3.0
86.0	2.258	3.1	-3.5	0.1	-0.5	3.0	-3.0
87.0	2.183	3.1	-3.5	0.1	-0.6	3.0	-3.0
88.0	2.110	3.1	-3.5	0.1	-0.6	3.0	-3.0

LHCHXSWGWHZH < LHCPysics < TWiki

89.0	2.039	3.1	-3.5	0.1	-0.6	3.0	-3.0
90.0	1.972	3.1	-3.6	0.1	-0.6	3.0	-3.0
91.0	1.908	3.1	-3.6	0.1	-0.6	3.0	-3.0
92.0	1.847	3.2	-3.7	0.1	-0.6	3.1	-3.1
93.0	1.787	3.2	-3.7	0.1	-0.6	3.1	-3.1
94.0	1.731	3.3	-3.7	0.1	-0.6	3.2	-3.2
95.0	1.676	3.4	-3.8	0.2	-0.6	3.2	-3.2
96.0	1.623	3.4	-3.8	0.2	-0.5	3.2	-3.2
97.0	1.573	3.4	-3.9	0.2	-0.6	3.3	-3.3
98.0	1.524	3.5	-3.9	0.2	-0.6	3.3	-3.3
99.0	1.477	3.5	-3.9	0.2	-0.6	3.4	-3.4
100.0	1.432	3.5	-4.0	0.1	-0.6	3.4	-3.4
101.0	1.389	3.5	-4.0	0.1	-0.6	3.4	-3.4
102.0	1.347	3.5	-4.1	0.1	-0.6	3.4	-3.4
103.0	1.306	3.6	-4.1	0.1	-0.6	3.5	-3.5
104.0	1.266	3.6	-4.1	0.1	-0.6	3.5	-3.5
105.0	1.229	3.6	-4.1	0.1	-0.6	3.5	-3.5
106.0	1.192	3.8	-4.2	0.1	-0.6	3.6	-3.6
107.0	1.158	3.9	-4.3	0.1	-0.6	3.7	-3.7
108.0	1.124	3.9	-4.4	0.1	-0.6	3.8	-3.8
109.0	1.092	3.9	-4.4	0.1	-0.6	3.8	-3.8
110.0	1.060	3.9	-4.4	0.1	-0.6	3.8	-3.8
110.5	1.045	3.9	-4.4	0.1	-0.6	3.8	-3.8
111.0	1.030	3.9	-4.4	0.1	-0.6	3.8	-3.8
111.5	1.015	3.9	-4.4	0.1	-0.6	3.8	-3.8
112.0	0.9998	3.9	-4.4	0.1	-0.6	3.8	-3.8
112.5	0.9852	3.9	-4.4	0.1	-0.6	3.8	-3.8
113.0	0.9709	4.0	-4.5	0.1	-0.6	3.9	-3.9
113.5	0.9570	4.0	-4.5	0.1	-0.6	3.9	-3.9
114.0	0.9432	4.0	-4.5	0.1	-0.6	3.9	-3.9
114.5	0.9297	4.0	-4.5	0.1	-0.6	3.9	-3.9
115.0	0.9165	4.0	-4.5	0.1	-0.6	3.9	-3.9
115.5	0.9035	3.9	-4.4	0.1	-0.6	3.8	-3.8
116.0	0.8907	3.9	-4.4	0.1	-0.6	3.8	-3.8
116.5	0.8782	3.9	-4.4	0.1	-0.6	3.8	-3.8
117.0	0.8659	3.8	-4.3	0.1	-0.6	3.7	-3.7
117.5	0.8538	3.8	-4.3	0.1	-0.6	3.7	-3.7
118.0	0.8420	3.7	-4.2	0.1	-0.6	3.6	-3.6
118.5	0.8303	3.6	-4.1	0.1	-0.6	3.5	-3.5
119.0	0.8187	3.6	-4.1	0.1	-0.6	3.5	-3.5
119.5	0.8075	3.6	-4.1	0.1	-0.6	3.5	-3.5
120.0	0.7966	3.5	-4.0	0.1	-0.6	3.4	-3.4
120.5	0.7859	3.5	-4.0	0.1	-0.6	3.4	-3.4
121.0	0.7753	3.5	-4.0	0.1	-0.6	3.4	-3.4
121.5	0.7649	3.5	-4.0	0.1	-0.6	3.4	-3.4
122.0	0.7547	3.5	-4.0	0.1	-0.6	3.4	-3.4
122.5	0.7446	3.7	-4.1	0.2	-0.6	3.5	-3.5
123.0	0.7347	3.7	-4.1	0.2	-0.6	3.5	-3.5
123.5	0.7249	3.7	-4.1	0.2	-0.6	3.5	-3.5
124.0	0.7154	3.7	-4.1	0.2	-0.6	3.5	-3.5

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124.5	0.7060	3.7	-4.1	0.2	-0.6	3.5	-3.5
125.0	0.6966	3.7	-4.1	0.2	-0.6	3.5	-3.5
125.5	0.6873	3.7	-4.1	0.2	-0.6	3.5	-3.5
126.0	0.6782	3.7	-4.1	0.2	-0.6	3.5	-3.5
126.5	0.6691	3.7	-4.1	0.2	-0.6	3.5	-3.5
127.0	0.6602	3.7	-4.1	0.2	-0.6	3.5	-3.5
127.5	0.6515	3.7	-4.1	0.2	-0.6	3.5	-3.5
128.0	0.6429	3.7	-4.2	0.2	-0.7	3.5	-3.5
128.5	0.6344	3.7	-4.2	0.2	-0.7	3.5	-3.5
129.0	0.6260	3.7	-4.1	0.2	-0.6	3.5	-3.5
129.5	0.6177	3.7	-4.1	0.2	-0.6	3.5	-3.5
130.0	0.6095	3.7	-4.1	0.2	-0.6	3.5	-3.5
130.5	0.6015	3.7	-4.1	0.2	-0.6	3.5	-3.5
131.0	0.5936	3.7	-4.1	0.2	-0.6	3.5	-3.5
131.5	0.5859	3.7	-4.1	0.2	-0.6	3.5	-3.5
132.0	0.5783	3.7	-4.1	0.2	-0.6	3.5	-3.5
132.5	0.5708	3.7	-4.1	0.2	-0.6	3.5	-3.5
133.0	0.5634	3.6	-4.0	0.2	-0.6	3.4	-3.4
133.5	0.5562	3.6	-4.0	0.2	-0.6	3.4	-3.4
134.0	0.5491	3.5	-4.0	0.1	-0.6	3.4	-3.4
134.5	0.5420	3.5	-4.1	0.1	-0.7	3.4	-3.4
135.0	0.5351	3.5	-4.1	0.1	-0.7	3.4	-3.4
135.5	0.5283	3.5	-4.1	0.1	-0.7	3.4	-3.4
136.0	0.5215	3.5	-4.1	0.1	-0.7	3.4	-3.4
136.5	0.5149	3.5	-4.1	0.1	-0.7	3.4	-3.4
137.0	0.5084	3.5	-4.1	0.1	-0.7	3.4	-3.4
137.5	0.5020	3.6	-4.2	0.1	-0.7	3.5	-3.5
138.0	0.4956	3.6	-4.2	0.1	-0.7	3.5	-3.5
138.5	0.4894	3.6	-4.2	0.1	-0.7	3.5	-3.5
139.0	0.4833	3.6	-4.2	0.1	-0.7	3.5	-3.5
139.5	0.4772	3.6	-4.2	0.1	-0.7	3.5	-3.5
140.0	0.4713	3.6	-4.2	0.1	-0.7	3.5	-3.5
141.0	0.4597	3.7	-4.3	0.1	-0.7	3.6	-3.6
142.0	0.4484	3.7	-4.3	0.1	-0.7	3.6	-3.6
143.0	0.4375	3.8	-4.4	0.1	-0.7	3.7	-3.7
144.0	0.4268	3.8	-4.4	0.1	-0.7	3.7	-3.7
145.0	0.4164	3.9	-4.5	0.1	-0.7	3.8	-3.8
146.0	0.4062	3.8	-4.4	0.1	-0.7	3.7	-3.7
147.0	0.3963	3.7	-4.3	0.1	-0.7	3.6	-3.6
148.0	0.3867	3.6	-4.2	0.1	-0.7	3.5	-3.5
149.0	0.3773	3.5	-4.1	0.1	-0.7	3.4	-3.4
150.0	0.3681	3.4	-4.0	0.1	-0.7	3.3	-3.3
151.0	0.3593	3.4	-4.0	0.1	-0.7	3.3	-3.3
152.0	0.3507	3.5	-4.1	0.1	-0.7	3.4	-3.4
153.0	0.3422	3.5	-4.1	0.1	-0.7	3.4	-3.4
154.0	0.3337	3.6	-4.2	0.1	-0.7	3.5	-3.5
155.0	0.3252	3.7	-4.2	0.2	-0.7	3.5	-3.5
156.0	0.3157	3.8	-4.3	0.2	-0.7	3.6	-3.6
157.0	0.3064	3.8	-4.3	0.2	-0.7	3.6	-3.6
158.0	0.2975	3.9	-4.4	0.2	-0.7	3.7	-3.7

LHCHXSWGWHZH < LHCPysics < TWiki

159.0	0.2892	3.9	-4.4	0.2	-0.7	3.7	-3.7
160.0	0.2817	4.0	-4.5	0.2	-0.7	3.8	-3.8
162.0	0.2720	3.9	-4.4	0.2	-0.7	3.7	-3.7
164.0	0.2637	3.8	-4.3	0.2	-0.7	3.6	-3.6
166.0	0.2543	3.8	-4.3	0.2	-0.7	3.6	-3.6
168.0	0.2436	3.9	-4.4	0.2	-0.7	3.7	-3.7
170.0	0.2329	4.0	-4.5	0.2	-0.7	3.8	-3.8
172.0	0.2229	4.0	-4.5	0.2	-0.7	3.8	-3.8
174.0	0.2135	4.0	-4.5	0.2	-0.7	3.8	-3.8
176.0	0.2045	3.9	-4.4	0.2	-0.7	3.7	-3.7
178.0	0.1961	3.8	-4.3	0.2	-0.7	3.6	-3.6
180.0	0.1883	3.7	-4.2	0.2	-0.7	3.5	-3.5
182.0	0.1814	3.7	-4.2	0.2	-0.7	3.5	-3.5
184.0	0.1748	3.7	-4.2	0.2	-0.7	3.5	-3.5
186.0	0.1683	3.7	-4.2	0.2	-0.7	3.5	-3.5
188.0	0.1619	3.8	-4.3	0.2	-0.7	3.6	-3.6
190.0	0.1556	3.9	-4.4	0.2	-0.7	3.7	-3.7
192.0	0.1498	3.9	-4.4	0.2	-0.7	3.7	-3.7
194.0	0.1443	3.9	-4.4	0.2	-0.7	3.7	-3.7
196.0	0.1389	3.9	-4.4	0.2	-0.7	3.7	-3.7
198.0	0.1336	4.0	-4.5	0.2	-0.7	3.8	-3.8
200.0	0.1286	4.0	-4.5	0.2	-0.7	3.8	-3.8
202.0	0.1238	4.0	-4.5	0.2	-0.7	3.8	-3.8
204.0	0.1193	4.0	-4.5	0.2	-0.7	3.8	-3.8
206.0	0.1150	4.0	-4.4	0.3	-0.7	3.7	-3.7
208.0	0.1109	4.0	-4.4	0.3	-0.7	3.7	-3.7
210.0	0.1070	3.9	-4.4	0.2	-0.7	3.7	-3.7
212.0	0.1032	4.0	-4.4	0.3	-0.7	3.7	-3.7
214.0	0.09958	4.0	-4.4	0.3	-0.7	3.7	-3.7
216.0	0.09611	4.0	-4.4	0.3	-0.7	3.7	-3.7
218.0	0.09279	4.0	-4.4	0.3	-0.7	3.7	-3.7
220.0	0.08961	4.0	-4.4	0.3	-0.7	3.7	-3.7
222.0	0.08657	4.2	-4.6	0.3	-0.7	3.9	-3.9
224.0	0.08365	4.3	-4.7	0.3	-0.7	4.0	-4.0
226.0	0.08085	4.5	-4.9	0.3	-0.7	4.2	-4.2
228.0	0.07817	4.6	-5.0	0.3	-0.7	4.3	-4.3
230.0	0.07559	4.8	-5.2	0.3	-0.7	4.5	-4.5
232.0	0.07308	4.7	-5.2	0.3	-0.8	4.4	-4.4
234.0	0.07067	4.6	-5.1	0.3	-0.8	4.3	-4.3
236.0	0.06835	4.5	-5.0	0.3	-0.8	4.2	-4.2
238.0	0.06612	4.4	-4.9	0.3	-0.8	4.1	-4.1
240.0	0.06398	4.3	-4.8	0.3	-0.8	4.0	-4.0
242.0	0.06194	4.3	-4.8	0.3	-0.8	4.0	-4.0
244.0	0.05997	4.3	-4.8	0.3	-0.8	4.0	-4.0
246.0	0.05808	4.3	-4.8	0.3	-0.8	4.0	-4.0
248.0	0.05626	4.3	-4.8	0.3	-0.8	4.0	-4.0
250.0	0.05450	4.3	-4.8	0.3	-0.8	4.0	-4.0
252.0	0.05280	4.3	-4.8	0.3	-0.8	4.0	-4.0
254.0	0.05116	4.3	-4.8	0.3	-0.8	4.0	-4.0
256.0	0.04958	4.3	-4.8	0.3	-0.8	4.0	-4.0

LHCHXSWGWHZH < LHCPysics < TWiki

258.0	0.04806	4.3	-4.8	0.3	-0.8	4.0	-4.0
260.0	0.04660	4.3	-4.8	0.3	-0.8	4.0	-4.0
262.0	0.04522	4.4	-4.8	0.4	-0.8	4.0	-4.0
264.0	0.04389	4.3	-4.7	0.4	-0.8	3.9	-3.9
266.0	0.04260	4.3	-4.7	0.4	-0.8	3.9	-3.9
268.0	0.04136	4.2	-4.6	0.4	-0.8	3.8	-3.8
270.0	0.04016	4.2	-4.6	0.4	-0.8	3.8	-3.8
272.0	0.03897	4.3	-4.7	0.4	-0.8	3.9	-3.9
274.0	0.03782	4.4	-4.8	0.4	-0.8	4.0	-4.0
276.0	0.03671	4.6	-5.0	0.4	-0.8	4.2	-4.2
278.0	0.03563	4.7	-5.1	0.4	-0.8	4.3	-4.3
280.0	0.03459	4.8	-5.2	0.4	-0.8	4.4	-4.4
282.0	0.03359	4.8	-5.2	0.4	-0.8	4.4	-4.4
284.0	0.03263	4.7	-5.1	0.4	-0.8	4.3	-4.3
286.0	0.03170	4.7	-5.1	0.4	-0.8	4.3	-4.3
288.0	0.03080	4.6	-5.0	0.4	-0.8	4.2	-4.2
290.0	0.02993	4.6	-5.0	0.4	-0.8	4.2	-4.2
295.0	0.02789	4.7	-5.1	0.4	-0.8	4.3	-4.3
300.0	0.02602	4.9	-5.3	0.4	-0.8	4.5	-4.5

ZH cross sections at 8 TeV

MH (GeV)	sigma(ZH) (pb)	+ error (%)	- error (%)	+ scale (%)	- scale (%)	+ PDF+as (%)	- PDF+as (%)
80.0	1.470	3.7	-3.9	0.7	-0.9	3.0	-3.0
81.0	1.421	3.8	-3.9	0.8	-0.9	3.0	-3.0
82.0	1.374	3.8	-4.0	0.8	-0.9	3.0	-3.0
83.0	1.328	3.8	-4.0	0.8	-0.9	3.0	-3.0
84.0	1.285	3.8	-4.0	0.8	-1.0	3.0	-3.0
85.0	1.243	3.9	-4.0	0.9	-1.0	3.0	-3.0
86.0	1.203	3.9	-4.0	0.9	-1.0	3.0	-3.0
87.0	1.164	3.9	-4.0	0.9	-1.0	3.0	-3.0
88.0	1.127	3.9	-4.0	0.9	-1.0	3.0	-3.0
89.0	1.092	3.9	-4.0	0.9	-1.0	3.0	-3.0
90.0	1.057	3.9	-4.0	0.9	-1.0	3.0	-3.0
91.0	1.025	4.1	-4.1	1.0	-1.0	3.1	-3.1
92.0	0.9934	4.2	-4.3	1.0	-1.0	3.2	-3.2
93.0	0.9635	4.3	-4.5	0.9	-1.1	3.4	-3.4
94.0	0.9341	4.5	-4.6	1.0	-1.1	3.5	-3.5
95.0	0.9060	4.6	-4.7	1.0	-1.1	3.6	-3.6
96.0	0.8792	4.6	-4.7	1.0	-1.1	3.6	-3.6
97.0	0.8533	4.6	-4.7	1.0	-1.1	3.5	-3.5
98.0	0.8281	4.6	-4.6	1.1	-1.1	3.5	-3.5
99.0	0.8039	4.5	-4.6	1.1	-1.1	3.4	-3.4
100.0	0.7807	4.5	-4.5	1.1	-1.1	3.4	-3.4
101.0	0.7582	4.5	-4.6	1.1	-1.2	3.4	-3.4
102.0	0.7365	4.6	-4.7	1.1	-1.2	3.5	-3.5
103.0	0.7154	4.7	-4.8	1.1	-1.2	3.5	-3.5
104.0	0.6948	4.8	-4.8	1.2	-1.2	3.6	-3.6
105.0	0.6750	4.9	-4.9	1.2	-1.2	3.7	-3.7

LHCHXSWGWHZH < LHCPHysics < TWiki

106.0	0.6561	5.1	-5.1	1.2	-1.2	3.9	-3.9
107.0	0.6379	5.2	-5.2	1.2	-1.2	4.0	-4.0
108.0	0.6203	5.3	-5.3	1.3	-1.2	4.1	-4.1
109.0	0.6033	5.4	-5.4	1.3	-1.3	4.1	-4.1
110.0	0.5869	5.4	-5.4	1.3	-1.3	4.1	-4.1
110.5	0.5788	5.4	-5.4	1.3	-1.3	4.1	-4.1
111.0	0.5708	5.4	-5.4	1.3	-1.3	4.1	-4.1
111.5	0.5629	5.4	-5.4	1.3	-1.3	4.1	-4.1
112.0	0.5552	5.4	-5.4	1.3	-1.3	4.1	-4.1
112.5	0.5476	5.5	-5.5	1.3	-1.3	4.2	-4.2
113.0	0.5402	5.6	-5.5	1.4	-1.3	4.2	-4.2
113.5	0.5329	5.6	-5.5	1.4	-1.3	4.2	-4.2
114.0	0.5258	5.6	-5.5	1.4	-1.3	4.2	-4.2
114.5	0.5187	5.6	-5.5	1.4	-1.3	4.2	-4.2
115.0	0.5117	5.6	-5.5	1.4	-1.3	4.2	-4.2
115.5	0.5049	5.5	-5.5	1.4	-1.4	4.1	-4.1
116.0	0.4981	5.5	-5.5	1.4	-1.4	4.1	-4.1
116.5	0.4916	5.4	-5.4	1.4	-1.4	4.0	-4.0
117.0	0.4850	5.3	-5.3	1.4	-1.4	3.9	-3.9
117.5	0.4787	5.2	-5.2	1.4	-1.4	3.8	-3.8
118.0	0.4724	5.2	-5.2	1.4	-1.4	3.8	-3.8
118.5	0.4662	5.2	-5.1	1.5	-1.4	3.7	-3.7
119.0	0.4602	5.1	-5.0	1.5	-1.4	3.6	-3.6
119.5	0.4542	5.1	-5.0	1.5	-1.4	3.6	-3.6
120.0	0.4483	5.0	-4.9	1.5	-1.4	3.5	-3.5
120.5	0.4426	5.0	-4.9	1.5	-1.4	3.5	-3.5
121.0	0.4368	5.0	-4.9	1.5	-1.4	3.5	-3.5
121.5	0.4312	5.0	-4.9	1.5	-1.4	3.5	-3.5
122.0	0.4257	5.0	-4.9	1.5	-1.4	3.5	-3.5
122.5	0.4203	5.0	-5.0	1.5	-1.5	3.5	-3.5
123.0	0.4150	5.1	-5.0	1.6	-1.5	3.5	-3.5
123.5	0.4096	5.1	-5.0	1.6	-1.5	3.5	-3.5
124.0	0.4044	5.1	-5.0	1.6	-1.5	3.5	-3.5
124.5	0.3993	5.1	-5.0	1.6	-1.5	3.5	-3.5
125.0	0.3943	5.1	-5.0	1.6	-1.5	3.5	-3.5
125.5	0.3893	5.1	-5.0	1.6	-1.5	3.5	-3.5
126.0	0.3843	5.1	-5.0	1.6	-1.5	3.5	-3.5
126.5	0.3794	5.2	-5.1	1.6	-1.5	3.6	-3.6
127.0	0.3746	5.2	-5.1	1.6	-1.5	3.6	-3.6
127.5	0.3699	5.2	-5.1	1.6	-1.5	3.6	-3.6
128.0	0.3652	5.3	-5.1	1.7	-1.5	3.6	-3.6
128.5	0.3606	5.3	-5.1	1.7	-1.5	3.6	-3.6
129.0	0.3561	5.4	-5.2	1.7	-1.5	3.7	-3.7
129.5	0.3516	5.4	-5.3	1.7	-1.6	3.7	-3.7
130.0	0.3473	5.4	-5.3	1.7	-1.6	3.7	-3.7
130.5	0.3430	5.4	-5.3	1.7	-1.6	3.7	-3.7
131.0	0.3388	5.4	-5.3	1.7	-1.6	3.7	-3.7
131.5	0.3347	5.4	-5.3	1.7	-1.6	3.7	-3.7
132.0	0.3306	5.4	-5.3	1.7	-1.6	3.7	-3.7
132.5	0.3266	5.4	-5.3	1.7	-1.6	3.7	-3.7

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133.0	0.3226	5.4	-5.2	1.8	-1.6	3.6	-3.6
133.5	0.3188	5.4	-5.2	1.8	-1.6	3.6	-3.6
134.0	0.3149	5.4	-5.2	1.8	-1.6	3.6	-3.6
134.5	0.3112	5.4	-5.2	1.8	-1.6	3.6	-3.6
135.0	0.3074	5.4	-5.2	1.8	-1.6	3.6	-3.6
135.5	0.3038	5.4	-5.2	1.8	-1.6	3.6	-3.6
136.0	0.3001	5.4	-5.3	1.8	-1.7	3.6	-3.6
136.5	0.2966	5.4	-5.3	1.8	-1.7	3.6	-3.6
137.0	0.2930	5.4	-5.3	1.8	-1.7	3.6	-3.6
137.5	0.2895	5.6	-5.4	1.9	-1.7	3.7	-3.7
138.0	0.2861	5.6	-5.4	1.9	-1.7	3.7	-3.7
138.5	0.2827	5.6	-5.4	1.9	-1.7	3.7	-3.7
139.0	0.2793	5.6	-5.4	1.9	-1.7	3.7	-3.7
139.5	0.2760	5.6	-5.4	1.9	-1.7	3.7	-3.7
140.0	0.2728	5.6	-5.4	1.9	-1.7	3.7	-3.7
141.0	0.2664	5.7	-5.5	1.9	-1.7	3.8	-3.8
142.0	0.2601	5.7	-5.5	1.9	-1.7	3.8	-3.8
143.0	0.2541	5.9	-5.7	2.0	-1.8	3.9	-3.9
144.0	0.2482	5.9	-5.7	2.0	-1.8	3.9	-3.9
145.0	0.2424	6.0	-5.8	2.0	-1.8	4.0	-4.0
146.0	0.2368	5.9	-5.7	2.0	-1.8	3.9	-3.9
147.0	0.2314	5.9	-5.6	2.1	-1.8	3.8	-3.8
148.0	0.2261	5.9	-5.6	2.1	-1.8	3.8	-3.8
149.0	0.2209	5.8	-5.5	2.1	-1.8	3.7	-3.7
150.0	0.2159	5.7	-5.4	2.1	-1.8	3.6	-3.6
151.0	0.2110	5.8	-5.4	2.2	-1.8	3.6	-3.6
152.0	0.2063	5.8	-5.4	2.2	-1.8	3.6	-3.6
153.0	0.2016	5.8	-5.4	2.2	-1.8	3.6	-3.6
154.0	0.1969	5.8	-5.5	2.2	-1.9	3.6	-3.6
155.0	0.1923	5.8	-5.5	2.2	-1.9	3.6	-3.6
156.0	0.1871	6.0	-5.6	2.3	-1.9	3.7	-3.7
157.0	0.1821	6.1	-5.7	2.3	-1.9	3.8	-3.8
158.0	0.1773	6.1	-5.7	2.3	-1.9	3.8	-3.8
159.0	0.1728	6.3	-5.8	2.4	-1.9	3.9	-3.9
160.0	0.1687	6.4	-5.9	2.4	-1.9	4.0	-4.0
162.0	0.1634	6.4	-6.0	2.4	-2.0	4.0	-4.0
164.0	0.1587	6.5	-6.0	2.4	-1.9	4.1	-4.1
166.0	0.1533	6.5	-6.1	2.4	-2.0	4.1	-4.1
168.0	0.1471	6.6	-6.2	2.4	-2.0	4.2	-4.2
170.0	0.1408	6.6	-6.2	2.4	-2.0	4.2	-4.2
172.0	0.1350	6.7	-6.2	2.5	-2.0	4.2	-4.2
174.0	0.1294	6.6	-6.1	2.5	-2.0	4.1	-4.1
176.0	0.1239	6.5	-6.1	2.5	-2.1	4.0	-4.0
178.0	0.1186	6.4	-6.0	2.5	-2.1	3.9	-3.9
180.0	0.1137	6.4	-5.9	2.6	-2.1	3.8	-3.8
182.0	0.1095	6.4	-5.9	2.6	-2.1	3.8	-3.8
184.0	0.1057	6.4	-5.9	2.6	-2.1	3.8	-3.8
186.0	0.1018	6.4	-5.9	2.6	-2.1	3.8	-3.8
188.0	0.09798	6.5	-6.0	2.6	-2.1	3.9	-3.9
190.0	0.09428	6.5	-6.0	2.6	-2.1	3.9	-3.9

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192.0	0.09079	6.5	-6.0	2.6	-2.1	3.9	-3.9
194.0	0.08745	6.6	-6.1	2.6	-2.1	4.0	-4.0
196.0	0.08426	6.7	-6.1	2.7	-2.1	4.0	-4.0
198.0	0.08120	6.8	-6.2	2.7	-2.1	4.1	-4.1
200.0	0.07827	6.8	-6.2	2.7	-2.1	4.1	-4.1
202.0	0.07545	6.7	-6.2	2.6	-2.1	4.1	-4.1
204.0	0.07274	6.7	-6.2	2.6	-2.1	4.1	-4.1
206.0	0.07014	6.8	-6.3	2.6	-2.1	4.2	-4.2
208.0	0.06765	6.9	-6.3	2.7	-2.1	4.2	-4.2
210.0	0.06526	6.8	-6.3	2.6	-2.1	4.2	-4.2
212.0	0.06299	6.8	-6.3	2.6	-2.1	4.2	-4.2
214.0	0.06080	6.8	-6.3	2.6	-2.1	4.2	-4.2
216.0	0.05871	6.8	-6.3	2.6	-2.1	4.2	-4.2
218.0	0.05670	6.8	-6.3	2.6	-2.1	4.2	-4.2
220.0	0.05476	6.8	-6.3	2.6	-2.1	4.2	-4.2
222.0	0.05290	6.8	-6.4	2.5	-2.1	4.3	-4.3
224.0	0.05110	6.9	-6.4	2.5	-2.0	4.4	-4.4
226.0	0.04937	7.1	-6.6	2.5	-2.0	4.6	-4.6
228.0	0.04771	7.2	-6.7	2.5	-2.0	4.7	-4.7
230.0	0.04614	7.2	-6.8	2.4	-2.0	4.8	-4.8
232.0	0.04460	7.1	-6.7	2.4	-2.0	4.7	-4.7
234.0	0.04311	7.0	-6.6	2.4	-2.0	4.6	-4.6
236.0	0.04169	7.0	-6.6	2.4	-2.0	4.6	-4.6
238.0	0.04032	6.9	-6.5	2.4	-2.0	4.5	-4.5
240.0	0.03901	6.7	-6.3	2.3	-1.9	4.4	-4.4
242.0	0.03775	6.7	-6.3	2.3	-1.9	4.4	-4.4
244.0	0.03653	6.6	-6.2	2.3	-1.9	4.3	-4.3
246.0	0.03536	6.5	-6.2	2.2	-1.9	4.3	-4.3
248.0	0.03423	6.4	-6.1	2.2	-1.9	4.2	-4.2
250.0	0.03314	6.4	-6.1	2.2	-1.9	4.2	-4.2
252.0	0.03208	6.5	-6.1	2.2	-1.8	4.3	-4.3
254.0	0.03106	6.4	-6.1	2.1	-1.8	4.3	-4.3
256.0	0.03007	6.5	-6.2	2.1	-1.8	4.4	-4.4
258.0	0.02912	6.5	-6.2	2.1	-1.8	4.4	-4.4
260.0	0.02821	6.5	-6.3	2.0	-1.8	4.5	-4.5
262.0	0.02734	6.5	-6.2	2.0	-1.7	4.5	-4.5
264.0	0.02650	6.3	-6.1	1.9	-1.7	4.4	-4.4
266.0	0.02569	6.3	-6.1	1.9	-1.7	4.4	-4.4
268.0	0.02491	6.2	-6.0	1.9	-1.7	4.3	-4.3
270.0	0.02415	6.2	-6.0	1.9	-1.7	4.3	-4.3
272.0	0.02342	6.2	-6.0	1.8	-1.6	4.4	-4.4
274.0	0.02272	6.3	-6.1	1.8	-1.6	4.5	-4.5
276.0	0.02204	6.5	-6.3	1.8	-1.6	4.7	-4.7
278.0	0.02138	6.5	-6.4	1.7	-1.6	4.8	-4.8
280.0	0.02075	6.6	-6.5	1.7	-1.6	4.9	-4.9
282.0	0.02014	6.5	-6.4	1.7	-1.6	4.8	-4.8
284.0	0.01954	6.4	-6.3	1.7	-1.6	4.7	-4.7
286.0	0.01897	6.3	-6.2	1.6	-1.5	4.7	-4.7
288.0	0.01842	6.2	-6.1	1.6	-1.5	4.6	-4.6
290.0	0.01788	6.1	-6.0	1.6	-1.5	4.5	-4.5

295.0	0.01662	6.3	-6.3	1.5	-1.5	4.8	-4.8
300.0	0.01547	6.5	-6.4	1.5	-1.4	5.0	-5.0

WH cross sections at 33 TeV

MH (GeV)	sigma(WH) (pb)	+ error (%)	- error (%)	+ scale (%)	- scale (%)	+ PDF+as (%)	- PDF+as (%)
125	4.272	2.6	-3.1	0.2	-0.7	2.4	-2.4
800	0.007390	3.5	-3.8	0.2	-0.5	3.3	-3.3

ZH cross sections at 33 TeV

MH (GeV)	sigma(ZH) (pb)	+ error (%)	- error (%)	+ scale (%)	- scale (%)	+ PDF+as (%)	- PDF+as (%)
125	2.780	7.3	-5.7	4.8	-3.2	2.5	-2.5
800	0.005776	10.6	-7.7	8.6	-5.7	2.0	-2.0

Relative EW NLO corrections = update of Phys.Rev. D68 (2003) 073003 (Ciccolini, Dittmaier, Krämer)

pp -> ZH							pp -> WH						
MH/GeV	[%]	7 TeV	8 TeV	9 TeV	10 TeV	14 TeV	MH/GeV	[%]	7 TeV	8 TeV	9 TeV	10 TeV	14 TeV
80		-4.7	-4.7	-4.7	-4.7	-4.8	80		-5.4	-5.4	-5.4	-5.4	-5.5
85		-4.8	-4.8	-4.8	-4.8	-4.8	85		-5.5	-5.5	-5.5	-5.5	-5.5
90		-4.9	-4.9	-4.9	-4.9	-4.9	90		-5.7	-5.7	-5.7	-5.7	-5.7
95		-4.9	-4.9	-4.9	-4.9	-5.0	95		-5.8	-5.8	-5.8	-5.8	-5.9
100		-4.9	-4.9	-4.9	-4.9	-5.0	100		-6.0	-5.9	-5.9	-6.0	-6.1
105		-4.9	-5.0	-5.0	-5.0	-5.0	105		-5.9	-6.1	-5.9	-6.1	-6.1
110		-5.0	-5.0	-5.0	-5.1	-5.1	110		-6.1	-6.2	-6.2	-6.2	-6.4
115		-5.1	-5.1	-5.1	-5.1	-5.1	115		-6.5	-6.5	-6.4	-6.5	-6.7
120		-5.1	-5.1	-5.1	-5.1	-5.2	120		-6.7	-6.7	-6.7	-6.8	-6.9
125		-5.1	-5.1	-5.2	-5.2	-5.3	125		-6.7	-6.7	-6.7	-6.8	-6.9
130		-5.2	-5.3	-5.2	-5.3	-5.3	130		-6.9	-7.0	-7.2	-7.0	-7.1
135		-5.3	-5.3	-5.3	-5.3	-5.4	135		-7.2	-7.3	-7.3	-7.4	-7.5
140		-5.4	-5.4	-5.4	-5.5	-5.4	140		-7.6	-7.6	-7.7	-7.7	-7.8
145		-5.5	-5.6	-5.6	-5.6	-5.7	145		-7.9	-7.9	-7.9	-7.9	-8.1
150		-5.8	-5.8	-5.9	-5.9	-6.0	150		-8.4	-8.4	-8.5	-8.5	-8.6
155		-6.2	-6.3	-6.3	-6.3	-6.4	155		-9.3	-9.2	-9.2	-9.4	-9.5
160		-8.5	-8.5	-8.6	-8.6	-8.7	160		-12	-12	-12	-12	-12
165		-5.5	-5.5	-5.6	-5.7	-5.7	165		-9.4	-9.5	-9.5	-9.5	-9.6
170		-5.6	-5.6	-5.7	-5.7	-5.8	170		-9.6	-9.6	-9.7	-9.7	-9.9
175		-5.9	-5.9	-6.0	-6.0	-6.1	175		-9.9	-9.9	-9.9	-9.9	-10
180		-6.7	-6.7	-6.8	-6.8	-7.0	180		-10	-10	-10	-11	-11
185		-5.9	-5.9	-6.0	-6.0	-6.2	185		-9.2	-9.3	-9.2	-9.4	-9.4
190		-5.7	-5.8	-5.8	-5.9	-6.0	190		-9.1	-9.2	-9.2	-9.3	-9.4
195		-5.5	-5.6	-5.7	-5.7	-5.8	195		-9.0	-9.0	-9.2	-9.2	-9.3
200		-5.3	-5.4	-5.4	-5.5	-5.6	200		-9.0	-9.1	-9.2	-9.3	-9.4
210		-5.0	-5.1	-5.1	-5.2	-5.4	210		-8.9	-9.0	-9.1	-9.1	-9.3
220		-4.6	-4.7	-4.7	-4.8	-5.0	220		-8.8	-8.9	-9.0	-9.2	-9.2
230		-4.3	-4.4	-4.5	-4.5	-4.7	230		-8.7	-8.7	-8.7	-8.8	-9.0
240		-4.0	-4.1	-4.2	-4.3	-4.5	240		-8.5	-8.7	-8.8	-8.8	-9.0
250		-3.7	-3.8	-3.9	-4.0	-4.3	250		-8.4	-8.6	-8.7	-8.8	-8.9
260		-3.5	-3.7	-3.8	-3.9	-4.1	260		-8.3	-8.6	-8.6	-8.8	-8.9
270		-3.4	-3.5	-3.7	-3.8	-4.1	270		-8.2	-8.3	-8.5	-8.6	-8.8

280		-3.3	-3.4	-3.6	-3.7	-4.0		280		-8.3	-8.4	-8.5	-8.6	-8.9
290		-3.2	-3.4	-3.5	-3.6	-3.9		290		-8.3	-8.5	-8.6	-8.6	-8.8
300		-3.2	-3.4	-3.5	-3.6	-4.0		300		-8.4	-8.5	-8.7	-8.8	-9.0

pp -> ZH			pp -> WH		
MH/GeV	[%]	33 TeV	MH/GeV	[%]	33 TeV
125		-5.3	125		-7.4
800		+12	800		+8.6

Links

This topic: LHCPhysics > LHCHXSWGWHZH

Topic revision: r17 - 2014-11-04 - ReiTanaka



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