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Fourth Generation Model - YR2 calculations.

- Higgs production and decay in the fourth generation model with SM-like couplings.
- $M_{D4}=M_{L4}=600\text{GeV}$ and $M_{U4} - M_{D4} = [1 + 1/5*\ln(M_H/115)] * 50 \text{ GeV}$).
- Assumes the same NNLO QCD corrections as SM for ggF.
- QCD scale and PDF+ α_s uncertainties are assumed to be the same as SM for ggF, i.e. +-15-20%.
- Old SM4 numbers with no EW radiative corrections.

NLO EW radiative corrections in the fourth generation model

- The NLO electroweak (EW) radiative corrections in the fourth generation model have been calculated recently for gg H production (arXiv:1108.2025) and for Higgs decay in W WW/ZZ 4f (Prophecy4f version 2.0).
- The NLO EW radiative corrections for Higgs production via heavy-quark loop in gg H are positive for a light Higgs boson, being +12% at $M_H=120\text{GeV}$ with current (see figure) parameter setting. Corrections are relatively small around the $t\bar{t}$ -threshold, start to become negative at 450GeV , to become huge and negative towards the heavy-fermion threshold, but still remains -13% at $M_H=600\text{GeV}$. If one assumes QCD/EW factorization this is, practically, the whole effect. Note here the breakdown of perturbation theory, i.e. 50% means that 3-loop corrections are not negligible.
- The NLO EW radiative corrections in Higgs boson decay-width for H WW/ZZ 4f turned out to be very large and negative, -70% for $M_H>2M_W$, because the BR's are completely dominated by H WW and to a lesser extent by H ZZ. Since H WW/ZZ receive almost the same large corrections, the BR's are not modified much for large M_H . Once $M_H>2M_{\text{top}}$ it is expected that the BR for H tt gets enhanced because of the large negative corrections to H WW/ZZ. One should note that the corrections from SM4 NLO EW are huge for H with presence of heavy-quarks and W gauge boson in the loop. Therefore Higgs decay in H bb, are also expected to play the key role at low Higgs mass exclusion.
- (Comments by G. Passarino, S. Dittmaier, compiled by R.Tanaka, Nov., 2011.)

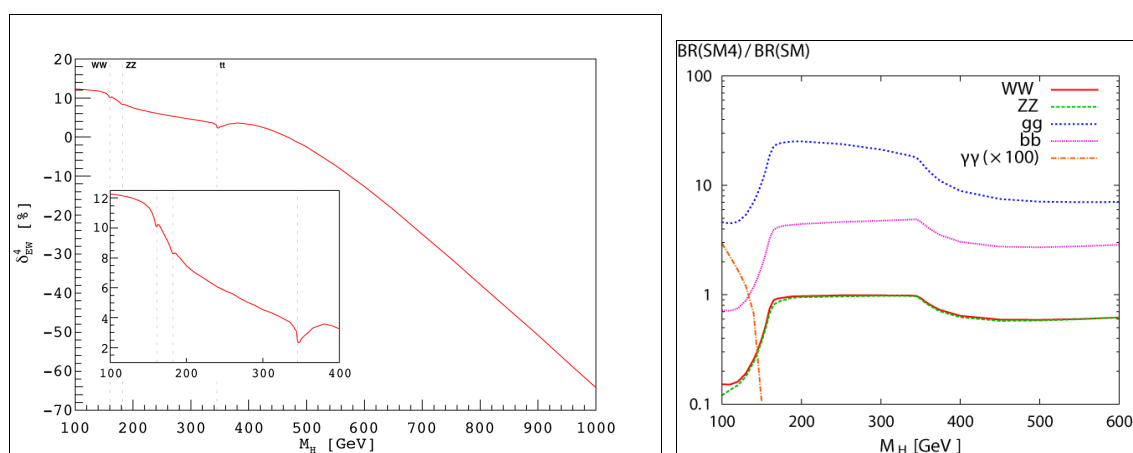


Figure 1: (left) NLO EW correction to the ggF Higgs production in SM4. (right) Ratio of BR in SM4/SM calculated with Prophecy4f and HDECAY .

ggF Higgs cross sections

The entries are:

- Higgs mass (in GeV)

• SM4 ggF cross section

M _H	XS	M _H	XS	M _H	XS	M _H	XS	M _H	XS
[GeV]	[pb]	[GeV]	[pb]	[GeV]	[pb]	[GeV]	[pb]	[GeV]	[pb]
100	244	166	77.5	188	56.7	339	13.5	400	9.59
110	199	167	76.3	189	56.0	340	13.5	410	8.80
120	165	168	75.2	190	55.2	341	13.4	420	8.04
130	138	169	74.1	195	51.8	342	13.3	430	7.33
140	117	170	73.0	200	48.6	343	13.3	440	6.67
145	107	171	71.9	210	43.0	344	13.2	450	6.05
150	99.2	172	70.9	220	38.2	345	13.1	460	5.49
151	97.6	173	69.9	230	34.2	346	13.1	470	4.98
152	96.1	174	68.8	240	30.7	347	13.1	480	4.50
153	94.6	175	67.9	250	27.7	348	13.1	490	4.08
154	93.1	176	66.9	260	25.1	349	13.1	500	3.70
155	91.7	177	65.9	270	22.8	350	13.1	550	2.26
156	90.2	178	65.0	280	20.8	351	13.0	600	1.40
157	88.7	179	64.0	290	19.1	352	13.0	650	0.875
158	87.3	180	63.1	300	17.6	353	12.9	700	0.556
159	85.8	181	62.2	310	16.3	354	12.9	750	0.360
160	84.5	182	61.4	320	15.2	355	12.9	800	0.235
161	83.3	183	60.6	330	14.2	360	12.6	850	0.156
162	82.1	184	59.8	335	13.8	370	12.0	900	0.104
163	81.0	185	59.0	336	13.8	375	11.6	950	0.0690
164	79.8	186	58.3	337	13.7	380	11.2	1000	0.0456
165	78.6	187	57.5	338	13.6	390	10.4		

Branching Ratios for H->ff

M _H [GeV]	H bb	H	H μμ	H ss	H cc	H tt
100	5.70E-01	5.98E-02	2.08E-04	2.44E-04	2.88E-02	0.00
110	5.30E-01	5.67E-02	1.97E-04	2.26E-04	2.68E-02	0.00
120	4.87E-01	5.29E-02	1.84E-04	2.08E-04	2.46E-02	0.00
130	4.36E-01	4.82E-02	1.67E-04	1.86E-04	2.20E-02	0.00
140	3.72E-01	4.17E-02	1.45E-04	1.59E-04	1.88E-02	0.00
145	3.33E-01	3.75E-02	1.30E-04	1.42E-04	1.68E-02	0.00
150	2.83E-01	3.20E-02	1.11E-04	1.21E-04	1.42E-02	0.00
151	2.71E-01	3.08E-02	1.07E-04	1.16E-04	1.37E-02	0.00
152	2.59E-01	2.94E-02	1.02E-04	1.11E-04	1.31E-02	0.00
153	2.46E-01	2.80E-02	9.70E-05	1.05E-04	1.24E-02	0.00
154	2.32E-01	2.64E-02	9.16E-05	9.89E-05	1.17E-02	0.00
155	2.17E-01	2.47E-02	8.57E-05	9.24E-05	1.09E-02	0.00
156	2.01E-01	2.29E-02	7.94E-05	8.56E-05	1.01E-02	0.00
157	1.83E-01	2.09E-02	7.25E-05	7.80E-05	9.22E-03	0.00
158	1.61E-01	1.84E-02	6.39E-05	6.87E-05	8.12E-03	0.00
159	1.38E-01	1.58E-02	5.49E-05	5.90E-05	6.97E-03	0.00
160	1.13E-01	1.29E-02	4.48E-05	4.80E-05	5.67E-03	0.00
161	8.91E-02	1.02E-02	3.55E-05	3.80E-05	4.49E-03	0.00
162	7.15E-02	8.22E-03	2.85E-05	3.05E-05	3.60E-03	0.00
163	6.00E-02	6.91E-03	2.40E-05	2.56E-05	3.02E-03	0.00
164	5.23E-02	6.03E-03	2.09E-05	2.23E-05	2.64E-03	0.00

165	4.68E-02	5.39E-03	1.87E-05	1.99E-05	2.36E-03	0.00
166	4.26E-02	4.92E-03	1.71E-05	1.82E-05	2.15E-03	0.00
167	3.94E-02	4.55E-03	1.58E-05	1.68E-05	1.98E-03	0.00
168	3.67E-02	4.25E-03	1.47E-05	1.57E-05	1.85E-03	0.00
169	3.45E-02	4.00E-03	1.39E-05	1.47E-05	1.74E-03	0.00
170	3.26E-02	3.78E-03	1.31E-05	1.39E-05	1.64E-03	0.00
171	3.10E-02	3.60E-03	1.25E-05	1.32E-05	1.56E-03	0.00
172	2.95E-02	3.43E-03	1.19E-05	1.26E-05	1.49E-03	0.00
173	2.83E-02	3.29E-03	1.14E-05	1.20E-05	1.42E-03	0.00
174	2.71E-02	3.15E-03	1.09E-05	1.15E-05	1.36E-03	0.00
175	2.60E-02	3.03E-03	1.05E-05	1.11E-05	1.31E-03	0.00
176	2.50E-02	2.92E-03	1.01E-05	1.07E-05	1.26E-03	0.00
177	2.41E-02	2.81E-03	9.75E-06	1.03E-05	1.21E-03	0.00
178	2.32E-02	2.71E-03	9.41E-06	9.89E-06	1.17E-03	0.00
179	2.23E-02	2.62E-03	9.07E-06	9.52E-06	1.13E-03	0.00
180	2.15E-02	2.52E-03	8.74E-06	9.17E-06	1.08E-03	0.00
181	2.06E-02	2.42E-03	8.40E-06	8.80E-06	1.04E-03	0.00
182	1.97E-02	2.31E-03	8.01E-06	8.38E-06	9.90E-04	0.00
183	1.86E-02	2.19E-03	7.60E-06	7.95E-06	9.38E-04	0.00
184	1.77E-02	2.08E-03	7.21E-06	7.53E-06	8.90E-04	0.00
185	1.68E-02	1.98E-03	6.87E-06	7.17E-06	8.47E-04	0.00
186	1.61E-02	1.89E-03	6.57E-06	6.85E-06	8.09E-04	0.00
187	1.54E-02	1.82E-03	6.31E-06	6.57E-06	7.76E-04	0.00
188	1.48E-02	1.75E-03	6.07E-06	6.31E-06	7.46E-04	0.00
189	1.43E-02	1.69E-03	5.86E-06	6.09E-06	7.20E-04	0.00
190	1.39E-02	1.64E-03	5.69E-06	5.91E-06	6.98E-04	0.00
195	1.20E-02	1.43E-03	4.94E-06	5.10E-06	6.03E-04	0.00
200	1.06E-02	1.27E-03	4.41E-06	4.53E-06	5.35E-04	0.00
210	8.71E-03	1.05E-03	3.64E-06	3.71E-06	4.38E-04	0.00
220	7.33E-03	8.93E-04	3.09E-06	3.12E-06	3.69E-04	0.00
230	6.26E-03	7.69E-04	2.66E-06	2.67E-06	3.15E-04	0.00
240	5.42E-03	6.71E-04	2.33E-06	2.31E-06	2.73E-04	0.00
250	4.73E-03	5.89E-04	2.04E-06	2.01E-06	2.38E-04	0.00
260	4.17E-03	5.24E-04	1.82E-06	1.78E-06	2.10E-04	2.40E-07
270	3.71E-03	4.69E-04	1.62E-06	1.58E-06	1.86E-04	1.07E-05
280	3.32E-03	4.23E-04	1.47E-06	1.41E-06	1.67E-04	5.13E-05
290	2.99E-03	3.82E-04	1.33E-06	1.27E-06	1.50E-04	1.45E-04
300	2.70E-03	3.48E-04	1.21E-06	1.15E-06	1.36E-04	3.26E-04
310	2.47E-03	3.20E-04	1.11E-06	1.05E-06	1.24E-04	6.60E-04
320	2.26E-03	2.94E-04	1.02E-06	9.61E-07	1.13E-04	1.28E-03
330	2.07E-03	2.72E-04	9.41E-07	8.83E-07	1.04E-04	2.52E-03
335	1.99E-03	2.62E-04	9.07E-07	8.48E-07	1.00E-04	3.68E-03
336	1.98E-03	2.60E-04	9.00E-07	8.42E-07	9.94E-05	4.00E-03
337	1.96E-03	2.58E-04	8.94E-07	8.36E-07	9.86E-05	4.36E-03
338	1.95E-03	2.56E-04	8.88E-07	8.30E-07	9.79E-05	4.78E-03
339	1.93E-03	2.54E-04	8.82E-07	8.23E-07	9.72E-05	5.26E-03
340	1.92E-03	2.53E-04	8.76E-07	8.18E-07	9.64E-05	5.83E-03
345	1.85E-03	2.45E-04	8.48E-07	7.89E-07	9.31E-05	1.60E-02
346	1.83E-03	2.42E-04	8.38E-07	7.79E-07	9.19E-05	2.21E-02
347	1.80E-03	2.38E-04	8.24E-07	7.65E-07	9.03E-05	3.08E-02

348	1.76E-03	2.33E-04	8.07E-07	7.49E-07	8.85E-05	4.23E-02
349	1.72E-03	2.27E-04	7.87E-07	7.31E-07	8.63E-05	5.66E-02
350	1.67E-03	2.21E-04	7.67E-07	7.12E-07	8.40E-05	7.25E-02
351	1.63E-03	2.16E-04	7.47E-07	6.93E-07	8.18E-05	8.78E-02
352	1.59E-03	2.10E-04	7.29E-07	6.76E-07	7.98E-05	1.03E-01
353	1.55E-03	2.05E-04	7.11E-07	6.59E-07	7.77E-05	1.18E-01
354	1.51E-03	2.00E-04	6.93E-07	6.42E-07	7.57E-05	1.32E-01
355	1.47E-03	1.95E-04	6.75E-07	6.25E-07	7.38E-05	1.46E-01
360	1.29E-03	1.72E-04	5.97E-07	5.51E-07	6.50E-05	2.09E-01
370	1.03E-03	1.38E-04	4.79E-07	4.41E-07	5.20E-05	3.05E-01
375	9.38E-04	1.26E-04	4.35E-07	3.99E-07	4.71E-05	3.41E-01
380	8.57E-04	1.15E-04	3.99E-07	3.65E-07	4.30E-05	3.71E-01
390	7.31E-04	9.85E-05	3.42E-07	3.11E-07	3.67E-05	4.18E-01
400	6.38E-04	8.63E-05	2.99E-07	2.71E-07	3.20E-05	4.50E-01
410	5.66E-04	7.69E-05	2.67E-07	2.41E-07	2.84E-05	4.73E-01
420	5.09E-04	6.96E-05	2.41E-07	2.17E-07	2.56E-05	4.90E-01
430	4.65E-04	6.37E-05	2.21E-07	1.98E-07	2.33E-05	5.03E-01
440	4.28E-04	5.88E-05	2.04E-07	1.82E-07	2.15E-05	5.11E-01
450	3.97E-04	5.48E-05	1.90E-07	1.69E-07	1.99E-05	5.17E-01
460	3.70E-04	5.14E-05	1.78E-07	1.58E-07	1.86E-05	5.21E-01
470	3.48E-04	4.84E-05	1.68E-07	1.48E-07	1.75E-05	5.24E-01
480	3.28E-04	4.58E-05	1.59E-07	1.40E-07	1.65E-05	5.24E-01
490	3.11E-04	4.36E-05	1.51E-07	1.32E-07	1.56E-05	5.24E-01
500	2.96E-04	4.16E-05	1.44E-07	1.26E-07	1.48E-05	5.22E-01
550	2.39E-04	3.41E-05	1.18E-07	1.02E-07	1.20E-05	5.07E-01
600	2.02E-04	2.92E-05	1.01E-07	8.58E-08	1.01E-05	4.82E-01
650	1.74E-04	2.55E-05	8.84E-08	7.39E-08	8.72E-06	4.52E-01
700	1.52E-04	2.26E-05	7.82E-08	6.46E-08	7.61E-06	4.21E-01
750	1.34E-04	2.01E-05	6.97E-08	5.68E-08	6.69E-06	3.88E-01
800	1.18E-04	1.80E-05	6.24E-08	5.02E-08	5.91E-06	3.56E-01
1000	7.37E-05	1.17E-05	4.06E-08	3.13E-08	3.69E-06	2.43E-01

Branching Ratios for H → VV

- Important note: For BR(H → VV) in big table below (Table 51-52 in YR2), NLO EW corrections are omitted.
- For BR with NLO EW radiative corrections, numbers in small table below (Table 56 in YR2) should be used.

M _H [GeV]	H → VV	H → VV
	without NLO EW	with NLO EW
100	1.31E-04	4.65E-05
110	1.72E-04	4.40E-05
120	2.26E-04	3.77E-05
130	2.95E-04	2.71E-05
140	3.81E-04	1.30E-05
150	4.74E-04	1.42E-06

M _H [GeV]	H → gg	H → ZZ	H → ZZ	H → WW	H → ZZ	M _H [GeV]
100	3.39E-01	1.31E-04	1.70E-05	1.67E-03	1.35E-04	5.52E-03

110	3.78E-01	1.72E-04	1.35E-04	7.20E-03	5.83E-04	6.41E-03
120	4.10E-01	2.26E-04	4.06E-04	2.27E-02	2.37E-03	7.49E-03
130	4.28E-01	2.95E-04	8.51E-04	5.77E-02	7.12E-03	8.92E-03
140	4.20E-01	3.81E-04	1.46E-03	1.29E-01	1.68E-02	1.11E-02
145	4.01E-01	4.29E-04	1.80E-03	1.86E-01	2.36E-02	1.28E-02
150	3.63E-01	4.74E-04	2.13E-03	2.75E-01	3.09E-02	1.55E-02
151	3.53E-01	4.82E-04	2.19E-03	2.97E-01	3.23E-02	1.62E-02
152	3.41E-01	4.89E-04	2.24E-03	3.21E-01	3.35E-02	1.71E-02
153	3.28E-01	4.95E-04	2.29E-03	3.48E-01	3.46E-02	1.81E-02
154	3.13E-01	4.99E-04	2.32E-03	3.78E-01	3.54E-02	1.93E-02
155	2.96E-01	5.00E-04	2.34E-03	4.12E-01	3.59E-02	2.08E-02
156	2.77E-01	5.00E-04	2.34E-03	4.52E-01	3.59E-02	2.25E-02
157	2.55E-01	4.96E-04	2.33E-03	4.94E-01	3.55E-02	2.48E-02
158	2.27E-01	4.80E-04	2.25E-03	5.49E-01	3.39E-02	2.84E-02
159	1.97E-01	4.61E-04	2.15E-03	6.09E-01	3.15E-02	3.32E-02
160	1.62E-01	4.35E-04	2.01E-03	6.80E-01	2.78E-02	4.10E-02
161	1.30E-01	4.49E-04	2.01E-03	7.41E-01	2.40E-02	5.21E-02
162	1.06E-01	3.65E-04	1.65E-03	7.89E-01	2.11E-02	6.52E-02
163	8.98E-02	3.11E-04	1.42E-03	8.19E-01	1.93E-02	7.81E-02
164	7.92E-02	2.74E-04	1.27E-03	8.41E-01	1.84E-02	9.01E-02
165	7.15E-02	2.48E-04	1.16E-03	8.56E-01	1.80E-02	1.01E-01
166	6.59E-02	2.29E-04	1.08E-03	8.66E-01	1.80E-02	1.12E-01
167	6.16E-02	2.14E-04	1.02E-03	8.74E-01	1.83E-02	1.21E-01
168	5.81E-02	2.02E-04	9.71E-04	8.81E-01	1.87E-02	1.31E-01
169	5.52E-02	1.92E-04	9.30E-04	8.86E-01	1.93E-02	1.40E-01
170	5.27E-02	1.84E-04	8.96E-04	8.90E-01	2.02E-02	1.49E-01
171	5.06E-02	1.76E-04	8.66E-04	8.92E-01	2.15E-02	1.57E-01
172	4.87E-02	1.70E-04	8.41E-04	8.95E-01	2.27E-02	1.66E-01
173	4.71E-02	1.64E-04	8.18E-04	8.96E-01	2.43E-02	1.74E-01
174	4.56E-02	1.59E-04	7.98E-04	8.97E-01	2.62E-02	1.83E-01
175	4.43E-02	1.54E-04	7.79E-04	8.97E-01	2.85E-02	1.91E-01
176	4.30E-02	1.50E-04	7.61E-04	8.97E-01	3.14E-02	2.00E-01
177	4.18E-02	1.46E-04	7.44E-04	8.96E-01	3.50E-02	2.08E-01
178	4.07E-02	1.42E-04	7.28E-04	8.93E-01	3.95E-02	2.17E-01
179	3.96E-02	1.38E-04	7.12E-04	8.89E-01	4.59E-02	2.27E-01
180	3.85E-02	1.34E-04	6.95E-04	8.82E-01	5.43E-02	2.37E-01
181	3.73E-02	1.30E-04	6.76E-04	8.74E-01	6.66E-02	2.48E-01
182	3.59E-02	1.25E-04	6.53E-04	8.60E-01	8.27E-02	2.61E-01
183	3.44E-02	1.20E-04	6.27E-04	8.43E-01	1.02E-01	2.77E-01
184	3.30E-02	1.14E-04	6.02E-04	8.26E-01	1.22E-01	2.93E-01
185	3.18E-02	1.10E-04	5.80E-04	8.11E-01	1.39E-01	3.09E-01
186	3.07E-02	1.06E-04	5.61E-04	7.97E-01	1.54E-01	3.25E-01
187	2.97E-02	1.02E-04	5.45E-04	7.85E-01	1.68E-01	3.41E-01
188	2.88E-02	9.93E-05	5.30E-04	7.74E-01	1.78E-01	3.56E-01
189	2.81E-02	9.66E-05	5.17E-04	7.66E-01	1.88E-01	3.70E-01
190	2.75E-02	9.44E-05	5.07E-04	7.60E-01	1.97E-01	3.84E-01
195	2.50E-02	8.50E-05	4.61E-04	7.33E-01	2.25E-01	4.53E-01
200	2.33E-02	7.84E-05	4.28E-04	7.18E-01	2.43E-01	5.21E-01
210	2.10E-02	6.90E-05	3.79E-04	7.05E-01	2.62E-01	6.63E-01
220	1.94E-02	6.21E-05	3.39E-04	6.98E-01	2.73E-01	8.18E-01

230	1.81E-02	5.65E-05	3.05E-04	6.95E-01	2.79E-01	9.94E-01
240	1.71E-02	5.20E-05	2.75E-04	6.92E-01	2.84E-01	1.19
250	1.62E-02	4.80E-05	2.48E-04	6.93E-01	2.86E-01	1.41
260	1.56E-02	4.49E-05	2.26E-04	6.91E-01	2.90E-01	1.65
270	1.50E-02	4.22E-05	2.05E-04	6.88E-01	2.93E-01	1.92
280	1.46E-02	4.00E-05	1.88E-04	6.88E-01	2.95E-01	2.21
290	1.42E-02	3.81E-05	1.72E-04	6.86E-01	2.97E-01	2.53
300	1.39E-02	3.65E-05	1.58E-04	6.84E-01	3.00E-01	2.87
310	1.38E-02	3.55E-05	1.46E-04	6.80E-01	3.02E-01	3.23
320	1.36E-02	3.45E-05	1.35E-04	6.79E-01	3.03E-01	3.63
330	1.36E-02	3.39E-05	1.25E-04	6.78E-01	3.03E-01	4.06
335	1.37E-02	3.39E-05	1.20E-04	6.77E-01	3.03E-01	4.28
336	1.37E-02	3.39E-05	1.20E-04	6.77E-01	3.03E-01	4.32
337	1.37E-02	3.39E-05	1.19E-04	6.77E-01	3.02E-01	4.36
338	1.38E-02	3.39E-05	1.18E-04	6.76E-01	3.02E-01	4.41
339	1.38E-02	3.39E-05	1.17E-04	6.76E-01	3.02E-01	4.45
340	1.38E-02	3.40E-05	1.17E-04	6.76E-01	3.02E-01	4.49
345	1.39E-02	3.44E-05	1.13E-04	6.69E-01	2.99E-01	4.72
346	1.39E-02	3.42E-05	1.11E-04	6.65E-01	2.97E-01	4.79
347	1.38E-02	3.38E-05	1.10E-04	6.59E-01	2.94E-01	4.88
348	1.37E-02	3.33E-05	1.07E-04	6.51E-01	2.90E-01	5.00
349	1.36E-02	3.26E-05	1.05E-04	6.41E-01	2.86E-01	5.14
350	1.34E-02	3.19E-05	1.02E-04	6.31E-01	2.81E-01	5.29
351	1.32E-02	3.12E-05	9.91E-05	6.21E-01	2.76E-01	5.44
352	1.30E-02	3.05E-05	9.66E-05	6.11E-01	2.71E-01	5.60
353	1.28E-02	2.98E-05	9.41E-05	6.01E-01	2.66E-01	5.76
354	1.26E-02	2.91E-05	9.16E-05	5.92E-01	2.61E-01	5.92
355	1.24E-02	2.84E-05	8.91E-05	5.82E-01	2.57E-01	6.09
360	1.15E-02	2.53E-05	7.82E-05	5.39E-01	2.38E-01	7.00
370	1.01E-02	2.04E-05	6.18E-05	4.73E-01	2.10E-01	8.96
375	9.46E-03	1.85E-05	5.56E-05	4.49E-01	1.99E-01	1.00E+01
380	8.94E-03	1.69E-05	5.04E-05	4.28E-01	1.90E-01	1.11E+01
390	8.07E-03	1.44E-05	4.23E-05	3.96E-01	1.77E-01	1.33E+01
400	7.40E-03	1.25E-05	3.63E-05	3.74E-01	1.68E-01	1.55E+01
410	6.85E-03	1.10E-05	3.16E-05	3.59E-01	1.61E-01	1.79E+01
420	6.41E-03	9.85E-06	2.80E-05	3.46E-01	1.56E-01	2.03E+01
430	6.00E-03	8.93E-06	2.51E-05	3.38E-01	1.53E-01	2.27E+01
440	5.68E-03	8.15E-06	2.27E-05	3.31E-01	1.51E-01	2.52E+01
450	5.37E-03	7.51E-06	2.06E-05	3.27E-01	1.50E-01	2.76E+01
460	5.10E-03	6.97E-06	1.89E-05	3.24E-01	1.49E-01	3.02E+01
470	4.87E-03	6.51E-06	1.75E-05	3.22E-01	1.49E-01	3.27E+01
480	4.65E-03	6.11E-06	1.62E-05	3.21E-01	1.50E-01	3.53E+01
490	4.47E-03	5.76E-06	1.51E-05	3.21E-01	1.51E-01	3.80E+01
500	4.28E-03	5.46E-06	1.41E-05	3.22E-01	1.51E-01	4.06E+01
550	3.55E-03	4.38E-06	1.05E-05	3.31E-01	1.59E-01	5.46E+01
600	2.99E-03	3.74E-06	8.21E-06	3.46E-01	1.69E-01	6.99E+01
650	2.55E-03	3.33E-06	6.62E-06	3.65E-01	1.80E-01	8.68E+01
700	2.17E-03	3.07E-06	5.46E-06	3.86E-01	1.91E-01	1.06E+02
750	1.86E-03	2.89E-06	4.57E-06	4.06E-01	2.03E-01	1.27E+02
800	1.60E-03	2.78E-06	3.88E-06	4.27E-01	2.15E-01	1.52E+02

1000	8.08E-04	2.85E-06	2.28E-06	5.02E-01	2.54E-01	2.88E+02
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Branching Ratios for H->4f

M [GeV]	H gg
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M _H [GeV]	H 4e	H 2e 2μ	H 4l	H 4q	H 2l 2q	H 4f
100	2.26E-07	3.31E-07	1.67E-04	7.48E-04	7.85E-04	1.70E-03
110	7.81E-07	1.27E-06	7.32E-04	3.53E-03	3.36E-03	7.62E-03
120	2.76E-06	4.99E-06	2.36E-03	1.17E-02	1.08E-02	2.48E-02
130	8.00E-06	1.48E-05	6.12E-03	3.05E-02	2.78E-02	6.44E-02
140	1.83E-05	3.51E-05	1.38E-02	6.88E-02	6.24E-02	1.45E-01
145	2.54E-05	4.89E-05	1.99E-02	9.98E-02	8.99E-02	2.10E-01
150	3.33E-05	6.42E-05	2.91E-02	1.45E-01	1.31E-01	3.05E-01
151	3.48E-05	6.71E-05	3.14E-02	1.56E-01	1.41E-01	3.29E-01
152	3.61E-05	6.96E-05	3.39E-02	1.68E-01	1.52E-01	3.54E-01
153	3.71E-05	7.11E-05	3.66E-02	1.82E-01	1.64E-01	3.82E-01
154	3.79E-05	7.34E-05	3.97E-02	1.97E-01	1.77E-01	4.14E-01
155	3.84E-05	7.45E-05	4.31E-02	2.14E-01	1.92E-01	4.49E-01
156	3.85E-05	7.42E-05	4.66E-02	2.30E-01	2.10E-01	4.86E-01
157	3.80E-05	7.33E-05	5.08E-02	2.51E-01	2.27E-01	5.29E-01
158	3.61E-05	6.98E-05	5.62E-02	2.76E-01	2.50E-01	5.82E-01
159	3.34E-05	6.47E-05	6.18E-02	3.02E-01	2.75E-01	6.39E-01
160	2.95E-05	5.75E-05	6.85E-02	3.31E-01	3.05E-01	7.04E-01
161	2.54E-05	4.96E-05	7.45E-02	3.60E-01	3.30E-01	7.64E-01
162	2.23E-05	4.32E-05	7.90E-02	3.81E-01	3.49E-01	8.09E-01
163	2.05E-05	3.97E-05	8.19E-02	3.96E-01	3.61E-01	8.38E-01
164	1.95E-05	3.78E-05	8.36E-02	4.04E-01	3.70E-01	8.58E-01
165	1.91E-05	3.70E-05	8.50E-02	4.11E-01	3.76E-01	8.73E-01
166	1.91E-05	3.69E-05	8.59E-02	4.16E-01	3.81E-01	8.83E-01
167	1.93E-05	3.76E-05	8.66E-02	4.20E-01	3.84E-01	8.91E-01
168	1.98E-05	3.85E-05	8.72E-02	4.23E-01	3.87E-01	8.98E-01
169	2.04E-05	3.99E-05	8.77E-02	4.26E-01	3.90E-01	9.03E-01
170	2.13E-05	4.17E-05	8.81E-02	4.29E-01	3.92E-01	9.08E-01
171	2.24E-05	4.35E-05	8.84E-02	4.31E-01	3.93E-01	9.12E-01
172	2.38E-05	4.62E-05	8.87E-02	4.32E-01	3.95E-01	9.16E-01
173	2.54E-05	5.01E-05	8.90E-02	4.34E-01	3.96E-01	9.19E-01
174	2.74E-05	5.40E-05	8.92E-02	4.35E-01	3.97E-01	9.22E-01
175	2.97E-05	5.88E-05	8.94E-02	4.37E-01	3.98E-01	9.24E-01
176	3.28E-05	6.48E-05	8.96E-02	4.38E-01	3.99E-01	9.27E-01
177	3.65E-05	7.21E-05	8.97E-02	4.39E-01	4.00E-01	9.29E-01
178	4.14E-05	8.12E-05	8.98E-02	4.41E-01	4.01E-01	9.31E-01
179	4.75E-05	9.42E-05	8.99E-02	4.42E-01	4.01E-01	9.33E-01
180	5.64E-05	1.11E-04	8.98E-02	4.44E-01	4.02E-01	9.36E-01
181	6.85E-05	1.36E-04	9.00E-02	4.44E-01	4.03E-01	9.38E-01
182	8.57E-05	1.69E-04	9.01E-02	4.46E-01	4.04E-01	9.40E-01
183	1.06E-04	2.09E-04	9.02E-02	4.48E-01	4.05E-01	9.43E-01
184	1.26E-04	2.49E-04	9.02E-02	4.49E-01	4.06E-01	9.46E-01
185	1.44E-04	2.86E-04	9.03E-02	4.51E-01	4.07E-01	9.48E-01
186	1.59E-04	3.18E-04	9.05E-02	4.52E-01	4.07E-01	9.50E-01

187	1.73E-04	3.44E-04	9.07E-02	4.54E-01	4.07E-01	9.52E-01
188	1.84E-04	3.67E-04	9.02E-02	4.56E-01	4.07E-01	9.53E-01
189	1.94E-04	3.87E-04	9.03E-02	4.57E-01	4.07E-01	9.55E-01
190	2.03E-04	4.04E-04	9.04E-02	4.57E-01	4.09E-01	9.56E-01
195	2.31E-04	4.63E-04	9.07E-02	4.61E-01	4.09E-01	9.60E-01
200	2.49E-04	4.99E-04	9.06E-02	4.63E-01	4.10E-01	9.64E-01
210	2.68E-04	5.38E-04	9.05E-02	4.66E-01	4.11E-01	9.68E-01
220	2.78E-04	5.59E-04	9.06E-02	4.68E-01	4.13E-01	9.72E-01
230	2.83E-04	5.70E-04	9.04E-02	4.70E-01	4.14E-01	9.74E-01
240	2.88E-04	5.80E-04	9.04E-02	4.71E-01	4.15E-01	9.76E-01
250	2.90E-04	5.86E-04	9.05E-02	4.71E-01	4.16E-01	9.78E-01
260	2.93E-04	5.92E-04	9.05E-02	4.72E-01	4.16E-01	9.79E-01
270	2.95E-04	5.97E-04	9.05E-02	4.73E-01	4.17E-01	9.80E-01
280	2.98E-04	6.02E-04	9.06E-02	4.73E-01	4.17E-01	9.81E-01
290	2.99E-04	6.08E-04	9.06E-02	4.74E-01	4.18E-01	9.82E-01
300	3.00E-04	6.10E-04	9.05E-02	4.74E-01	4.18E-01	9.82E-01
310	3.03E-04	6.14E-04	9.07E-02	4.75E-01	4.17E-01	9.82E-01
320	3.03E-04	6.14E-04	9.06E-02	4.75E-01	4.16E-01	9.82E-01
330	3.03E-04	6.14E-04	9.04E-02	4.75E-01	4.16E-01	9.81E-01
335	3.03E-04	6.13E-04	9.02E-02	4.74E-01	4.15E-01	9.80E-01
336	3.02E-04	6.13E-04	9.02E-02	4.74E-01	4.15E-01	9.80E-01
337	3.02E-04	6.13E-04	9.02E-02	4.74E-01	4.15E-01	9.79E-01
338	3.02E-04	6.12E-04	9.01E-02	4.74E-01	4.15E-01	9.79E-01
339	3.02E-04	6.11E-04	9.00E-02	4.74E-01	4.15E-01	9.79E-01
340	3.02E-04	6.11E-04	8.99E-02	4.74E-01	4.14E-01	9.78E-01
345	2.98E-04	6.02E-04	8.88E-02	4.69E-01	4.10E-01	9.68E-01
346	2.96E-04	5.98E-04	8.83E-02	4.66E-01	4.07E-01	9.62E-01
347	2.93E-04	5.92E-04	8.75E-02	4.62E-01	4.04E-01	9.53E-01
348	2.90E-04	5.85E-04	8.65E-02	4.57E-01	3.99E-01	9.42E-01
349	2.86E-04	5.76E-04	8.52E-02	4.50E-01	3.93E-01	9.28E-01
350	2.81E-04	5.67E-04	8.38E-02	4.42E-01	3.86E-01	9.12E-01
351	2.76E-04	5.53E-04	8.24E-02	4.35E-01	3.80E-01	8.97E-01
352	2.72E-04	5.45E-04	8.11E-02	4.27E-01	3.74E-01	8.82E-01
353	2.68E-04	5.37E-04	7.98E-02	4.21E-01	3.67E-01	8.68E-01
354	2.64E-04	5.28E-04	7.83E-02	4.14E-01	3.61E-01	8.54E-01
355	2.60E-04	5.20E-04	7.71E-02	4.07E-01	3.56E-01	8.40E-01
360	2.41E-04	4.82E-04	7.15E-02	3.77E-01	3.30E-01	7.78E-01
370	2.13E-04	4.25E-04	6.30E-02	3.31E-01	2.90E-01	6.83E-01
375	2.02E-04	4.04E-04	5.98E-02	3.13E-01	2.75E-01	6.48E-01
380	1.93E-04	3.87E-04	5.72E-02	2.99E-01	2.62E-01	6.19E-01
390	1.80E-04	3.60E-04	5.31E-02	2.77E-01	2.43E-01	5.73E-01
400	1.71E-04	3.42E-04	5.02E-02	2.61E-01	2.30E-01	5.41E-01
410	1.64E-04	3.29E-04	4.82E-02	2.50E-01	2.21E-01	5.19E-01
420	1.60E-04	3.19E-04	4.67E-02	2.42E-01	2.14E-01	5.03E-01
430	1.57E-04	3.14E-04	4.57E-02	2.36E-01	2.09E-01	4.91E-01
440	1.55E-04	3.10E-04	4.49E-02	2.32E-01	2.05E-01	4.82E-01
450	1.54E-04	3.07E-04	4.44E-02	2.30E-01	2.03E-01	4.77E-01
460	1.54E-04	3.06E-04	4.41E-02	2.28E-01	2.01E-01	4.73E-01
470	1.54E-04	3.07E-04	4.39E-02	2.27E-01	2.00E-01	4.71E-01
480	1.54E-04	3.09E-04	4.39E-02	2.27E-01	2.00E-01	4.71E-01

490	1.55E-04	3.11E-04	4.40E-02	2.27E-01	2.01E-01	4.71E-01
500	1.56E-04	3.13E-04	4.41E-02	2.27E-01	2.01E-01	4.73E-01
550	1.63E-04	3.29E-04	4.57E-02	2.35E-01	2.08E-01	4.89E-01
600	1.74E-04	3.51E-04	4.81E-02	2.48E-01	2.19E-01	5.15E-01
650	1.86E-04	3.74E-04	5.10E-02	2.62E-01	2.32E-01	5.45E-01
700	1.99E-04	4.00E-04	5.41E-02	2.77E-01	2.46E-01	5.77E-01
750	2.12E-04	4.26E-04	5.73E-02	2.92E-01	2.60E-01	6.10E-01
800	2.24E-04	4.52E-04	6.05E-02	3.08E-01	2.74E-01	6.42E-01
1000	2.70E-04	5.42E-04	7.21E-02	3.60E-01	3.23E-01	7.56E-01

-- ChiaraMariotti - 07-Nov-2011

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