H^0

$J = 0$

In the following H^0 refers to the signal that has been discovered in the Higgs searches. Whereas the observed signal is labeled as a spin 0 particle and is called a Higgs Boson, the detailed properties of H^0 and its role in the context of electroweak symmetry breaking need to be further clarified. These issues are addressed by the measurements listed below.

Concerning mass limits and cross section limits that have been obtained in the searches for neutral and charged Higgs bosons, see the sections "Searches for Neutral Higgs Bosons" and "Searches for Charged Higgs Bosons ($H^\pm$ and $H^{\pm\pm}$)", respectively.

H^0 MASS

A combination of the results from ATLAS and CMS, where a recent unpublished result from CMS is used, yields an average value of 125.6 ± 0.3 GeV, see the review on "Status of Higgs Boson Physics."

VALUE (GeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
125.7±0.4 OUR AVERAGE				
$125.5 \pm 0.2 ^{+0.5}_{-0.6}$	[1,2] AAD	13AK	ATLS	pp, 7 and 8 TeV
$125.8 \pm 0.4 \pm 0.4$	[1,3] CHATRCHYAN	13J	CMS	pp, 7 and 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$126.8 \pm 0.2 \pm 0.7$	[2] AAD	13AK	ATLS	pp, 7 and 8 TeV, $\gamma\gamma$
$124.3 ^{+0.6}_{-0.5} ^{+0.5}_{-0.3}$	[2] AAD	13AK	ATLS	pp, 7, 8 TeV, $ZZ^* \rightarrow 4\ell$
$126.2 \pm 0.6 \pm 0.2$	[3] CHATRCHYAN	13J	CMS	pp, 7, 8 TeV, $ZZ^* \rightarrow 4\ell$
$126.0 \pm 0.4 \pm 0.4$	[1,4] AAD	12AI	ATLS	pp, 7 and 8 TeV
$125.3 \pm 0.4 \pm 0.5$	[1,5] CHATRCHYAN	12N	CMS	pp, 7 and 8 TeV

[1] Combined value from $\gamma\gamma$ and $ZZ^* \rightarrow 4\ell$ final states.

[2] AAD 13AK use 4.7 fb^{-1} of pp collisions at E_{cm}=7 TeV and 20.7 fb^{-1} at E_{cm}=8 TeV.

[3] CHATRCHYAN 13J use 5.1 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 12.2 fb^{-1} at E_{cm} = 8 TeV.

[4] AAD 12AI obtain results based on 4.6–4.8 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 5.8–5.9 fb^{-1} at E_{cm} = 8 TeV. An excess of events over background with a local significance of 5.9 σ is observed at m_{H^0} = 126 GeV. See also AAD 12DA.

[5] CHATRCHYAN 12N obtain results based on 4.9–5.1 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 5.1–5.3 fb^{-1} at E_{cm} = 8 TeV. An excess of events over background with a local significance of 5.0 σ is observed at about m_{H^0} = 125 GeV. See also CHATRCHYAN 12BY and CHATRCHYAN 13Y.

H^0 SPIN AND *CP* PROPERTIES

The observation of the signal in the $\gamma\gamma$ final state rules out the possibility that the discovered particle has spin 1, as a consequence of the Landau-Yang theorem. This argument relies on the assumptions that the decaying particle is an on-shell resonance

and that the decay products are indeed two photons rather than two pairs of boosted photons, which each could in principle be misidentified as a single photon.

Concerning distinguishing the spin 0 hypothesis from a spin 2 hypothesis, some care has to be taken in modelling the latter in order to ensure that the discriminating power is actually based on the spin properties rather than on unphysical behavior that may affect the model of the spin 2 state.

Under the assumption that the observed signal consists of a single state rather than an overlap of more than one resonance, it is sufficient to discriminate between distinct hypotheses in the spin analyses. On the other hand, the determination of the *CP* properties is in general much more difficult since in principle the observed state could consist of any admixture of *CP*-even and *CP*-odd components. As a first step, the compatibility of the data with distinct hypotheses of pure *CP*-even and pure *CP*-odd states with different spin assignments has been investigated. In CHATRCHYAN 13J angular distributions of the lepton pairs have been studied in the ZZ^* channel where both Z bosons decay to e or μ pairs. Under the assumption that the observed particle has spin 0, the data are found to be consistent with the pure *CP*-even hypothesis, while the pure *CP*-odd hypothesis is disfavored. In AAD 13AJ the spin 0, *CP*-even hypothesis has been compared with specific alternative hypotheses of spin 0, *CP*-odd, spin 1, *CP*-even and *CP*-odd, and spin 2, *CP*-even models using the Higgs boson decays $H \to \gamma\gamma$, $H \to ZZ^* \to 4\ell$ and $H \to WW^* \to \ell\nu\ell\nu$ and combinations thereof. The data are compatible with the spin 0, *CP*-even hypothesis, while all other tested hypotheses are excluded at confidence levels above 97.8%.

H^0 DECAY WIDTH

The total decay width for a light Higgs boson with a mass in the observed range is not expected to be directly observable at the LHC. For the case of the Standard Model the prediction for the total width is about 4 MeV, which is three orders of magnitude smaller than the experimental mass resolution. There is no indication from the results observed so far that the natural width is broadened by new physics effects to such an extent that it could be directly observable. Furthermore, as all LHC Higgs channels rely on the identification of Higgs decay products, the total Higgs width cannot be measured indirectly without additional assumptions. The different dependence of on-peak and off-peak contributions on the total width in Higgs decays to ZZ^* and interference effects between signal and background in Higgs decays to $\gamma\gamma$ can provide additional information in this context. Without an experimental determination of the total width or further theoretical assumptions, only ratios of couplings can be determined at the LHC rather than absolute values of couplings.

H^0 DECAY MODES

	Mode
Γ_1	WW^*
Γ_2	ZZ^*
Γ_3	$\gamma\gamma$
Γ_4	$b\overline{b}$
Γ_5	$\tau^+\tau^-$
Γ_6	$Z\gamma$

H^0 SIGNAL STRENGTHS IN DIFFERENT CHANNELS

The H^0 signal strength in a particular final state xx is given by the cross section times branching ratio in this channel normalized to the Standard Model (SM) value, $\sigma \cdot B(H^0 \to xx) / (\sigma \cdot B(H^0 \to xx))_{SM}$, for the specified mass value of H^0.

Combined Final States

VALUE	DOCUMENT ID		TECN	COMMENT
1.17 ± 0.17 OUR AVERAGE	Error includes scale factor of 1.2.			
$1.33^{+0.14}_{-0.10} \pm 0.15$	[1] AAD	13AK	ATLS	pp, 7 and 8 TeV
$1.44^{+0.59}_{-0.56}$	[2] AALTONEN	13M	TEVA	$p\overline{p} \to H^0 X$, 1.96 TeV
0.87 ± 0.23	[3] CHATRCHYAN	12N	CMS	$pp \to H^0 X$, 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.54^{+0.77}_{-0.73}$	[4] AALTONEN	13L	CDF	$p\overline{p} \to H^0 X$, 1.96 TeV
$1.40^{+0.92}_{-0.88}$	[5] ABAZOV	13L	D0	$p\overline{p} \to H^0 X$, 1.96 TeV
1.4 ± 0.3	[6] AAD	12AI	ATLS	$pp \to H^0 X$, 7, 8 TeV
1.2 ± 0.4	[6] AAD	12AI	ATLS	$pp \to H^0 X$, 7 TeV
1.5 ± 0.4	[6] AAD	12AI	ATLS	$pp \to H^0 X$, 8 TeV

[1] AAD 13AK use 4.7 fb^{-1} of pp collisions at $E_{cm} = 7$ TeV and 20.7 fb^{-1} at $E_{cm} = 8$ TeV. The combined signal strength is based on the $\gamma\gamma$, $ZZ^* \to 4\ell$, and $WW^* \to \ell\nu\ell\nu$ channels. The quoted signal strength is given for $m_{H^0} = 125.5$ GeV. Reported statistical error value modified following private communication with the experiment.

[2] AALTONEN 13M combine all Tevatron data from the CDF and D0 Collaborations with up to 10.0 fb^{-1} and 9.7 fb^{-1}, respectively, of $p\overline{p}$ collisions at $E_{cm} = 1.96$ TeV. The quoted signal strength is given for $m_{H^0} = 125$ GeV.

[3] CHATRCHYAN 12N obtain results based on 4.9–5.1 fb^{-1} of pp collisions at $E_{cm} = 7$ TeV and 5.1–5.3 fb^{-1} at $E_{cm} = 8$ TeV. An excess of events over background with a local significance of 5.0 σ is observed at about $m_{H^0} = 125$ GeV. The combined signal strength is based on the $\gamma\gamma$, ZZ^*, WW^*, $\tau^+\tau^-$, and $b\overline{b}$ channels. The quoted signal strength is given for $m_{H^0} = 125.5$ GeV. See also CHATRCHYAN 13Y.

[4] AALTONEN 13L combine all CDF results with 9.45–10.0 fb^{-1} of $p\overline{p}$ collisions at $E_{cm} = 1.96$ TeV. The quoted signal strength is given for $m_{H^0} = 125$ GeV.

[5] ABAZOV 13L combine all D0 results with up to 9.7 fb^{-1} of $p\overline{p}$ collisions at $E_{cm} = 1.96$ TeV. The quoted signal strength is given for $m_{H^0} = 125$ GeV.

[6] AAD 12AI obtain results based on 4.6–4.8 fb^{-1} of pp collisions at $E_{cm} = 7$ TeV and 5.8–5.9 fb^{-1} at $E_{cm} = 8$ TeV. An excess of events over background with a local significance of 5.9 σ is observed at $m_{H^0} = 126$ GeV. The quoted signal strengths are given for $m_{H^0} = 126$ GeV. See also AAD 12DA.

WW^* Final State

VALUE	DOCUMENT ID		TECN	COMMENT
$0.87^{+0.24}_{-0.22}$ OUR AVERAGE				
$0.99^{+0.31}_{-0.28}$	[1] AAD	13AK	ATLS	pp, 7 and 8 TeV
$0.94^{+0.85}_{-0.83}$	[2] AALTONEN	13M	TEVA	$p\overline{p} \to H^0 X$, 1.96 TeV
$0.60^{+0.42}_{-0.37}$	[3] CHATRCHYAN	12N	CMS	$pp \to H^0 X$, 7, 8 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.00^{+1.78}_{-0.00}$	[4] AALTONEN	13L	CDF	$p\overline{p} \rightarrow H^0 X$, 1.96 TeV
$1.90^{+1.63}_{-1.52}$	[5] ABAZOV	13L	D0	$p\overline{p} \rightarrow H^0 X$, 1.96 TeV
1.3 ±0.5	[6] AAD	12AI	ATLS	$pp \rightarrow H^0 X$, 7, 8 TeV
0.5 ±0.6	[6] AAD	12AI	ATLS	$pp \rightarrow H^0 X$, 7 TeV
1.9 ±0.7	[6] AAD	12AI	ATLS	$pp \rightarrow H^0 X$, 8 TeV

[1] AAD 13AK use 4.7 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 20.7 fb^{-1} at E_{cm} = 8 TeV. The quoted signal strength is given for m_{H^0} = 125.5 GeV.

[2] AALTONEN 13M combine all Tevatron data from the CDF and D0 Collaborations with up to 10.0 fb^{-1} and 9.7 fb^{-1}, respectively, of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for m_{H^0} = 125 GeV.

[3] CHATRCHYAN 12N obtain results based on 4.9 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 5.1 fb^{-1} at E_{cm} = 8 TeV. The quoted signal strength is given for m_{H^0} = 125.5 GeV. See also CHATRCHYAN 13Y.

[4] AALTONEN 13L combine all CDF results with 9.45–10.0 fb^{-1} of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for m_{H^0} = 125 GeV.

[5] ABAZOV 13L combine all D0 results with up to 9.7 fb^{-1} of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for m_{H^0} = 125 GeV.

[6] AAD 12AI obtain results based on 4.7 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 5.8 fb^{-1} at E_{cm} = 8 TeV. The quoted signal strengths are given for m_{H^0} = 126 GeV. See also AAD 12DA.

ZZ^* Final State

VALUE	DOCUMENT ID		TECN	COMMENT
$1.11^{+0.34}_{-0.28}$ OUR AVERAGE Error includes scale factor of 1.3.				
$1.43^{+0.40}_{-0.35}$	[1] AAD	13AK	ATLS	pp, 7 and 8 TeV
$0.80^{+0.35}_{-0.28}$	[2] CHATRCHYAN	13J	CMS	$pp \rightarrow H^0 X$, 7, 8 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

1.2 ±0.6	[3] AAD	12AI	ATLS	$pp \rightarrow H^0 X$, 7, 8 TeV
1.4 ±1.1	[3] AAD	12AI	ATLS	$pp \rightarrow H^0 X$, 7 TeV
1.1 ±0.8	[3] AAD	12AI	ATLS	$pp \rightarrow H^0 X$, 8 TeV
$0.73^{+0.45}_{-0.33}$	[4] CHATRCHYAN	12N	CMS	$pp \rightarrow H^0 X$, 7, 8 TeV

[1] AAD 13AK use 4.7 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 20.7 fb^{-1} at E_{cm} = 8 TeV. The quoted signal strength is given for m_{H^0} = 125.5 GeV.

[2] CHATRCHYAN 13J obtain results based on $ZZ \rightarrow 4\ell$ final states in 5.1 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 12.2 fb^{-1} at E_{cm} = 8 TeV. The quoted signal strength is given for m_{H^0} = 125.8 GeV.

[3] AAD 12AI obtain results based on 4.7–4.8 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 5.8 fb^{-1} at E_{cm} = 8 TeV. The quoted signal strengths are given for m_{H^0} = 126 GeV. See also AAD 12DA.

[4] CHATRCHYAN 12N obtain results based on 4.9–5.1 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 5.1–5.3 fb^{-1} at E_{cm} = 8 TeV. An excess of events over background with a local significance of 5.0 σ is observed at about m_{H^0} = 125 GeV. The quoted signal strengths are given for m_{H^0} = 125.5 GeV. See also CHATRCHYAN 12BY and CHATRCHYAN 13Y.

$\gamma\gamma$ Final State

VALUE	DOCUMENT ID		TECN	COMMENT
$1.58^{+0.27}_{-0.23}$ OUR AVERAGE				
$1.55^{+0.33}_{-0.28}$	[1] AAD	13AK	ATLS	pp, 7 and 8 TeV
$5.97^{+3.39}_{-3.12}$	[2] AALTONEN	13M	TEVA	$p\overline{p} \rightarrow H^0 X$, 1.96 TeV
$1.54^{+0.46}_{-0.42}$	[3] CHATRCHYAN	12N	CMS	$pp \rightarrow H^0 X$, 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$7.81^{+4.61}_{-4.42}$	[4] AALTONEN	13L	CDF	$p\overline{p} \rightarrow H^0 X$, 1.96 TeV
$4.20^{+4.60}_{-4.20}$	[5] ABAZOV	13L	D0	$p\overline{p} \rightarrow H^0 X$, 1.96 TeV
1.8 ± 0.5	[6] AAD	12AI	ATLS	$pp \rightarrow H^0 X$, 7, 8 TeV
2.2 ± 0.7	[6] AAD	12AI	ATLS	$pp \rightarrow H^0 X$, 7 TeV
1.5 ± 0.6	[6] AAD	12AI	ATLS	$pp \rightarrow H^0 X$, 8 TeV

[1] AAD 13AK use 4.7 fb^{-1} of pp collisions at $E_{cm} = 7$ TeV and 20.7 fb^{-1} at $E_{cm} = 8$ TeV. The quoted signal strength is given for $m_{H^0} = 125.5$ GeV.

[2] AALTONEN 13M combine all Tevatron data from the CDF and D0 Collaborations with up to 10.0 fb^{-1} and 9.7 fb^{-1}, respectively, of $p\overline{p}$ collisions at $E_{cm} = 1.96$ TeV. The quoted signal strength is given for $m_{H^0} = 125$ GeV.

[3] CHATRCHYAN 12N obtain results based on 5.1 fb^{-1} of pp collisions at E_{cm}=7 TeV and 5.3 fb^{-1} at E_{cm}=8 TeV. The quoted signal strength is given for m_{H^0}=125.5 GeV. See also CHATRCHYAN 13Y.

[4] AALTONEN 13L combine all CDF results with 9.45–10.0 fb^{-1} of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for $m_{H^0} = 125$ GeV.

[5] ABAZOV 13L combine all D0 results with up to 9.7 fb^{-1} of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for $m_{H^0} = 125$ GeV.

[6] AAD 12AI obtain results based on 4.8 fb^{-1} of pp collisions at $E_{cm} = 7$ TeV and 5.9 fb^{-1} at $E_{cm} = 8$ TeV. The quoted signal strengths are given for $m_{H^0} = 126$ GeV. See also AAD 12DA.

$b\overline{b}$ Final State

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
1.1 ± 0.5 OUR AVERAGE					
$1.59^{+0.69}_{-0.72}$		[1] AALTONEN	13M	TEVA	$p\overline{p} \rightarrow H^0 X$, 1.96 TeV
0.5 ± 2.2		[2] AAD	12AI	ATLS	$pp \rightarrow H^0 WX$, $H^0 ZX$, 7 TeV
$0.48^{+0.81}_{-0.70}$		[3] CHATRCHYAN	12N	CMS	$pp \rightarrow H^0 WX$, $H^0 ZX$, 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.72^{+0.92}_{-0.87}$		[4] AALTONEN	13L	CDF	$p\overline{p} \rightarrow H^0 X$, 1.96 TeV
$9.49^{+6.60}_{-6.28}$		[4] AALTONEN	13L	CDF	$p\overline{p} \rightarrow H^0 t\overline{t} X$, 1.96 TeV
$1.23^{+1.24}_{-1.17}$		[5] ABAZOV	13L	D0	$p\overline{p} \rightarrow H^0 X$, 1.96 TeV
< 5.8	95	[6] CHATRCHYAN	13X	CMS	$pp \rightarrow H^0 t\overline{t} X$
		[7] AALTONEN	12P	CDF	$p\overline{p} \rightarrow H^0 WX$, $H^0 ZX$, 1.96 TeV
		[8] AALTONEN	12T	TEVA	$p\overline{p} \rightarrow H^0 WX$, $H^0 ZX$, 1.96 TeV
$1.2 \ ^{+1.2}_{-1.1}$		[9] ABAZOV	12N	D0	$p\overline{p} \rightarrow H^0 WX$, $H^0 ZX$, 1.96 TeV

[1] AALTONEN 13M combine all Tevatron data from the CDF and D0 Collaborations with up to 10.0 fb^{-1} and 9.7 fb^{-1}, respectively, of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for m_{H^0} = 125 GeV.

[2] AAD 12AI obtain results based on 4.6–4.8 fb^{-1} of pp collisions at E_{cm} = 7 TeV. The quoted signal strengths are given in their Fig. 10 for m_{H^0} = 126 GeV. See also Fig. 13 of AAD 12DA.

[3] CHATRCHYAN 12N obtain results based on 5.0 fb^{-1} of pp collisions at E_{cm}=7 TeV and 5.1 fb^{-1} at E_{cm}=8 TeV. The quoted signal strength is given for m_{H^0}=125.5 GeV. See also CHATRCHYAN 13Y.

[4] AALTONEN 13L combine all CDF results with 9.45–10.0 fb^{-1} of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for m_{H^0} = 125 GeV.

[5] ABAZOV 13L combine all D0 results with up to 9.7 fb^{-1} of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for m_{H^0} = 125 GeV.

[6] CHATRCHYAN 13X search for $H^0 t\overline{t}$ production followed by $H^0 \to b\overline{b}$, one top decaying to $\ell\nu$ and the other to either $\ell\nu$ or $q\overline{q}$ in 5.0 fb^{-1} and 5.1 fb^{-1} of pp collisions at E_{cm} = 7 and 8 TeV. A limit on cross section times branching ratio which corresponds to (4.0–8.6) times the expected Standard Model cross section is given for m_{H^0} = 110–140 GeV at 95% CL. The quoted limit is given for m_{H^0} = 125 GeV, where 5.2 is expected for no signal.

[7] AALTONEN 12P combine AALTONEN 12Q, AALTONEN 12R, and AALTONEN 12S. An excess of events over background is observed in the region m_{H^0} = 100–150 GeV, with a local significance of 2.7 σ for m_{H^0} = 125 GeV. This corresponds to $(\sigma(H^0 W) + \sigma(H^0 Z)) \cdot B(H^0 \to b\overline{b}) = (291^{+118}_{-113})$ fb. Superseded by AALTONEN 13L.

[8] AALTONEN 12T combine AALTONEN 12Q, AALTONEN 12R, AALTONEN 12S, ABAZOV 12O, ABAZOV 12P, and ABAZOV 12K. An excess of events over background is observed which is most significant in the region m_{H^0} = 120–135 GeV, with a local significance of up to 3.3 σ. The local significance at m_{H^0} = 125 GeV is 2.8 σ, which corresponds to $(\sigma(H^0 W) + \sigma(H^0 Z)) \cdot B(H^0 \to b\overline{b}) = (0.23^{+0.09}_{-0.08})$ pb, compared to the Standard Model expectation at m_{H^0} = 125 GeV of 0.12 ± 0.01 pb. Superseded by AALTONEN 13M.

[9] ABAZOV 12N combine ABAZOV 12O, ABAZOV 12P, and ABAZOV 12K. An excess of events over background is observed in the region m_{H^0} = 120–145 GeV with a local significance of 1.0–1.7 σ. The quoted signal strength is given for m_{H^0} = 125 GeV. Superseded by ABAZOV 13L.

$\tau^+\tau^-$ Final State

VALUE	DOCUMENT ID		TECN	COMMENT
0.4 ±0.6 OUR AVERAGE				
$1.68^{+2.28}_{-1.68}$	[1] AALTONEN	13M	TEVA	$p\overline{p} \to H^0 X$, 1.96 TeV
$0.4\ ^{+1.6}_{-2.0}$	[2] AAD	12AI	ATLS	$pp \to H^0 X$, 7 TeV
$0.09^{+0.76}_{-0.74}$	[3] CHATRCHYAN	12N	CMS	$pp \to H^0 X$, 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.00^{+8.44}_{-0.00}$	[4] AALTONEN	13L	CDF	$p\overline{p} \to H^0 X$, 1.96 TeV
$3.96^{+4.11}_{-3.38}$	[5] ABAZOV	13L	D0	$p\overline{p} \to H^0 X$, 1.96 TeV

[1] AALTONEN 13M combine all Tevatron data from the CDF and D0 Collaborations with up to 10.0 fb^{-1} and 9.7 fb^{-1}, respectively, of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for m_{H^0} = 125 GeV.

[2] AAD 12AI obtain results based on 4.7 fb^{-1} of pp collisions at E_{cm} = 7 TeV. The quoted signal strengths are given in their Fig. 10 for m_{H^0} = 126 GeV. See also Fig. 13 of AAD 12DA.

[3] CHATRCHYAN 12N obtain results based on 4.9 fb^{-1} of pp collisions at E_{cm}=7 TeV and 5.1 fb^{-1} at E_{cm}=8 TeV. The quoted signal strength is given for m_{H^0}=125.5 GeV. See also CHATRCHYAN 13Y .

[4] AALTONEN 13L combine all CDF results with 9.45–10.0 fb^{-1} of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for m_{H^0} = 125 GeV.

[5] ABAZOV 13L combine all D0 results with up to 9.7 fb^{-1} of $p\overline{p}$ collisions at E_{cm} = 1.96 TeV. The quoted signal strength is given for m_{H^0} = 125 GeV.

$Z\gamma$ Final State

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<9.5	95	[1] CHATRCHYAN 13BK	CMS	$pp \rightarrow H^0X$, 7, 8 TeV

[1] CHATRCHYAN 13BK search for $H^0 \rightarrow Z\gamma \rightarrow \ell\ell\gamma$ in 5.0 fb^{-1} of pp collisions at E_{cm} = 7 TeV and 19.6 fb^{-1} at E_{cm} = 8 TeV. A limit on cross section times branching ratio which corresponds to (4–25) times the expected Standard Model cross section is given in the range m_{H^0} = 120–160 GeV at 95% CL. The quoted limit is given for m_{H^0} = 125 GeV, where 10 is expected for no signal.

H^0 REFERENCES

AAD	13AJ	PL B726 120	G. Aad *et al.*	(ATLAS Collab.)
AAD	13AK	PL B726 88	G. Aad *et al.*	(ATLAS Collab.)
AALTONEN	13L	PR D88 052013	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	13M	PR D88 052014	T. Aaltonen *et al.*	(CDF and D0 Collab.)
ABAZOV	13L	PR D88 052011	V.M. Abazov *et al.*	(D0 Collab.)
CHATRCHYAN	13BK	PL B726 587	S. Chatrchyan *et al.*	(CMS Collab.)
CHATRCHYAN	13J	PRL 110 081803	S. Chatrchyan *et al.*	(CMS Collab.)
CHATRCHYAN	13X	JHEP 1305 145	S. Chatrchyan *et al.*	(CMS Collab.)
CHATRCHYAN	13Y	JHEP 1306 081	S. Chatrchyan *et al.*	(CMS Collab.)
AAD	12AI	PL B716 1	G. Aad *et al.*	(ATLAS Collab.)
AAD	12DA	SCI 338 1576	G. Aad *et al.*	(ATLAS Collab.)
AALTONEN	12P	PRL 109 111802	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	12Q	PRL 109 111803	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	12R	PRL 109 111804	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	12S	PRL 109 111805	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	12T	PRL 109 071804	T. Aaltonen *et al.*	(CDF and D0 Collab.)
ABAZOV	12K	PL B716 285	V.M. Abazov *et al.*	(D0 Collab.)
ABAZOV	12N	PRL 109 121802	V.M. Abazov *et al.*	(D0 Collab.)
ABAZOV	12O	PRL 109 121803	V.M. Abazov *et al.*	(D0 Collab.)
ABAZOV	12P	PRL 109 121804	V.M. Abazov *et al.*	(D0 Collab.)
CHATRCHYAN	12BY	SCI 338 1569	S. Chatrchyan *et al.*	(CMS Collab.)
CHATRCHYAN	12N	PL B716 30	S. Chatrchyan *et al.*	(CMS Collab.)