

	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.4 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{HRES+XH}}$	$\sigma_{\text{POWHEG+XH}}$
Fiducial cross section		$32.2^{+10.1}_{-9.7}$	$30.3^{+5.9}_{-4.7}$	$31.5^{+4.0}_{-3.0}$	$32.0^{+5.8}_{-4.6}$
$p_T^{\gamma\gamma}$	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.8 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{HRES+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0–15 GeV		$9.0^{+6.4}_{-6.2}$	$7.5^{+1.5}_{-1.2}$	$8.6^{+0.9}_{-0.9}$	$8.6^{+1.6}_{-1.3}$
15–26 GeV		$2.0^{+4.9}_{-5.5}$	$5.9^{+1.2}_{-1.0}$	$6.8^{+0.8}_{-0.7}$	$6.6^{+1.3}_{-1.0}$
26–43 GeV		$3.4^{+4.8}_{-4.6}$	$6.1^{+1.3}_{-1.0}$	$6.3^{+1.0}_{-0.7}$	$6.2^{+1.1}_{-0.9}$
43–72 GeV		$6.2^{+3.7}_{-3.5}$	$5.2^{+1.1}_{-0.9}$	$5.2^{+0.9}_{-0.6}$	$5.1^{+0.9}_{-0.7}$
72–125 GeV		$4.6^{+2.4}_{-2.7}$	$3.4^{+0.7}_{-0.6}$	$3.3^{+0.6}_{-0.4}$	$3.3^{+0.6}_{-0.4}$
125–200 GeV		$2.6^{+1.0}_{-1.0}$	$1.4^{+0.3}_{-0.2}$	$1.3^{+0.3}_{-0.3}$	$1.3^{+0.2}_{-0.2}$
>200 GeV		$0.7^{+0.5}_{-0.4}$	$0.6^{+0.1}_{-0.1}$	$0.5^{+0.1}_{-0.1}$	$0.6^{+0.2}_{-0.1}$
$ \cos\theta^* $	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.7 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{HRES+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0.00–0.11		$4.9^{+3.3}_{-3.3}$	$4.3^{+0.8}_{-0.7}$	$4.8^{+0.5}_{-0.5}$	$4.6^{+0.8}_{-0.7}$
0.11–0.23		$3.3^{+3.2}_{-3.1}$	$4.7^{+0.9}_{-0.7}$	$5.2^{+0.7}_{-0.6}$	$5.0^{+0.9}_{-0.7}$
0.23–0.36		$11.7^{+3.8}_{-3.5}$	$4.9^{+1.0}_{-0.8}$	$5.4^{+0.7}_{-0.5}$	$5.2^{+0.9}_{-0.7}$
0.36–0.53		$2.4^{+5.6}_{-5.1}$	$6.1^{+1.2}_{-1.0}$	$6.7^{+0.9}_{-0.6}$	$6.4^{+1.2}_{-0.9}$
0.53–1.00		$7.3^{+7.3}_{-7.1}$	$10.2^{+2.0}_{-1.6}$	$9.6^{+1.4}_{-1.0}$	$10.7^{+2.0}_{-1.5}$
$\Delta\phi^{\gamma\gamma}$	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.6 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{HRES+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0.00–0.92		$0.9^{+0.9}_{-0.8}$	$1.1^{+0.2}_{-0.2}$	$0.9^{+0.1}_{-0.1}$	$1.0^{+0.2}_{-0.1}$
0.92–1.72		$2.6^{+1.4}_{-1.6}$	$2.2^{+0.4}_{-0.3}$	$2.0^{+0.3}_{-0.2}$	$2.1^{+0.4}_{-0.3}$
1.72–2.37		$2.2^{+2.6}_{-2.5}$	$4.2^{+0.9}_{-0.7}$	$4.0^{+0.7}_{-0.5}$	$4.2^{+0.7}_{-0.5}$
2.37–2.74		$8.2^{+4.1}_{-3.9}$	$5.9^{+1.2}_{-1.0}$	$5.9^{+0.9}_{-0.7}$	$5.9^{+1.1}_{-0.8}$
2.74–2.97		$2.8^{+4.4}_{-5.4}$	$7.4^{+1.5}_{-1.2}$	$8.2^{+1.1}_{-0.7}$	$8.2^{+1.5}_{-1.2}$
2.97–3.15		$14.4^{+9.0}_{-6.6}$	$9.4^{+1.9}_{-1.5}$	$10.5^{+1.0}_{-1.3}$	$10.6^{+2.0}_{-1.6}$
$ y^{\gamma\gamma} $	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.2 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{HRES+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0.00–0.16		$2.4^{+2.6}_{-2.6}$	$3.1^{+0.6}_{-0.5}$	$3.2^{+0.4}_{-0.3}$	$3.2^{+0.6}_{-0.5}$
0.16–0.35		$2.2^{+2.7}_{-2.6}$	$3.7^{+0.7}_{-0.6}$	$3.7^{+0.5}_{-0.4}$	$3.9^{+0.7}_{-0.6}$
0.35–0.58		$9.5^{+3.3}_{-3.2}$	$4.3^{+0.8}_{-0.7}$	$4.4^{+0.6}_{-0.5}$	$4.5^{+0.8}_{-0.7}$
0.58–0.90		$5.4^{+4.5}_{-3.7}$	$5.6^{+1.1}_{-0.9}$	$5.9^{+0.9}_{-0.6}$	$5.8^{+1.1}_{-0.8}$
0.90–2.50		$15.9^{+11.9}_{-11.1}$	$13.8^{+2.7}_{-2.1}$	$14.4^{+1.8}_{-1.3}$	$14.7^{+2.7}_{-2.1}$
N_{jets}	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.6 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{POWHEG HJ+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0		$20.2^{+9.3}_{-9.0}$	$17.4^{+3.5}_{-2.8}$	$18.1^{+6.0}_{-2.5}$	$19.0^{+3.6}_{-2.8}$
1		$4.3^{+6.4}_{-6.3}$	$8.7^{+1.8}_{-1.5}$	$9.6^{+2.2}_{-1.3}$	$9.2^{+1.7}_{-1.3}$
2		$3.9^{+3.7}_{-3.8}$	$3.1^{+0.6}_{-0.5}$	$3.1^{+0.7}_{-0.4}$	$2.8^{+0.5}_{-0.3}$
≥ 3		$2.5^{+2.2}_{-2.2}$	$1.1^{+0.2}_{-0.2}$	$1.0^{+0.3}_{-0.1}$	$1.0^{+0.2}_{-0.1}$
p_T^{J1}	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.3 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{POWHEG HJ+XH}}$	$\sigma_{\text{POWHEG+XH}}$
25–40 GeV		$2.1^{+6.8}_{-6.6}$	$4.4^{+1.0}_{-0.8}$	$4.5^{+1.2}_{-0.6}$	$4.5^{+0.8}_{-0.6}$
40–64 GeV		$6.4^{+5.6}_{-5.0}$	$3.7^{+0.8}_{-0.7}$	$3.9^{+0.9}_{-0.5}$	$3.8^{+0.6}_{-0.5}$
64–104 GeV		$3.4^{+3.4}_{-3.3}$	$2.7^{+0.5}_{-0.4}$	$2.9^{+0.6}_{-0.4}$	$2.7^{+0.4}_{-0.3}$
104–200 GeV		$0.8^{+1.9}_{-1.8}$	$1.6^{+0.3}_{-0.2}$	$1.8^{+0.4}_{-0.3}$	$1.6^{+0.3}_{-0.2}$
>200 GeV		$0.8^{+0.8}_{-0.7}$	$0.4^{+0.1}_{-0.1}$	$0.5^{+0.1}_{-0.1}$	$0.4^{+0.1}_{-0.1}$
$ y^{\gamma\gamma} - y^{\text{J1}} $	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.5 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{POWHEG HJ+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0.00–0.62		$6.1^{+4.0}_{-3.8}$	$3.8^{+0.7}_{-0.6}$	$4.0^{+0.9}_{-0.5}$	$3.7^{+0.6}_{-0.5}$
0.62–1.25		$-1.1^{+4.4}_{-3.6}$	$3.4^{+0.7}_{-0.6}$	$3.6^{+0.8}_{-0.5}$	$3.4^{+0.6}_{-0.5}$
1.25–1.92		$5.2^{+3.0}_{-2.8}$	$2.7^{+0.5}_{-0.5}$	$2.9^{+0.7}_{-0.4}$	$2.7^{+0.5}_{-0.4}$
>1.92		$1.6^{+4.1}_{-4.8}$	$3.0^{+0.6}_{-0.5}$	$3.2^{+0.7}_{-0.5}$	$3.1^{+0.5}_{-0.4}$
m_{jj}	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.7 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{POWHEG HJ+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0–153 GeV		$6.8^{+4.5}_{-4.0}$	$3.0^{+0.7}_{-0.6}$	$2.9^{+0.7}_{-0.4}$	$2.6^{+0.4}_{-0.3}$
153–455 GeV		$1.8^{+3.0}_{-3.2}$	$2.1^{+0.4}_{-0.4}$	$2.1^{+0.5}_{-0.3}$	$2.0^{+0.3}_{-0.2}$
455–1000 GeV		$0.3^{+1.2}_{-1.0}$	$0.8^{+0.1}_{-0.1}$	$0.9^{+0.1}_{-0.1}$	$0.8^{+0.1}_{-0.1}$
>1000 GeV		$-0.2^{+0.3}_{-0.2}$	$0.3^{+0.0}_{-0.0}$	$0.3^{+0.0}_{-0.0}$	$0.3^{+0.0}_{-0.0}$
$\Delta\eta^{\text{jj}}$	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.4 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{POWHEG HJ+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0.00–1.65		$3.0^{+3.6}_{-3.5}$	$2.9^{+0.6}_{-0.5}$	$2.8^{+0.7}_{-0.4}$	$2.5^{+0.4}_{-0.3}$
1.65–4.30		$3.7^{+2.8}_{-2.6}$	$2.4^{+0.5}_{-0.4}$	$2.3^{+0.5}_{-0.3}$	$2.2^{+0.3}_{-0.3}$
4.30–10.00		$0.1^{+1.0}_{-0.9}$	$0.9^{+0.1}_{-0.1}$	$0.9^{+0.1}_{-0.1}$	$0.9^{+0.1}_{-0.1}$
$\Delta\phi^{\gamma\gamma\text{jj}}$	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.5 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{POWHEG HJ+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0.00–2.95		$-0.1^{+0.2}_{-0.2}$	$0.1^{+0.0}_{-0.0}$	$0.1^{+0.0}_{-0.0}$	$0.1^{+0.0}_{-0.0}$
2.95–3.08		$9.6^{+5.0}_{-4.3}$	$1.9^{+0.4}_{-0.3}$	$1.9^{+0.4}_{-0.3}$	$1.8^{+0.3}_{-0.2}$
3.08–3.15		$-1.1^{+2.5}_{-2.8}$	$1.6^{+0.2}_{-0.2}$	$1.7^{+0.3}_{-0.2}$	$1.6^{+0.2}_{-0.2}$
$\Delta\phi^{\text{jj}}$	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.6 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{POWHEG HJ+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0.00–0.88		$1.5^{+2.0}_{-1.9}$	$1.6^{+0.3}_{-0.3}$	$1.7^{+0.3}_{-0.2}$	$1.4^{+0.2}_{-0.2}$
0.88–1.82		$1.1^{+2.1}_{-2.3}$	$1.7^{+0.3}_{-0.3}$	$1.6^{+0.3}_{-0.2}$	$1.6^{+0.3}_{-0.2}$
1.82–3.15		$5.0^{+3.8}_{-3.5}$	$3.0^{+0.6}_{-0.5}$	$2.8^{+0.7}_{-0.4}$	$2.7^{+0.4}_{-0.3}$
$ \eta^{\gamma\gamma} - (\eta^{\text{J1}} + \eta^{\text{J2}})/2 $	$\sigma_{\text{obs}}[\text{fb}]$	$(\hat{m}_H = 124.6 \text{ GeV})$	$\sigma_{\text{MADGRAPH5_aMC@NLO+XH}}$	$\sigma_{\text{POWHEG HJ+XH}}$	$\sigma_{\text{POWHEG+XH}}$
0.0–0.5		$1.6^{+1.8}_{-2.1}$	$1.6^{+0.3}_{-0.2}$	$1.6^{+0.3}_{-0.2}$	$1.5^{+0.2}_{-0.2}$
0.5–1.2		$5.8^{+2.4}_{-2.2}$	$1.9^{+0.4}_{-0.3}$	$1.9^{+0.4}_{-0.2}$	$1.7^{+0.3}_{-0.2}$
>1.2		$-0.1^{+3.8}_{-3.7}$	$2.6^{+0.6}_{-0.5}$	$2.6^{+0.6}_{-0.3}$	$2.4^{+0.4}_{-0.3}$