

Signal hypothesis	Select	# categories	Fit
(1) $m_\chi \leq 400$ GeV	$m_{\gamma\gamma jj}^{\text{kin}}$	2 (b tags)	$m_{\gamma\gamma}, m_{jj}$
(2) $m_\chi \geq 400$ GeV	$m_{\gamma\gamma}, m_{jj}$	2 (b tags)	$m_{\gamma\gamma jj}^{\text{kin}}$
(3) Nonresonant	$ \cos \theta_{HH}^{\text{CS}} $	4 (b tags, $m_{\gamma\gamma jj}^{\text{kin}}$)	$m_{\gamma\gamma}, m_{jj}$