

Variable	Definition	Bin boundaries	Target
m_H	Invariant mass of the 4ℓ system	[105,160] GeV	Inclusive
p_T^H	Transverse momentum of the 4ℓ system	[0,10,20,30,45,60,80,120,200, ∞] GeV	Production
$ y_H $	Rapidity of the 4ℓ system	[0,0.15,0.3,0.45,0.6,0.75,0.9,1.2,1.6,2.5]	Production
$\cos\theta^*$	Cosine of the decay angle of the leading lepton pair in the 4ℓ rest frame system	[-1.0,-0.75,-0.50,-0.25,0.0,0.25,0.50,0.75,1.0]	Decay
$\cos\theta_1, \cos\theta_2$	Cosine of the production angle, relative to the Z vector, of the anti-leptons from the two Z bosons	[-1.0,-0.75,-0.50,-0.25,0.0,0.25,0.50,0.75,1.0]	Decay
Φ, Φ_1	Azimuthal angles between the decay planes	$[-\pi, -3\pi/4, -\pi/2, -\pi/4, 0, \pi/4, \pi/2, 3\pi/4, \pi]$	Decay
m_{Z_1}	Invariant mass of the two leading leptons	[40,65,75,85,92,120] GeV	Decay
m_{Z_2}	Invariant mass of the two sub-leading leptons	[12,20,25,28,32,40,50,65] GeV	Decay
p_T^j	Transverse momentum of the leading jet	[0-jet,30,55,95,200, ∞] GeV	Production
$p_T^{\bar{j}}$	Transverse momentum of the sub-leading jet	[0/1-jet,30,40,65,90, ∞] GeV	Production
N_{jets}	Number of associated jets in the event	=0,=1,=2,=3, ≥ 4	Event level
$\mathcal{T}_C^{\text{max}}$	Rapidity weighted jet vetoes	[0-jet,15,20,30,50,80, ∞] GeV	Production
$\mathcal{T}_B^{\text{max}}$	Rapidity weighted jet vetoes	[0-jet,30,70,130,250,400, ∞] GeV	Production
$m_{j\bar{j}}$	Invariant mass of the leading and sub-leading jets system	[0/1-jet,0,120,300, ∞] GeV	Production
$ \Delta\eta_{j\bar{j}} $	Difference in pseudorapidities of the leading and sub-leading jets	[0/1-jet,0.0,1.6,3.0,10.0]	Production
p_T^{Hj}	Transverse momentum of the 4ℓ and leading jet system	[0-jet,0,30,50,110, ∞] GeV	Production
m_{Hj}	Invariant mass of the 4ℓ and leading jet system	[0-jet,110,180,220,300,400,600, ∞] GeV	Production
$p_T^{Hj\bar{j}}$	Transverse momentum of the 4ℓ , leading and sub-leading jets system	[0/1-jet,0,20,60, ∞] GeV	Production
$\mathcal{D}_{0-}^{\text{dec}}$	Matrix element discriminant targeting a_3 coupling	[0.0,0.4,0.5,0.6,0.7,0.8,0.9,1.0]	Decay
$\mathcal{D}_{0h+}^{\text{dec}}$	Matrix element discriminant targeting a_2 coupling	[0.0,0.35,0.4,0.45,0.55,0.65,0.75,1.0]	Decay
$\mathcal{D}_{\Lambda 1}^{\text{dec}}$	Matrix element discriminant targeting k_1 coupling	[0.0,0.45,0.5,0.6,0.7,1.0]	Decay
$\mathcal{D}_{\Lambda 1}^{Z\gamma,\text{dec}}$	Matrix element discriminant targeting $k_2^{Z\gamma}$ coupling	[0.0,0.35,0.45,0.5,0.55,0.65,1.0]	Decay
$\mathcal{D}_{\text{CP}}^{\text{dec}}$	Interference matrix element discriminant targeting a_3 coupling	[-0.75,-0.25,-0.1,0.0,0.1,0.25,0.75]	Decay
\mathcal{D}_{int}	Interference matrix element discriminant targeting a_2 coupling	[0.0,0.7,0.8,0.9,0.95,1.0]	Decay