

Event variable	Description
<b>Object and event kinematics</b>	
jet 1, 2, 3, 4 $p_T$	Jet transverse momenta, jets ordered in $p_T$
HT	Scalar sum of transverse momentum for all jets with $p_T > 30 \text{ GeV}/c$
MET	Missing transverse energy
$\Sigma p_T(\text{jets, leptons, MET})$	Sum of the $p_T$ of all jets, leptons, and MET
mass(lepton, jet, MET)	Invariant mass of the 4-vector sum of all jets, leptons, and MET
avg $\Delta R(\text{tag, tag})$	Average $\Delta R$ between $b$ -tagged jets
avg $\Delta \eta(\text{jet, jet})$	Average $\Delta \eta$ between jets
max $\Delta  \eta (\text{jet, avg jet }  \eta )$	max difference between jet $ \eta $ and avg $ \eta $ of jets
max $\Delta  \eta (\text{tag, avg jet }  \eta )$	max difference between tag $ \eta $ and avg $ \eta $ of jets
max $\Delta  \eta (\text{tag, avg tag }  \eta )$	max difference between tag $ \eta $ and avg $\eta$ of tags
min $\Delta R(\text{tag, tag})$	$\Delta R$ between the two closest $b$ -tagged jets
M3	Invariant mass of the 3-jet system with largest transverse momentum
min $\Delta R(\text{lepton, jet})$	$\Delta R$ between the lepton and the closest jet (LJ channel)
mass(lepton, closest tag)	Invariant mass of the lepton and the closest $b$ -tagged jet in $\Delta R$ (LJ channel)
closest tagged dijet mass	Invariant mass of the two $b$ -tagged jets that are closest in $\Delta R$
tagged dijet mass closest to 125	Invariant mass of the $b$ -tagged pair closest to $125 \text{ GeV}/c^2$
best Higgs mass	A minimum-chi-squared fit to event kinematics is used to select two $b$ -tagged jets as top-decay products. Of the remaining $b$ -tagged jets, the invariant mass of the two with highest $E_T$ is saved.
$\sqrt{\Delta \eta(t^{lep}, bb) \times \Delta \eta(t^{had}, bb)}$	Square root of the product of abs $\Delta \eta$ (leptonic top, bb) and abs $\Delta \eta$ (hadronic top, bb), where the bb-system and the candidates for the leptonic and hadronic tops are found with the best higgs mass algorithm
$(\Sigma \text{ jet } p_T)/(\Sigma \text{ jet } E)$	Ratio of the sum of the transverse momentum of all jets and the sum of the energy of all jets
<b>CSVv2IVF b-tag</b>	
first- to fifth-highest CSV	First- to fifth-highest highest CSVv2IVF discriminator value of all jets
avg CSV (tags/all)	Average $b$ -tag discriminator value for $b$ -tagged/all jets
dev from avg CSV (tags)	Squared difference between the CSVv2IVF discriminator value of a given $b$ -tagged jet and the average CSVv2IVF discriminator value among $b$ -tagged jets, summed over all $b$ -tagged jets
sphericity	Sphericity: $3/2(\lambda_2 + \lambda_3)$ ( $\lambda_i$ : eigenvalues of momentum tensor)
aplanarity	Aplanarity: $3/2\lambda_1$ ( $\lambda_i$ : eigenvalues of momentum tensor)
$H_1, H_2, H_3, H_4$	Fox-Wolfram moments [74]