| 1 | $\Delta \phi\left(\tau_{\mathrm{h}}, \vec{p}_{\mathrm{T}}^{\text {miss }}\right)$ | azimuthal angle between the $\tau_{\mathrm{h}}$ and $\vec{p}_{\mathrm{T}}^{\text {miss }}$ objects |
| :---: | :---: | :--- |
| 2 | $\Delta \phi\left(\ell, \vec{p}_{\mathrm{T}}^{\text {miss }}\right)$ | azimuthal angle between the $\ell$ and $\vec{p}_{\mathrm{T}}^{\text {miss }}$ objects |
| 3 | $\frac{p_{\mathrm{T}}^{j_{1} / 2}-p_{\mathrm{T}}^{\mathrm{H}^{ \pm}}}{p_{\mathrm{T}}^{j_{2}}+p_{\mathrm{T}}^{\mathrm{H}^{ \pm}}}$ | ratio of $p_{\mathrm{T}}$ sums calculated from $\ell, \tau_{\mathrm{h}}, j_{1}, j_{2}$ and $\vec{p}_{\mathrm{T}}^{\text {miss }}$ |
| 4 | $\frac{p_{\mathrm{T}}}{H_{\mathrm{T}}}$ | ratio of $p_{\mathrm{T}}$ of the first two leading jets and the $H_{\mathrm{T}}$ |
| 5 | $m_{\mathrm{T}}\left(\ell, \tau_{\mathrm{h}}, j_{1}, j_{2}, \vec{p}_{\mathrm{T}}^{\text {miss }}\right)$ | $m_{\mathrm{T}}$ reconstructed from $\ell, \tau_{\mathrm{h}}, j_{1}, j_{2}$, and $E_{\mathrm{T}}^{\text {miss }}$ |
| 6 | $\frac{p_{\mathrm{T}}^{j_{3}}}{H_{\mathrm{T}}}$ | ratio of the $p_{\mathrm{T}}$ of the third leading jet and the $H_{\mathrm{T}}$ |
| 7 | $m\left(\ell, \tau_{\mathrm{h}}\right)$ | invariant mass of the $\ell$ and $\tau_{\mathrm{h}}$ objects |
| 8 | $\frac{p_{\mathrm{T}}^{j_{2} j_{2}}+L_{\mathrm{T}}}{H_{\mathrm{T}}}$ | ratio of $p_{\mathrm{T}}$ of first two leading jets plus $L_{\mathrm{T}}$ and the $H_{\mathrm{T}}$ |
| 9 | $m_{\mathrm{T}}\left(\ell, \vec{p}_{\mathrm{T}}^{\text {miss }}\right)$ | $m_{\mathrm{T}}$ reconstructed from the $\ell$ and $\vec{p}_{\mathrm{T}}^{\text {miss }}$ objects |
| 10 | $p_{\mathrm{T}}^{\tau_{\mathrm{h}}}$ | transverse momentum of $\tau_{\mathrm{h}}$ object |
| 11 | $N_{\text {jets }}$ | mumber of selected jets in the event |
| 12 | $N_{\mathrm{t}^{\text {res }}}$ | number of selected tre objects in the event |

