| source / bin | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| JESSinglePionHCAL | -0.3 | -1.3 | $+0.1$ | +1.4 | $+0.5$ | -0.1 | $+0.6$ | -0.1 | -0.2 | -0.3 | $+0.5$ | -1.1 | -0.2 | +0.2 | -1.2 | $+0.8$ |
|  | -0.4 | -0.9 | -0.5 | +1.5 | $+0.3$ | -0.3 | +0.1 | +0.1 | +0.1 | -0.4 | $+0.3$ | -1.3 | +0.1 | +0.3 | -0.3 | +2.2 |
| JESTimePtEta | +1.4 | -1.0 | -0.1 | +1.4 | -0.2 | -0.6 | $+0.1$ | 0.0 | -0.1 | $-0.5$ | $+0.7$ | -1.2 | -0.2 | $+0.5$ | -0.8 | +1.2 |
|  | -0.3 | $+0.2$ | +1.4 | $+0.3$ | -0.1 | -0.5 | $+0.4$ | -0.2 | $+0.2$ | -0.9 | 0.0 | -0.6 | 0.0 | $+0.5$ | $+0.1$ | +1.0 |
| $\vec{p}_{T}^{\text {miss }}$ | +1.7 | -0.3 | -0.4 | 0.0 | -0.3 | $+0.4$ | -0.1 | 0.0 | -0.1 | -0.3 | -0.1 | -0.2 | $+0.1$ | -0.1 | -0.1 | -0.4 |
|  | -1.0 | 0.0 | 0.0 | +1.1 | +0.1 | -0.1 | $+0.4$ | 0.0 | -0.3 | -0.4 | -0.2 | -0.3 | 0.0 | $+0.2$ | 0.0 | $+0.5$ |
| lepton ID/ISO | -0.2 | 0.0 | -0.3 | -0.3 | +0.1 | $+0.2$ | 0.0 | +0.4 | -0.1 | +0.1 | 0.0 | -0.2 | 0.0 | -0.1 | -0.1 | -0.5 |
|  | $+0.2$ | 0.0 | +0.3 | $+0.2$ | -0.1 | -0.2 | -0.1 | -0.4 | +0.1 | -0.1 | 0.0 | +0.2 | 0.0 | +0.1 | $+0.1$ | +0.5 |
| pileup | $+0.2$ | 0.0 | -0.3 | -0.5 | +0.1 | $+0.2$ | +0.1 | -0.2 | $+0.1$ | $+0.2$ | $+0.1$ | 0.0 | $+0.1$ | +0.1 | -0.1 | -0.1 |
|  | -0.1 | -0.1 | $+0.2$ | $+0.5$ | -0.1 | -0.2 | -0.1 | $+0.2$ | 0.0 | -0.2 | -0.1 | 0.0 | -0.1 | -0.1 | $+0.1$ | +0.1 |
| trigger | +0.1 | +0.2 | +0.1 | -0.3 | $+0.2$ | +0.1 | 0.0 | -0.1 | $+0.1$ | $+0.1$ | -0.1 | -0.2 | +0.1 | 0.0 | -0.1 | -0.1 |
|  | -0.1 | -0.1 | +0.1 | $+0.4$ | -0.2 | -0.3 | -0.1 | 0.0 | -0.1 | 0.0 | $+0.2$ | $+0.2$ | -0.1 | -0.1 | $+0.1$ | $+0.2$ |
| trigger ( $\eta$ ) | -0.3 | -0.2 | -0.1 | $+0.6$ | -0.2 | -0.1 | -0.2 | +0.4 | -0.2 | -0.2 | -0.2 | $+0.3$ | +0.1 | -0.1 | -0.2 | +0.1 |
|  | $+0.3$ | $+0.2$ | +0.1 | -0.6 | +0.2 | +0.1 | +0.1 | -0.4 | $+0.2$ | +0.2 | $+0.2$ | -0.3 | -0.1 | +0.1 | $+0.2$ | -0.1 |
| non-t̄t background | -0.7 | -0.1 | -0.5 | -3.1 | $+0.2$ | -0.2 | 0.0 | -0.2 | $+0.5$ | +1.1 | +1.2 | $+0.3$ | +1.1 | $+0.8$ | +1.3 | $+0.8$ |
|  | +0.9 | +0.4 | +1.2 | +3.1 | -0.3 | -0.4 | -0.3 | 0.0 | -0.5 | -0.7 | -0.7 | -0.5 | -1.0 | -1.0 | -1.2 | -0.7 |
| b-tagging | -0.1 | -0.1 | -0.2 | -0.1 | 0.0 | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | $+0.1$ | $+0.1$ | $+0.1$ | +0.1 |
|  | +0.1 | +0.1 | +0.3 | $+0.2$ | 0.0 | -0.2 | -0.1 | -0.2 | 0.0 | +0.1 | +0.1 | -0.1 | 0.0 | -0.2 | -0.1 | -0.1 |
| b-tagging (light jets) | -0.1 | 0.0 | -0.2 | -0.8 | $+0.1$ | +0.1 | $+0.1$ | -0.1 | $+0.2$ | $+0.2$ | $+0.2$ | +0.1 | $+0.2$ | $+0.2$ | $+0.2$ | +0.1 |
|  | $+0.2$ | 0.0 | +0.2 | +0.9 | -0.1 | -0.1 | -0.1 | +0.1 | -0.2 | -0.2 | -0.2 | -0.1 | -0.2 | -0.2 | -0.2 | -0.1 |
| luminosity | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
|  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| branching ratio $t \bar{t} \rightarrow \ell \ell$ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
|  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PDF eigenvector 1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
|  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| PDF eigenvector 2 | -0.1 | -0.1 | $+0.1$ | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | +0.1 | 0.0 | +0.1 | 0.0 | -0.1 | -0.3 |
|  | 0.0 | 0.0 | +0.1 | 0.0 | -0.1 | -0.1 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | $+0.1$ | -0.1 | -0.1 | -0.1 | +0.1 |
| PDF eigenvector 3 | +0.1 | +0.1 | +0.1 | 0.0 | +0.1 | 0.0 | 0.0 | -0.2 | +0.1 | +0.1 | 0.0 | -0.2 | +0.1 | 0.0 | +0.1 | -0.1 |
|  | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 | 0.0 | +0.1 | +0.1 | 0.0 | -0.1 | 0.0 | +0.2 |
| PDF eigenvector 4 | -0.1 | -0.1 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | +0.1 | +0.1 | 0.0 | 0.0 | -0.1 |
|  |  | +0.1 | $+0.1$ | 0.0 | 0.0 | -0.1 | -0.1 | 0.0 | +0.1 | $+0.1$ | +0.1 | -0.1 | 0.0 | -0.1 | 0.0 | 0.0 |
| PDF eigenvector 5 | 0.0 | 0.0 | +0.1 | +0.1 | -0.1 | -0.2 | -0.1 | $+0.2$ | 0.0 | 0.0 | +0.1 | $+0.3$ | -0.2 | -0.2 | -0.1 | +0.4 |
|  | +0.1 | +0.1 | 0.0 | -0.1 | +0.1 | +0.1 | $+0.1$ | -0.2 | +0.1 | +0.1 | 0.0 | -0.5 | +0.1 | +0.1 | +0.1 | -0.3 |
| PDF eigenvector 6 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | -0.1 | $+0.1$ | 0.0 | +0.1 | +0.1 |
|  |  | 0.0 | $+0.1$ | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | 0.0 |
| PDF eigenvector 7 | 0.0 | 0.0 | +0.1 | +0.1 | -0.2 | -0.2 | -0.1 | $+0.3$ | 0.0 | 0.0 | 0.0 | +0.5 | -0.3 | -0.3 | -0.2 | +0.5 |
|  | 0.0 | 0.0 | 0.0 | -0.1 | $+0.1$ | +0.1 | $+0.1$ | -0.2 | 0.0 | 0.0 | 0.0 | -0.3 | $+0.2$ | $+0.2$ | $+0.2$ | -0.2 |
| PDF eigenvector 8 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | $+0.1$ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | +0.2 |
|  | $+0.1$ | 0.0 | $+0.1$ | +0.1 | 0.0 | -0.1 | -0.1 | -0.1 | 0.0 | +0.1 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PDF eigenvector 9 | +0.1 | +0.1 | $+0.2$ | +0.1 | 0.0 | -0.1 | -0.1 | -0.1 | 0.0 | $+0.1$ | +0.1 | -0.1 | 0.0 | -0.1 | -0.1 | -0.2 |
|  | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | +0.1 | +0.3 |
| PDF eigenvector 10 | 0.0 | 0.0 | -0.1 | 0.0 | +0.1 | +0.1 | $+0.1$ | -0.2 | 0.0 | 0.0 | 0.0 | -0.2 | +0.1 | +0.1 | +0.1 | -0.2 |
|  | 0.0 | 0.0 | $+0.1$ | 0.0 | -0.1 | -0.1 | -0.1 | $+0.2$ | 0.0 | 0.0 | 0.0 | $+0.2$ | -0.1 | -0.2 | -0.1 | +0.2 |
| PDF eigenvector 11 | 0.0 | +0.1 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | +0.1 | +0.1 | -0.1 | 0.0 | 0.0 | 0.0 | -0.1 |
|  | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | +0.1 | -0.1 | -0.1 | -0.1 | +0.1 |
| PDF eigenvector 12 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | 0.0 | $+0.1$ | 0.0 | 0.0 | 0.0 | +0.1 | -0.1 | -0.1 | -0.1 | $+0.1$ |
|  | 0.0 | +0.1 | +0.1 | 0.0 | +0.1 | 0.0 | 0.0 | -0.2 | 0.0 | +0.1 | +0.1 | -0.1 | +0.1 | 0.0 | +0.1 | -0.1 |
| PDF eigenvector 13 | 0.0 | 0.0 | -0.1 | -0.1 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 | $+0.1$ | +0.1 |
|  | 0.0 | 0.0 | +0.1 | +0.1 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | +0.1 | +0.1 | 0.0 | 0.0 | -0.1 | -0.1 |
| PDF eigenvector 14 | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 | +0.1 | +0.1 | 0.0 | 0.0 | -0.1 | 0.0 | +0.1 |
|  | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 |

