$-0.3-0.9-0.6-0.1-0.4+0.1+0.2-0.1-0.3-0.2-0.6+0.2+0.2-0.3+0.1+0.2+0.6+0.5+0.5+0.2+0.2+0.2+0.2 \quad 0.0$ $+0.3-0.1-0.5+0.5+0.2+0.6+0.5+0.6+0.5+0.1-0.1-0.3+0.3+0.7+0.2-0.7-0.6-0.6-0.6-0.1-0.3-0.1+0.1-0.8$

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| JESTimePtEta | -0.1 | -0.1 | -0.4 | -0.1 | -0.2 | -0.1 | +0.3 | 0.0 | +0.3 | -0.1 | +0.1 | 0.0 | 0.0 | -0.1 | 0.0 | +0.3 | +0.2 | +0.1 | -0.4 | 0.0 | -0.3 | 0.0 | -0.1 | +0.3 | $\begin{array}{llllllllllllllllllllllllllllll}-0.2 & +0.2 & 0.0 & +0.1 & 0.0 & +0.3 & 0.0 & -0.1 & +0.1 & -0.2 & +0.1 & +0.4 & +0.4 & +0.1 & +0.1 & +0.2 & 0.0 & -0.1 & 0.0 & 0.0 & -0.1 & +0.1 & -0.1 & -1.6\end{array}$ $-2.4-0.3-1.1-0.2+0.3+0.3-0.3-0.2+0.1+0.1+0.6+0.3+1.2+0.3+0.2+0.5-0.4 \quad 0.0+0.1 \quad 0.0+0.3+0.1+0.2-0.1$ | -0.1 | -0.2 | +0.8 | +0.4 | -0.1 | -0.3 | +0.2 | +0.8 | -0.1 | +0.1 | -0.5 | -0.6 | -0.4 | +0.5 | -0.4 | +0.8 | -0.1 | +0.1 | 0.0 | -0.2 | -0.2 | -0.3 | -0.2 | +0.1 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| lepton ID/ISO | -0.3 | 0.0 | -0.5 | -0.3 | +0.1 | +0.2 | +0.1 | +0.6 | -0.1 | -0.1 | -0.1 | -0.7 | 0.0 | +0.1 | 0.0 | +0.1 | +0.3 | +0.4 | +0.3 | +0.6 | -0.1 | -0.1 | -0.2 | -0.7 | $\begin{array}{llllllllllllllllllllllllllllllllllllllllllll}+0.3 & 0.0 & +0.5 & +0.3 & -0.1 & -0.2 & -0.1 & -0.6 & +0.1 & +0.1 & +0.1 & +0.7 & 0.0 & -0.1 & 0.0 & -0.1 & -0.3 & -0.4 & -0.3 & -0.6 & +0.2 & +0.1 & +0.2 & +0.7\end{array}$ $+0.6-0.4-0.5-0.5 \quad 0.0+0.2+0.4+0.2+0.3+0.4+0.2+0.2-0.4+0.6-0.1-1.0+0.4-0.3-0.5 \quad 0.0 \quad 0.0-0.4+0.1 \quad-0.3$ | -0.7 | +0.3 | +0.6 | +0.5 | 0.0 | -0.2 | -0.4 | -0.3 | -0.3 | -0.3 | -0.2 | -0.2 | +0.4 | -0.5 | +0.2 | +1.1 | -0.5 | +0.2 | +0.4 | 0.0 | 0.0 | +0.3 | -0.1 | +0.3 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

 trigger


b-tagging
b-tagging (light jets)
luminosity
branching ratio $\overline{\mathrm{t}} \rightarrow \ell \ell$

PDF eigenvector 1

PDF eigenvector 2

PDF eigenvector 3

PDF eigenvector 4

PDF eigenvector 5

PDF eigenvector 6

PDF eigenvector 7

PDF eigenvector 8

PDF eigenvector 9

PDF eigenvector 10

PDF eigenvector 11

PDF eigenvector 12

PDF eigenvector 13
$\begin{array}{lllllllllllllllllllllllllllllllllll}-0.1 & -0.2 & -0.1 & +0.4 & -0.2 & -0.1 & 0.0 & +0.1 & -0.1 & 0.0 & +0.1 & +0.3 & -0.1 & -0.2 & -0.2 & +0.3 & -0.2 & -0.2 & -0.1 & +0.2 & -0.1 & 0.0 & +0.1 & +0.2\end{array}$
$\begin{array}{lllllllllllllllllllllllllllllllllll}-0.3 & -0.2 & -0.3 & +0.7 & -0.3 & -0.2 & -0.2 & +0.4 & 0.0 & -0.1 & -0.2 & +0.3 & -0.2 & -0.1 & -0.3 & +0.8 & -0.3 & -0.2 & -0.2 & +0.5 & 0.0 & -0.1 & -0.3 & +0.2\end{array}$ $+0.3+0.2+0.3-0.7+0.3+0.2+0.2-0.4 \quad 0.0+0.1+0.2-0.3+0.2+0.1+0.3-0.8+0.3+0.2+0.2-0.5 \quad 0.0+0.1+0.3-0.2$
$-1.0-1.0-2.0-4.3-0.3-0.1+0.3-0.3+0.5+0.4+0.5-0.2+1.6+1.8+1.7-1.2+0.4+0.6+0.5+0.8+1.0+0.8+0.8-0.1$

 $\begin{array}{lllllllllllllllllllll}0.0 & 0.0 & -0.1 & -0.1 & -0.1 & -0.1 & -0.1 & 0.0 & -0.1 & -0.1 & -0.1 & -0.1 & -0.5 & -0.5 & -0.6 & -0.2 & +0.2 & +0.2 & +0.2 & +0.2 & +0.3\end{array}+0.2+0.3+0.3$ | 0.0 | 0.0 | +0.1 | +0.1 | +0.1 | +0.1 | +0.1 | 0.0 | +0.1 | +0.1 | +0.1 | +0.1 | +0.5 | +0.5 | +0.6 | +0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.3 | -0.2 | -0.3 | -0.3 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | $-0.3-0.3-0.6-1.0+0.1+0.2+0.4+0.2+0.2+0.2+0.2+0.1+0.5+0.6+0.3-1.0+0.1+0.1+0.2+0.1 \quad 0.0 \quad 0.0-0.1-0.2$

 $\begin{array}{llllllllllllllllllllllll}0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0\end{array}$ \begin{tabular}{lllllllllllllllllllllllllll}
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 \\
\hline

 $\begin{array}{lllllllllllllllllllllll}0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 \\ 0.0\end{array}$ 

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 \\
\hline

 $\begin{array}{lllllllllllllllllllllll}0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 \\ 0.0\end{array}$ $\begin{array}{lllllllllllllllllllllllllll}0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & -0.1 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & +0.1 & 0.0 & 0.0 & 0.0 & 0.0 & -0.1 & -0.1 & 0.0 & 0.0 & +0.1 & 0.0\end{array}$ $\begin{array}{llllllllllllllllllllllllll}0.0 & -0.1 & +0.1 & +0.1 & -0.3 & -0.1 & 0.0 & 0.0 & +0.2 & +0.1 & 0.0 & -0.1 & +0.1 & 0.0 & +0.1 & +0.1 & -0.4 & -0.2 & +0.1 & 0.0 & +0.3 & +0.1 & 0.0 & -0.1\end{array}$ 

0.0 \& 0.0 \& 0.0 \& 0.0 \& +0.1 \& 0.0 \& +0.1 \& +0.1 \& -0.1 \& -0.1 \& 0.0 \& +0.1 \& -0.1 \& -0.1 \& 0.0 \& 0.0 \& +0.2 \& +0.1 \& +0.1 \& +0.1 \& -0.2 \& -0.1 \& -0.1 \& 0.0 \\
\hline
\end{tabular}

 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | +0.2 | 0.0 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | +0.1 | +0.1 | 0.0 | 0.0 | -0.1 | 0.0 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | $\begin{array}{llllllllllllllllllllllllll}0.0 & 0.0 & 0.0 & +0.1 & -0.2 & -0.1 & 0.0 & 0.0 & +0.1 & +0.1 & 0.0 & 0.0 & +0.1 & 0.0 & 0.0 & +0.1 & -0.3 & -0.1 & 0.0 & +0.1 & +0.2 & +0.1 & 0.0 & -0.1\end{array}$ $\begin{array}{llllllllllllllllllllllllll}0.0 & 0.0 & 0.0 & 0.0 & +0.1 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & +0.1 & 0.0 & 0.0 & 0.0 & -0.1 & -0.1 & 0.0 & 0.0\end{array}$ $-0.1-0.3-0.1+0.1+0.1+0.1+0.2+0.2-0.2-0.1-0.3+0.5-0.1-0.2-0.1+0.1+0.1+0.1+0.3+0.4-0.3-0.2-0.3-0.1$ $+0.1+0.2+0.1-0.1+0.1+0.1-0.1-0.3+0.1+0.1+0.1-0.4+0.1+0.3+0.1-0.1+0.1 \quad 0.0-0.3-0.5+0.2+0.2+0.2+0.1$

$\begin{array}{lllllllllllllllllllllllll}0.0 & 0.0 & 0.0 & 0.0 & -0.1 & 0.0 & -0.1 & 0.0 & 0.0 & +0.1 & +0.1 & 0.0 & +0.1 & +0.1 & 0.0 & 0.0 & -0.2 & -0.1 & -0.1 & 0.0 & +0.1 & +0.1 & +0.1 & 0.0\end{array}$ | 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 | -0.1 | 0.0 | 0.0 | +0.1 | 0.0 | +0.1 | 0.0 | -0.1 | -0.1 | 0.0 | 0.0 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | $\begin{array}{llllllllllllllllllllllllllllllllllll}-0.2 & -0.2 & 0.0 & +0.1 & +0.1 & +0.1 & +0.3 & +0.5 & -0.3 & -0.3 & -0.2 & +0.5 & -0.3 & -0.4 & -0.1 & +0.2 & +0.3 & +0.3 & +0.5 & +0.5 & -0.5 & -0.4 & -0.5 & -0.2\end{array}$

 $\begin{array}{llllllllllllllllllllllllll}-0.1 & 0.0 & -0.1 & 0.0 & 0.0 & +0.1 & 0.0 & +0.1 & -0.1 & 0.0 & -0.1 & +0.1 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & +0.1 & 0.0 & +0.1 & -0.1 & 0.0 & -0.1 & 0.0\end{array}$ $\begin{array}{lllllllllllllllllllllllllllll}+0.1 & 0.0 & +0.1 & 0.0 & 0.0 & -0.1 & 0.0 & -0.1 & +0.1 & 0.0 & +0.1 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & -0.1 & 0.0 & -0.1 & +0.1 & 0.0 & 0.0 & 0.0\end{array}$ $\begin{array}{lllllllllllllllllllllll}0.0 & 0.0 & +0.1 & +0.1 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & -0.2 & +0.1 & 0.0 & 0.0 & +0.1 & 0.0 & 0.0 & +0.1 & 0.0 & 0.0 & 0.0 & 0.0\end{array}-0.1$ $\begin{array}{llllllllllllllllllllllllllll}0.0 & 0.0 & -0.1 & -0.1 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & +0.2 & -0.1 & 0.0 & 0.0 & -0.1 & 0.0 & 0.0 & -0.1 & 0.0 & 0.0 & 0.0 & 0.0 & +0.1\end{array}$
 $\begin{array}{lllllllllllllllllllllllllllllllllllll}-0.1 & -0.1 & 0.0 & +0.1 & +0.1 & 0.0 & +0.1 & +0.3 & -0.1 & -0.1 & -0.1 & +0.2 & -0.2 & -0.2 & 0.0 & +0.1 & +0.2 & +0.1 & +0.3 & +0.3 & -0.2 & -0.2 & -0.3 & -0.1\end{array}$ $\begin{array}{llllllllllllllllllllllll}0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & -0.1 & 0.0 & 0.0 & 0.0 & -0.1 & 0.0 & +0.1 & 0.0 & 0.0 & 0.0 & 0.0 & -0.1 & -0.1 & 0.0 & +0.1 & +0.1 & 0.0\end{array}$ $\begin{array}{llllllllllllllllllllllllllll}0.0 & -0.1 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & +0.1 & -0.1 & -0.1 & 0.0 & +0.2 & -0.1 & -0.1 & 0.0 & 0.0 & +0.1 & 0.0 & +0.1 & +0.1 & -0.1 & -0.1 & -0.1 & 0.0\end{array}$ $\begin{array}{llllllllllllllllllllllllllllllllllll}-0.1 & -0.1 & 0.0 & 0.0 & 0.0 & 0.0 & +0.1 & +0.2 & -0.1 & -0.1 & -0.1 & +0.1 & -0.1 & -0.1 & 0.0 & 0.0 & +0.1 & +0.1 & +0.1 & +0.2 & -0.1 & -0.1 & -0.1 & 0.0\end{array}$

 $\begin{array}{lllllllllllllllllllll}0.0 & +0.1 & 0.0 & -0.1 & +0.1 & +0.1 & 0.0 & 0.0 & -0.1 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & -0.1 & +0.2 & +0.1 & 0.0 & -0.1 & -0.1 \\ -0.0 & 0.0 & 0.0\end{array}$ | 0.0 | 0.0 | 0.0 | +0.1 | -0.1 | -0.1 | 0.0 | 0.0 | +0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | +0.1 | -0.2 | -0.1 | 0.0 | +0.1 | +0.1 | 0.0 | 0.0 | 0.0 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | $\begin{array}{llllllllllllllllllllllllllll}0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & +0.1 & 0.0 & 0.0 & 0.0 & 0.0 & -0.1 & 0.0 & 0.0 & 0.0 & +0.1 & +0.1 & +0.1 & +0.1 & -0.1 & -0.1 & -0.1 & 0.0\end{array}$ $\begin{array}{cccccccccccccccccccccccc}0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & -0.1 & 0.0 & 0.0 & 0.0 & -0.1 & +0.1 & +0.1 & 0.0 & 0.0 & -0.1 & -0.1 & -0.1 & -0.1 & +0.1 & +0.1 & +0.1 & 0.0\end{array}$

