

$\mu\tau_h$ -channel

| Process | No b-tag | B-tag |
|------------------------------|-----------------|---------------|
| QCD | 5490 ± 324 | 136 ± 22 |
| $t\bar{t}$ | 163 ± 14 | 73 ± 4 |
| Diboson + single top | 135 ± 7 | 22 ± 1 |
| W+jets | 2128 ± 280 | 24 ± 8 |
| Z+jets (jet faking τ) | 342 ± 59 | 2.3 ± 0.4 |
| Z+jets (l faking τ) | 1350 ± 238 | 14 ± 2 |
| $Z \rightarrow \tau\tau$ | 17093 ± 328 | 192 ± 12 |
| Total Background | 26702 ± 178 | 463 ± 19 |
| $A,H,h \rightarrow \tau\tau$ | 70 ± 7 | 1.4 ± 0.1 |
| Data | 26720 | 459 |

 $e\tau_h$ -channel

| Process | No b-tag | B-tag |
|------------------------------|-----------------|----------------|
| QCD | 3263 ± 287 | 70 ± 17 |
| $t\bar{t}$ | 134 ± 12 | 56 ± 4 |
| Diboson + single top | 103 ± 6 | 14.1 ± 0.9 |
| W+jets | 2212 ± 281 | 26 ± 13 |
| Z+jets (jet faking τ) | 328 ± 59 | 3.6 ± 0.9 |
| Z+jets (l faking τ) | 1166 ± 190 | 14 ± 2 |
| $Z \rightarrow \tau\tau$ | 6282 ± 226 | 88 ± 6 |
| Total Background | 13489 ± 126 | 272 ± 14 |
| $A,H,h \rightarrow \tau\tau$ | 38 ± 4 | 0.9 ± 0.1 |
| Data | 13490 | 270 |

 $\tau_h\tau_h$ -channel

| Process | No b-tag | B-tag |
|------------------------------|---------------|---------------|
| QCD | 672 ± 30 | 27 ± 5 |
| $t\bar{t}$ | 2.7 ± 0.2 | 4.2 ± 0.3 |
| Diboson + single top | 7.0 ± 0.4 | 1.9 ± 0.1 |
| W+jets | 36 ± 7 | 2.6 ± 0.6 |
| Z+jets (jet faking τ) | 4.2 ± 0.7 | 0.5 ± 0.1 |
| Z+jets (l faking τ) | 13 ± 1 | 0.8 ± 0.1 |
| $Z \rightarrow \tau\tau$ | 437 ± 38 | 35 ± 3 |
| Total Background | 1173 ± 32 | 72 ± 6 |
| $A,H,h \rightarrow \tau\tau$ | 12 ± 1 | 1.6 ± 0.2 |
| Data | 1166 | 76 |

 $e\mu$ -channel

| Process | No b-tag | B-tag |
|------------------------------|-----------------|---------------|
| QCD | 4675 ± 222 | 93 ± 19 |
| $t\bar{t}$ | 1326 ± 61 | 683 ± 29 |
| Diboson + single top | 802 ± 41 | 128 ± 8 |
| W+jets | 315 ± 14 | 6.8 ± 0.4 |
| $Z \rightarrow \ell\ell$ | 139 ± 4 | 2.5 ± 0.2 |
| $Z \rightarrow \tau\tau$ | 13493 ± 218 | 166 ± 11 |
| Total Background | 20749 ± 144 | 1079 ± 30 |
| $A,H,h \rightarrow \tau\tau$ | 48 ± 4 | 1.1 ± 0.1 |
| Data | 20746 | 1078 |