

$$\tilde{t}_L \tilde{t}_L^* \rightarrow t \tilde{\chi}_1^0 \bar{t} \tilde{\chi}_1^0 \text{ (ATLAS\_CONF\_2013\_024)}$$

| #  | cut name  | $\epsilon_{\text{Exp}}$ | $\epsilon_{\text{Atom}}$ | $\frac{\text{Atom}}{\text{Exp}}$ | $\frac{(\text{Exp}-\text{Atom})}{\text{Error}}$ | #/? | $R_{\text{Exp}}$ | $R_{\text{Atom}}$ | $\frac{\text{Atom}}{\text{Exp}}$ | $\frac{(\text{Exp}-\text{Atom})}{\text{Error}}$ |
|----|---|-------------------------|--------------------------|----------------------------------|---|-----|------------------|-------------------|----------------------------------|---|
| 0  | No cut  | $100.0 \pm 0.2$         | $100.0 \pm 0.0$          |                                  |   |     | $\pm$            | $\pm$             |                                  |   |
| 1  | $\mu$ veto  | $75.34 \pm 0.17$        | $80.61 \pm 0.18$         | 1.07                             | 21.27   | 0   | $0.75 \pm 0.0$   | $0.81 \pm 0.0$    | 1.07                             | 21.27   |
| 2  | $e$ veto  | $57.62 \pm 0.15$        | $56.11 \pm 0.22$         | 0.97                             | -5.62   | 1   | $0.76 \pm 0.0$   | $0.7 \pm 0.0$     | 0.91                             | -20.15  |
| 3  | MET > 130   | $53.24 \pm 0.15$        | $48.51 \pm 0.22$         | 0.91                             | -17.73  | 2   | $0.92 \pm 0.0$   | $0.86 \pm 0.0$    | 0.94                             | -12.59  |
| 4  | $N_{\text{jets}}$ and $p_T$                                 | $18.17 \pm 0.09$        | $43.62 \pm 0.22$         | 2.4                              | 107.09  | 3   | $0.34 \pm 0.0$   | $0.9 \pm 0.0$     | 2.63                             | 115.15  |
| 5  | MET <sub>track</sub> > 30                                   | $17.84 \pm 0.08$        | $43.45 \pm 0.22$         | 2.44                             | 107.97  | 4   | $0.98 \pm 0.0$   | $1.0 \pm 0.01$    | 1.01                             | 2.12  |
| 6  | $\Delta\phi(\text{MET}, \text{MET}_{\text{track}}) < \pi/3$ | $16.62 \pm 0.08$        | $42.82 \pm 0.22$         | 2.58                             | 111.12  | 5   | $0.93 \pm 0.0$   | $0.99 \pm 0.01$   | 1.06                             | 7.89  |
| 7  | $\Delta\phi(\text{jet}, \text{MET}) < \pi/5$                | $14.19 \pm 0.08$        | $39.59 \pm 0.22$         | 2.79                             | 109.81  | 6   | $0.85 \pm 0.0$   | $0.92 \pm 0.01$   | 1.08                             | 10.33   |
| 8  | $\tau$ veto   | $12.2 \pm 0.07$         | $37.47 \pm 0.22$         | 3.07                             | 111.08  | 7   | $0.86 \pm 0.0$   | $0.95 \pm 0.01$   | 1.1                              | 11.77   |
| 9  | $\geq 2$ -bjets   | $6.21 \pm 0.05$         | $15.36 \pm 0.16$         | 2.47                             | 54.21   | 8   | $0.51 \pm 0.0$   | $0.41 \pm 0.0$    | 0.81                             | -16.68  |
| 10 | $m_T(\text{bjets}, \text{MET}) > 175$                       | $4.65 \pm 0.04$         | $11.82 \pm 0.14$         | 2.54                             | 47.56   | 9   | $0.75 \pm 0.01$  | $0.77 \pm 0.01$   | 1.03                             | 1.74  |
| 11 | $80 < m_{jjj}^0 < 270$                                      | $4.02 \pm 0.04$         | $8.04 \pm 0.12$          | 2.0                              | 31.37   | 10  | $0.86 \pm 0.01$  | $0.68 \pm 0.01$   | 0.79                             | -13.73  |
| 12 | $80 < m_{jjj}^1 < 270$                                      | $2.35 \pm 0.03$         | $1.91 \pm 0.06$          | 0.82                             | -6.3  | 11  | $0.58 \pm 0.01$  | $0.24 \pm 0.01$   | 0.41                             | -32.03  |
| 13 | SR1: MET > 200  | $2.21 \pm 0.03$         | $1.77 \pm 0.06$          | 0.8                              | -6.66   | 12  | $0.94 \pm 0.01$  | $0.92 \pm 0.03$   | 0.98                             | -0.52   |
| 14 | SR1: MET > 300  | $1.64 \pm 0.03$         | $1.29 \pm 0.05$          | 0.79                             | -6.16   | 13  | $0.74 \pm 0.01$  | $0.73 \pm 0.03$   | 0.98                             | -0.41   |
| 15 | SR1: MET > 350  | $1.3 \pm 0.02$          | $1.03 \pm 0.05$          | 0.79                             | -5.31   | 14  | $0.8 \pm 0.01$   | $0.8 \pm 0.04$    | 1.01                             | 0.16  |

Table 1: The cut-flow table for the  $\tilde{t}_L \tilde{t}_L^* \rightarrow t \tilde{\chi}_1^0 \bar{t} \tilde{\chi}_1^0$  process. The masses are set at  $m_{\tilde{t}_L} = 600$  GeV,  $m_{\tilde{\chi}_1^0} = 0$  GeV. The Atom efficiencies are calculated using  $10^4$  events generated by Herwig++ 2.5.2.