

FCNC channel: $pp \rightarrow t \rightarrow l\nu b$

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Selection

Based on ATLAS paper and then optimized (* with false W+jet x-sect), my **selection** is :

- = 1 lepton $p_T > 30$ GeV (no other lepton $p_T > 20$),
- ≥ 1 jets* with $p_T(j_1) > 35$ GeV*, other jets with $p_T > 20$ GeV*, all with $|\eta| < 2.4$
- $MET > 30$ & $M_T(W) > 50$ GeV from ATLAS paper, optimization recommends no cut but better to keep for multijet suppression.
- b-tagging : Tight* criteria for j1.

Impact of the x-section bug for W+jet

→ W+jets reduced by factor 3

t-kappa-gct best limit BR=0.016 %
 → x-sect = 4.99988 [pb]
 t-kappa-gut best limit BR=0.0031 %
 → x-sect = 4.44791 [pb]

At the end of the selection (==1 lepton, ≥1 jets, b(jet1) = Tight):

	≥1 jets	S/v(S+B)	=1or2j	S/v(S+B)	=1j	S/v(S+B)
gct	29.6k	14	26.9k	20.2	18.7k	21
gut	16.8k	8	15.2k	11.4	10.5k	12
Σ bg	4.15M		1.7M		775k	
W+jets	1.3M		842k		446.6k	
tt+jets	2.2M		425k		85.8k	
t+jets	0.5M		381k		206.9k	
Z+jets	0.2M				36.1l	

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BDT1 (gct, Σ bg)
→ S/v(S+B)=16.2

BDT2 (gct, Σ bg)
→ S/v(S+B)=15.3