

## Reminder of $W \rightarrow \tau \nu$ equation and method

$$N_{Data}^{W \rightarrow \tau \nu} = (N_{Data}^{\tau \text{ control region}} - N_{MC}^{Background}) \times \frac{\epsilon_{CJV}}{\epsilon_{\tau ID}},$$

- ▶ Tau control region is signal region (without CJV to increase stat.) plus requirement of 1  $\tau_{hadronic}$  candidate with  $p_T > 20 \text{ GeV}$ ,  $|\eta| < 2.3$ :
- ▶ Use Tau POG approved discriminant:  
"byTightCombinedIsolationDeltaBetaCorr3Hits"
- ▶ Use Tau POG antilepton discriminant: choice of loose or tight working points
  - Pre-approval number was with loose, result was 95

## Update

- ▶ Bug fix to include Z+2j:  $N_{MC}^{Background}$  changes from 15.4 to 16.4 for loose antilepton discriminant, result changes to  $92 \pm 23(stat.) \pm 19(syst.)$
- ▶ Propose using tight antilepton discriminant because of better purity (see table), result is  $76 \pm 25(stat.) \pm 19(syst.)$

Discriminant	$W \rightarrow e \nu$	$W \rightarrow \mu \nu$	$W \rightarrow \tau \nu$	Bkg	Data
against $e \mu$ loose	$2 \pm 1$	$0 \pm 0$	$26 \pm 4$	$16.4 \pm 3.2$	$47 \pm 7$
against $e \mu$ tight	$0.4 \pm 0.4$	$0 \pm 0$	$20 \pm 4$	$12.4 \pm 2.2$	$32 \pm 6$