



# Some recent observations

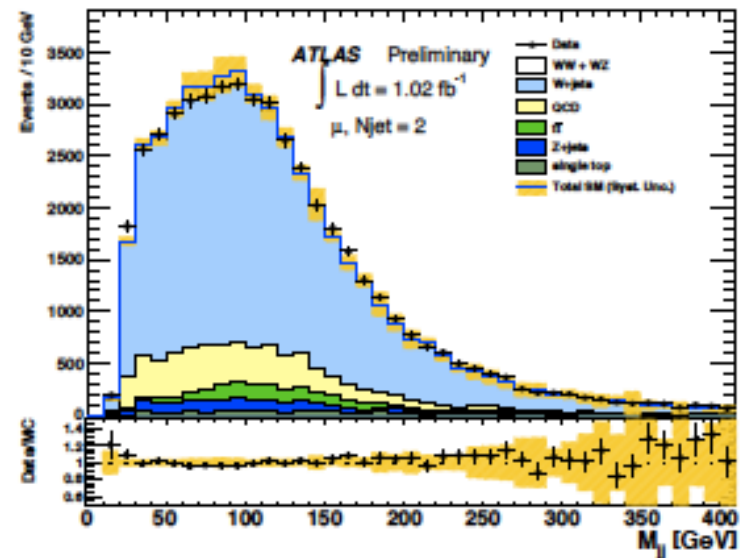
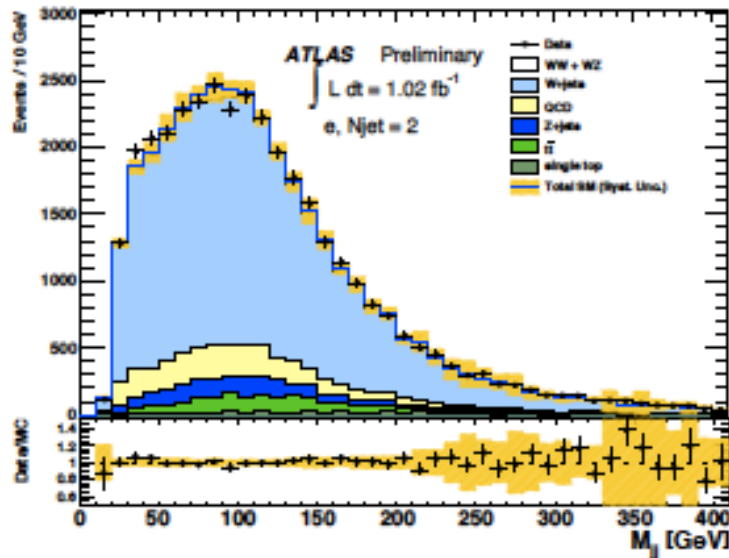
Kalanand Mishra  
FNAL

*Mjj meeting*  
(July 28, 2011)

# Life is hard if you are looking for qqbar signal



ATLAS result shown in EPS



- Get swamped by W+jets
- See no diboson peak, nothing other than W+jets:  $S/B \rightarrow 0$
- Large systematic uncertainty

Clearly much worse than Tevatron experiments

# ELM recommendation to improve S/B @LHC



## Testing CDF's Dijet Excess and Technicolor at the LHC

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### Main recommendations

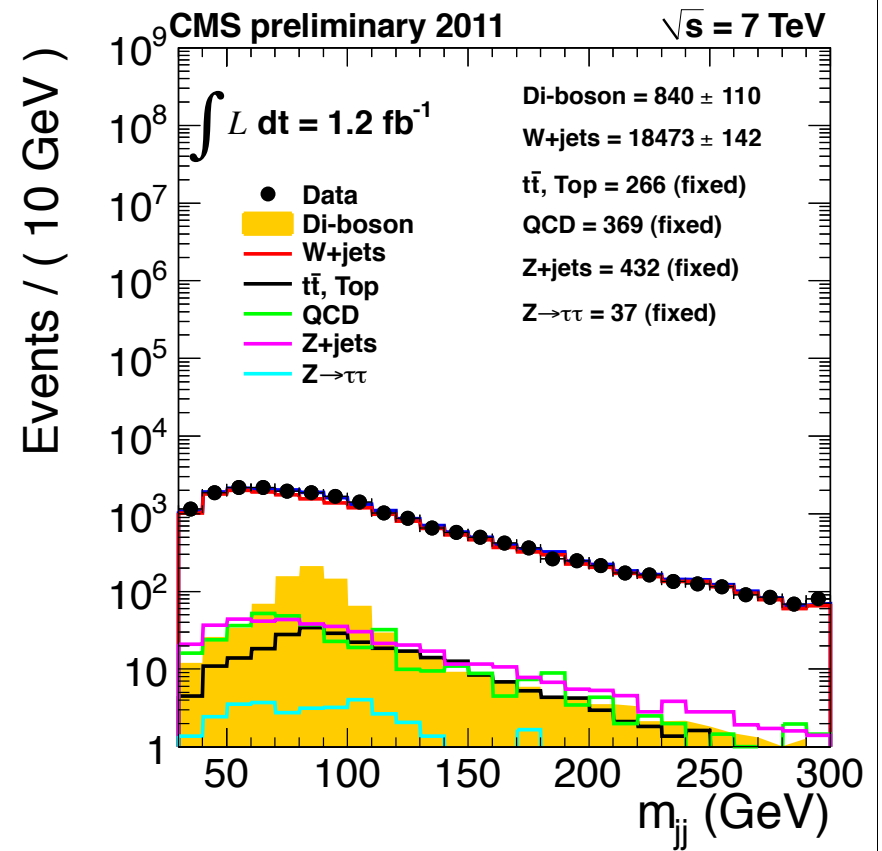
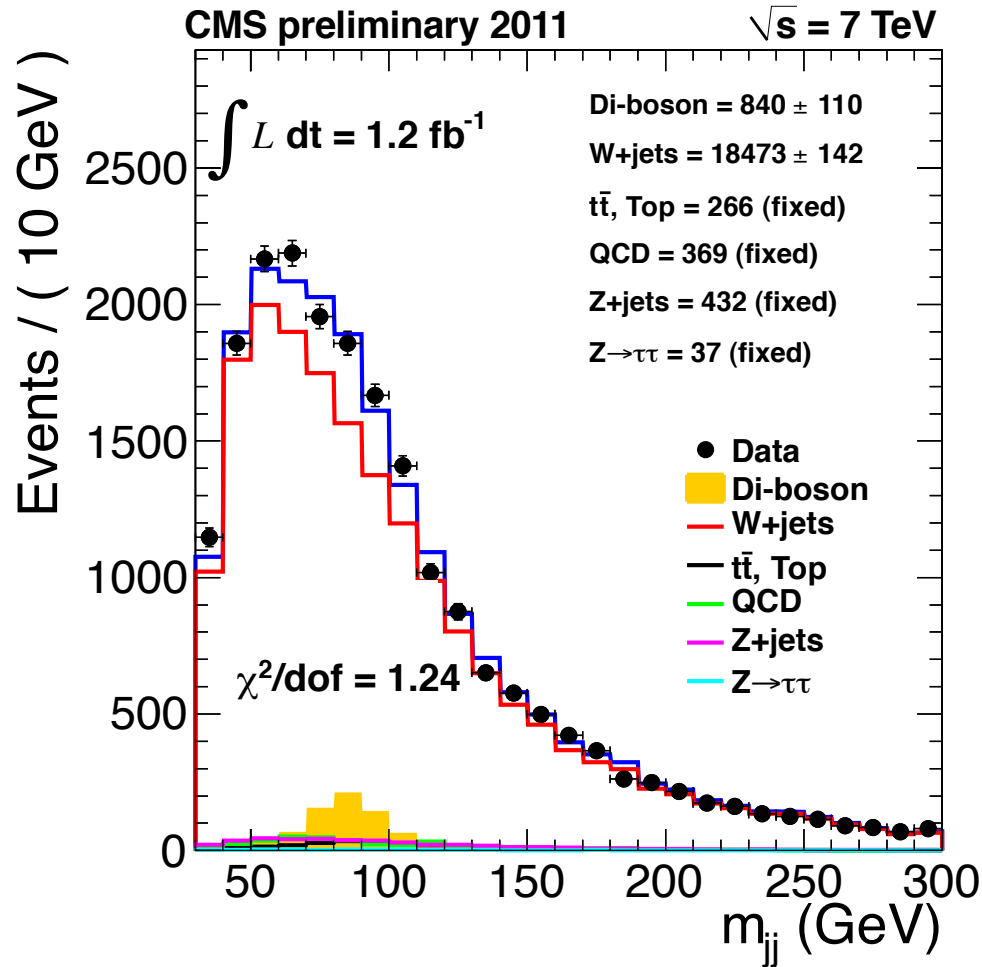
- Lead jet  $p_T > 40$  GeV, second jet  $p_T > 30$  GeV
- Dijet  $p_T > 45$  GeV
- $\Delta\eta(j1, j2) < 1.2$
- $W$   $p_T > 60$  GeV
- Plus, some model-dependent cuts for TC which we can ignore

All cuts except  $W$   $p_T$  are highly effective in reducing  $W$ +jets,  $W$   $p_T$  can help somewhat but at the cost of signal efficiency.

# ELM cuts (w/o W $p_T$ ) & anti b-tag & $p_T^{2nd}/m_{JJ}$



e,  $\mu$  data combined

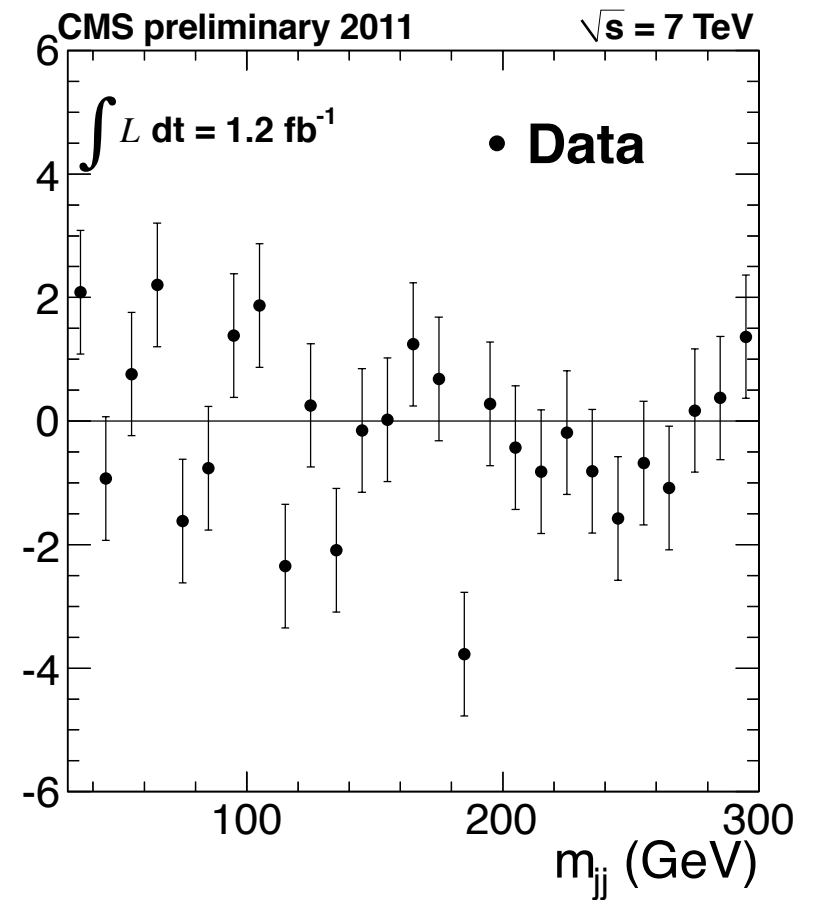
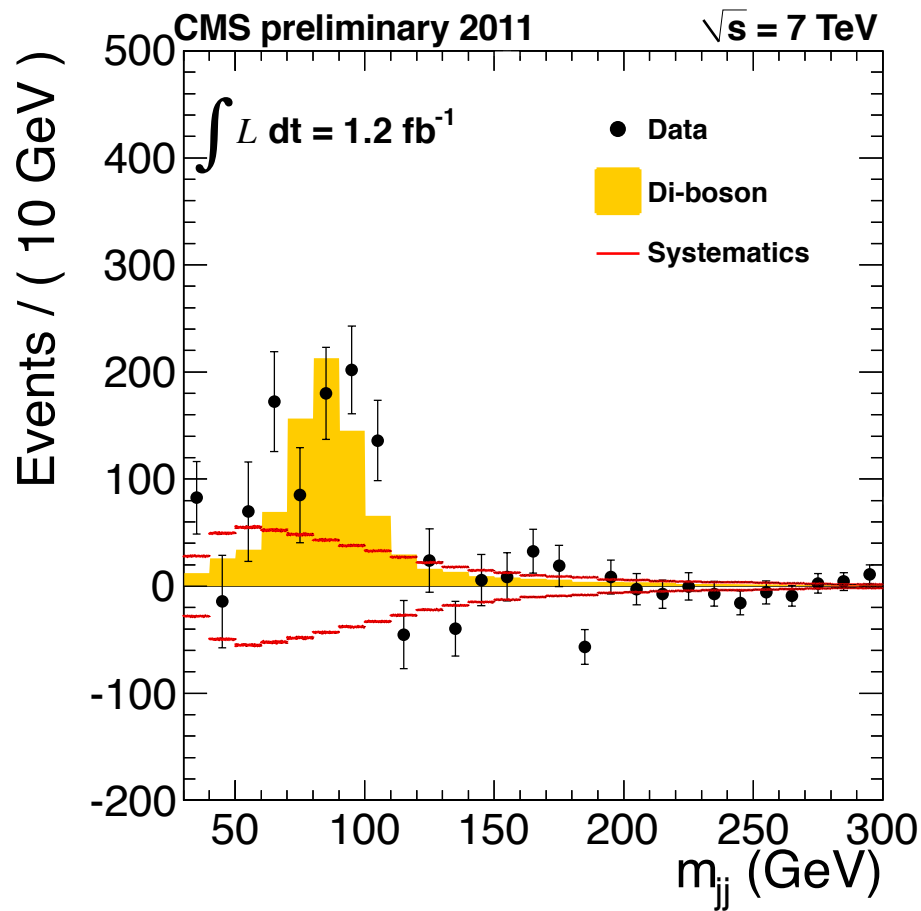


# After ELM cuts ...



Background-subtracted

Data - Standard Model



## Other ideas being investigated



1. Perform a kinematic fit by constraining the dijet mass to 150 GeV within the jet resolution and JES uncertainty. Then cut on  $\chi^2$  of this fit and look for any bump.
2. Estimate  $W$ +jets shape from data “mixed events” by tuning the  $dR(j, j)$  distribution (see talks by Dan/Teruki/Tai)

BACKUP SLIDES