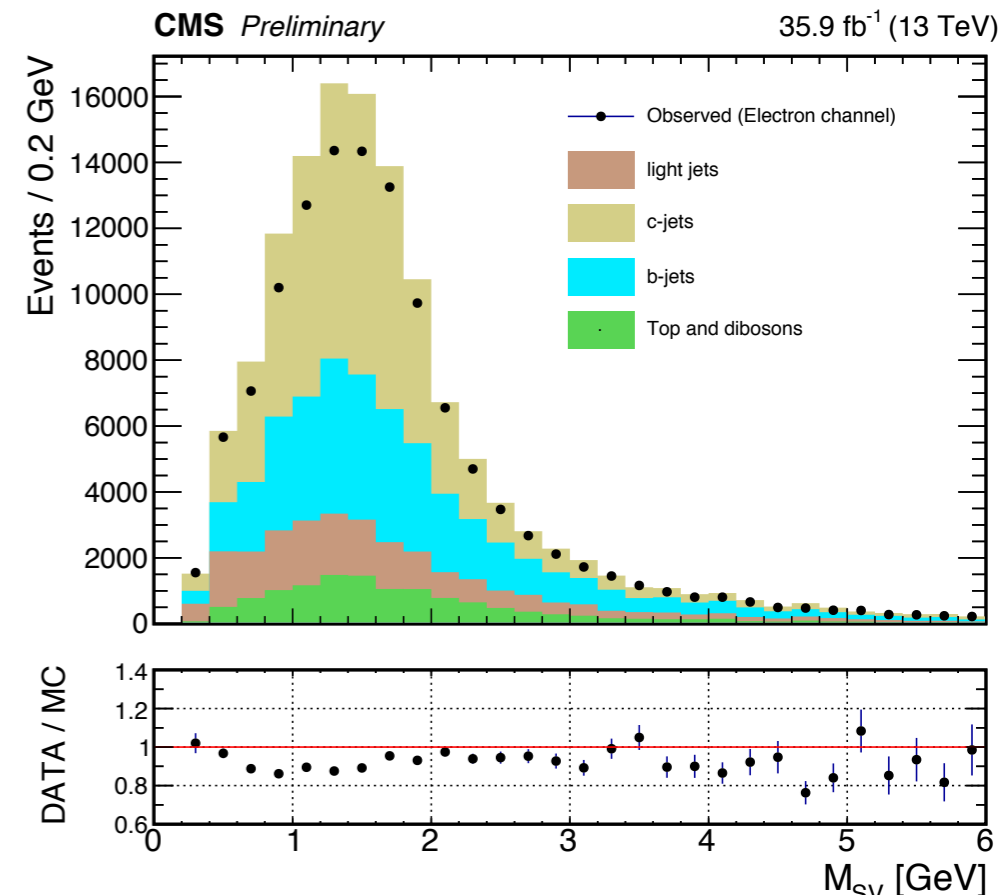
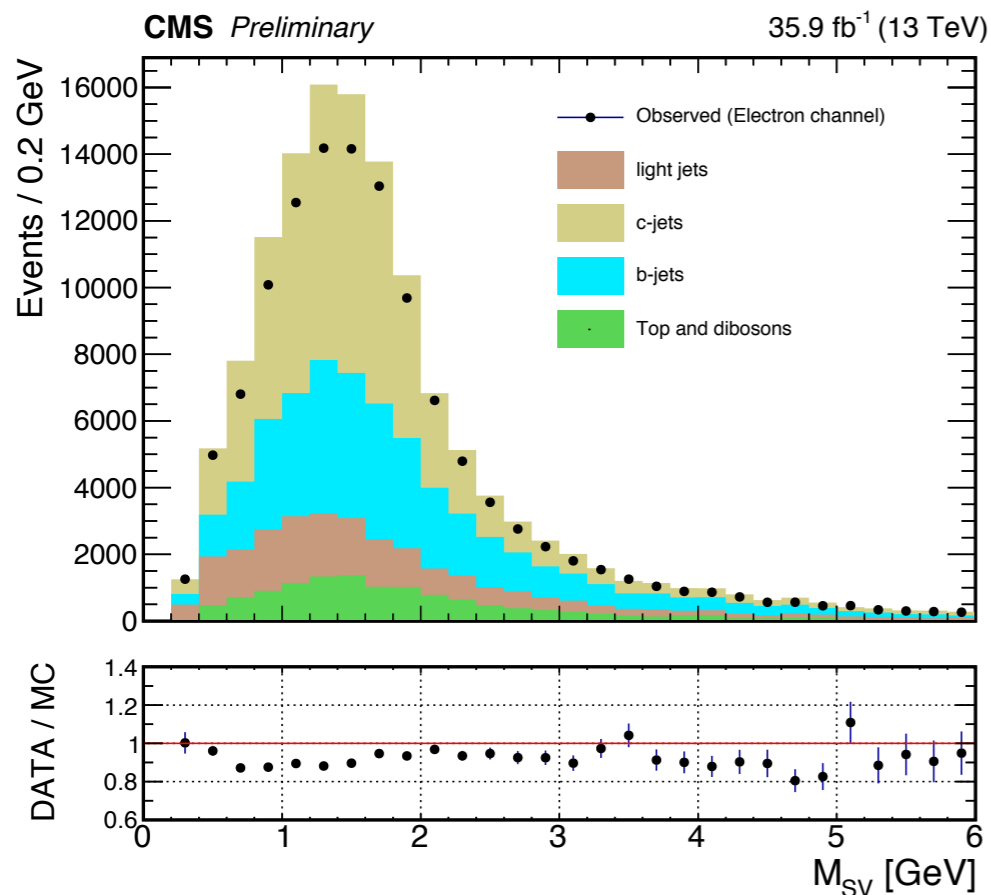
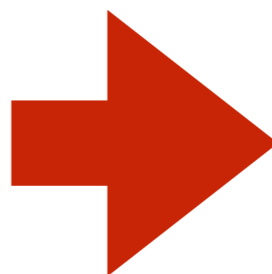
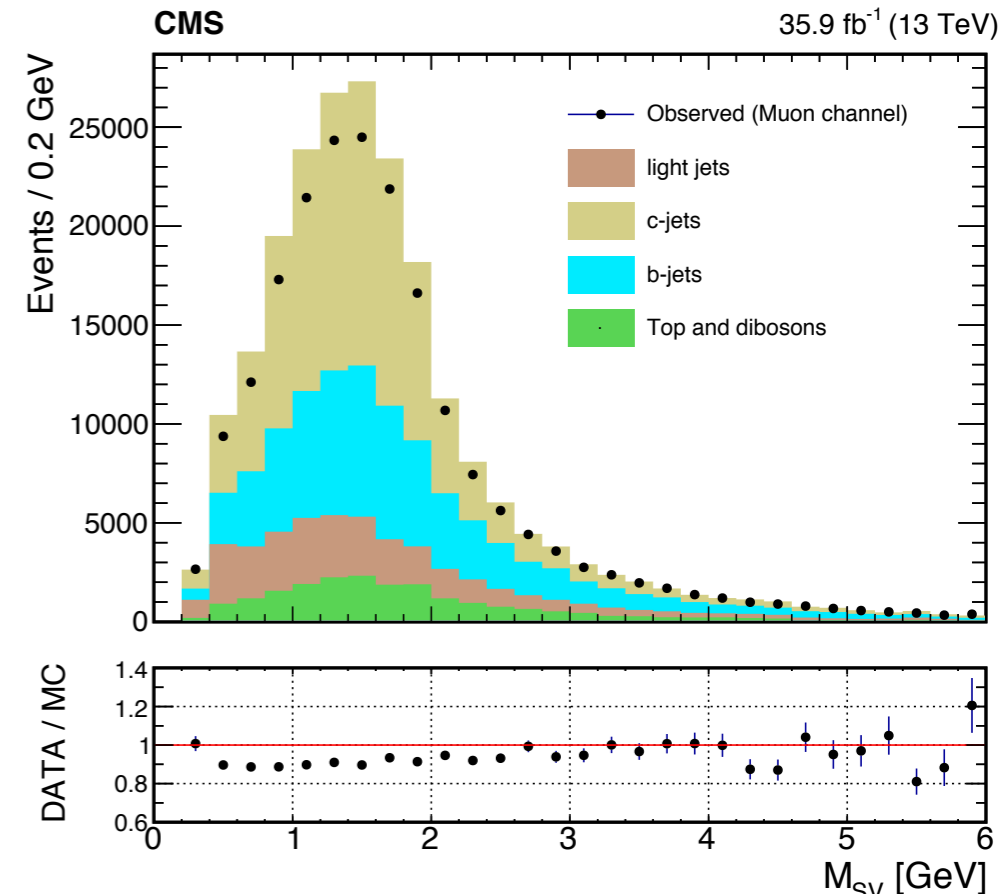
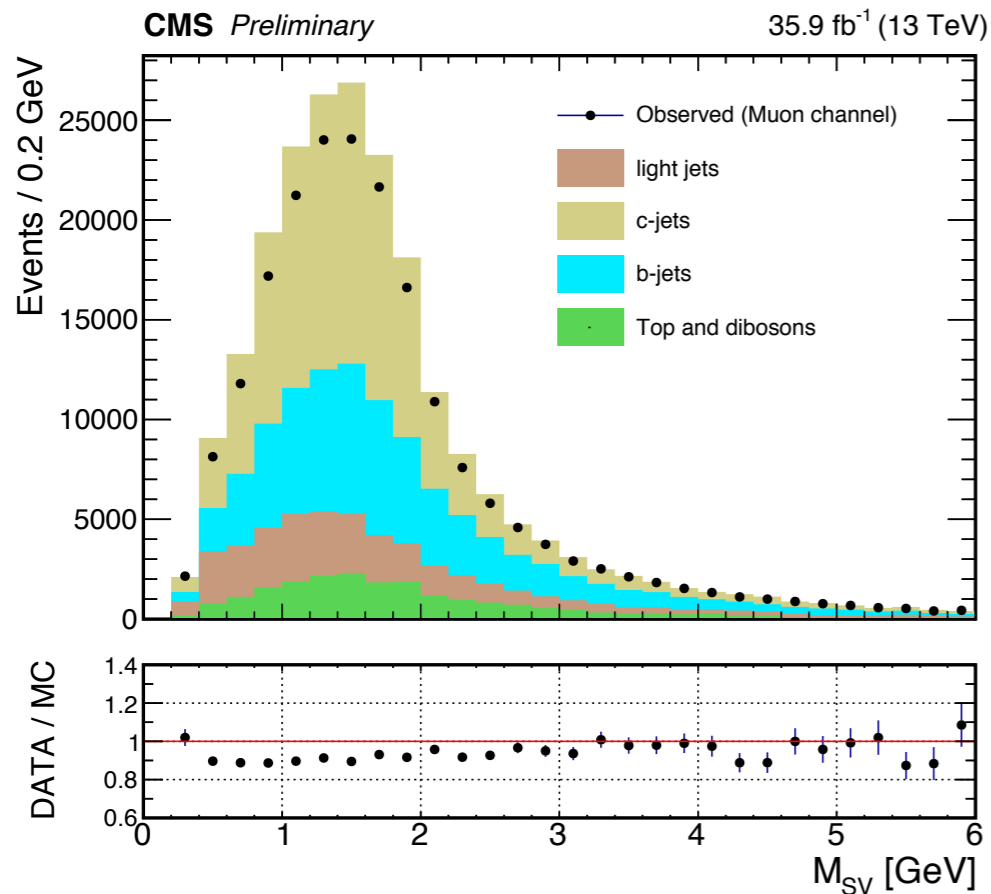


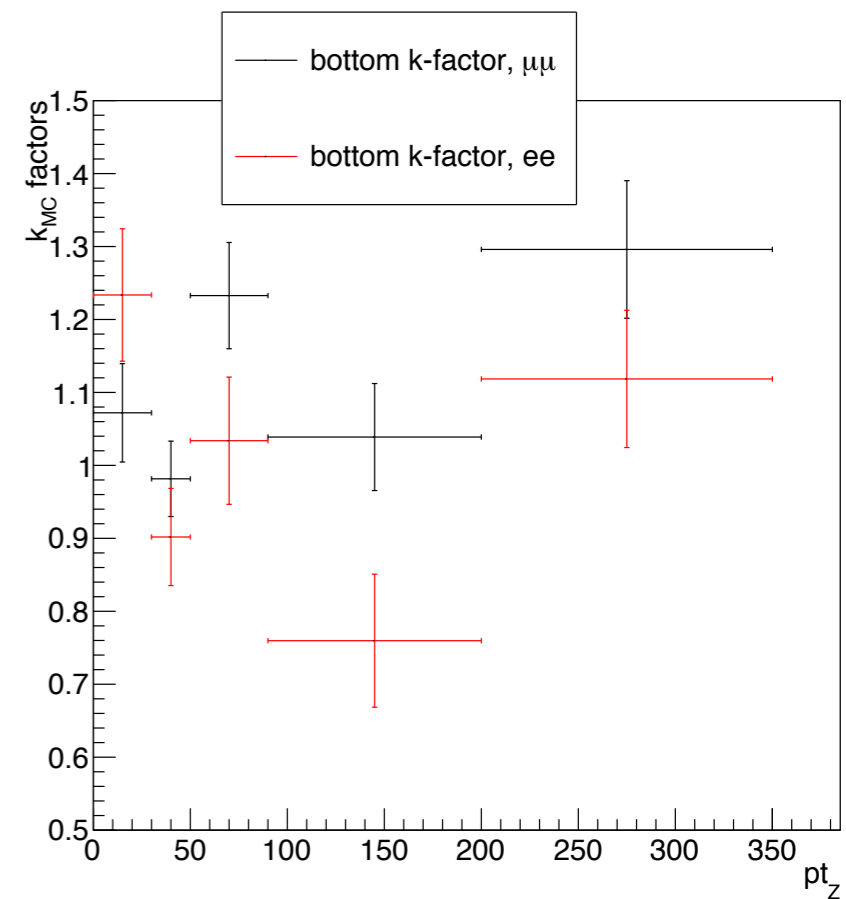
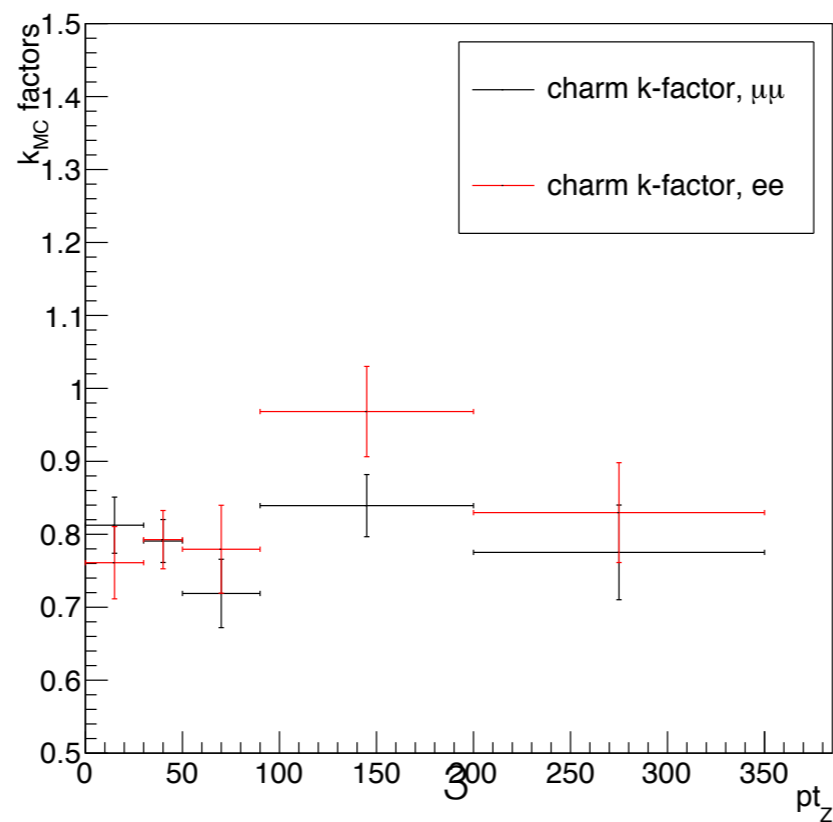
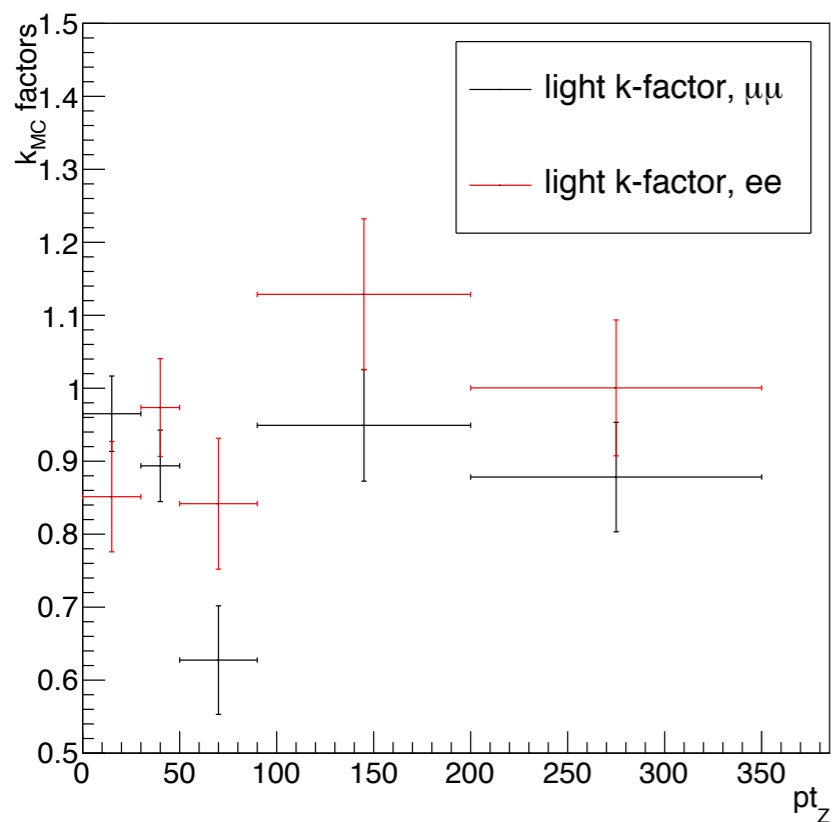
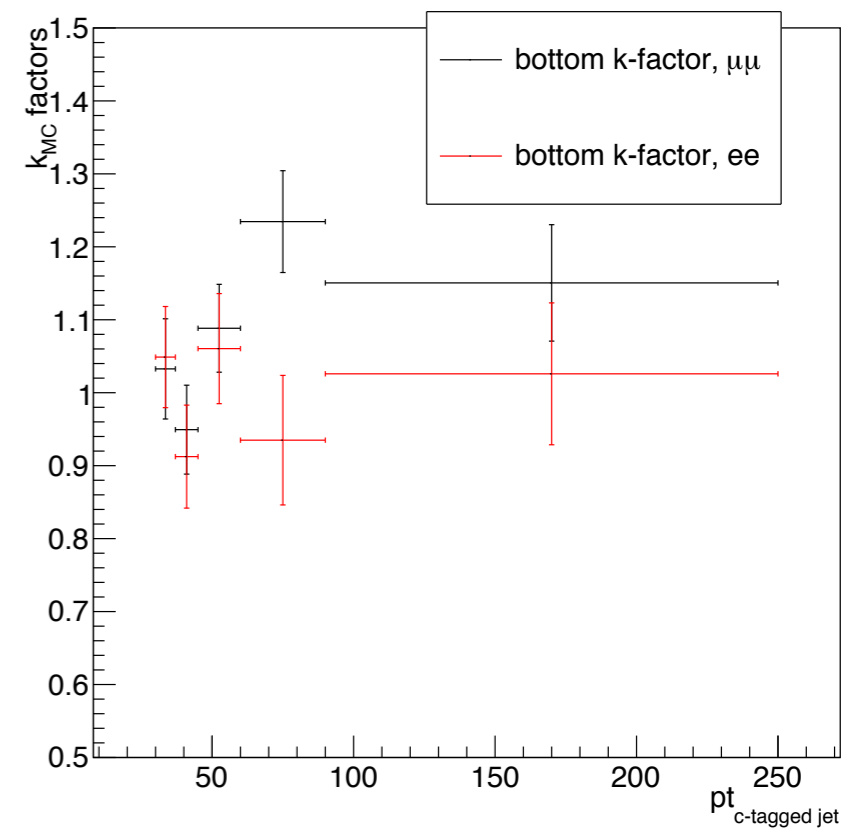
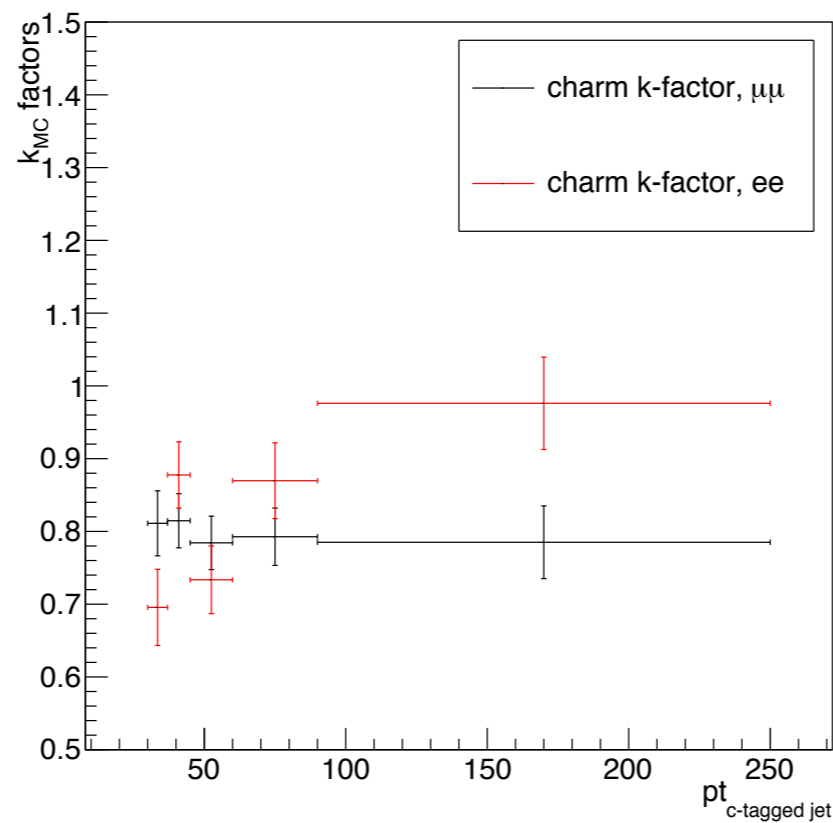
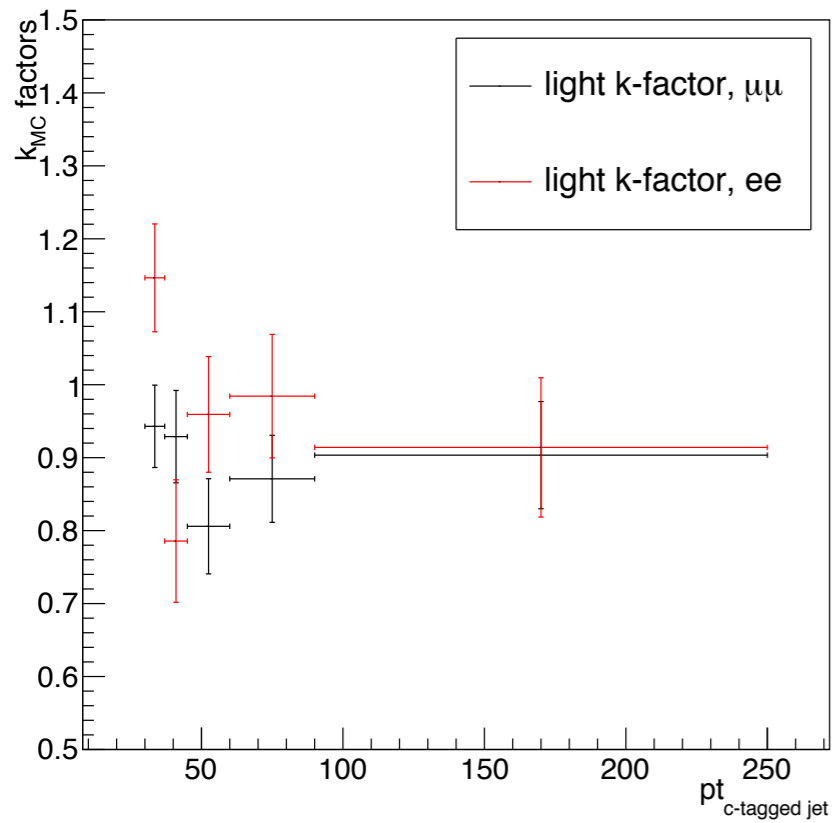
list of updates (after CWR questions)

1. SV choice if two found inside jet: first from list -> highest significance
2. k-factors fit: RooFit -> TFractionFitter (takes into account MC stat errors)
3. Lumi uncertainty (2.5% normalization uncertainty) taken into account while combining channels

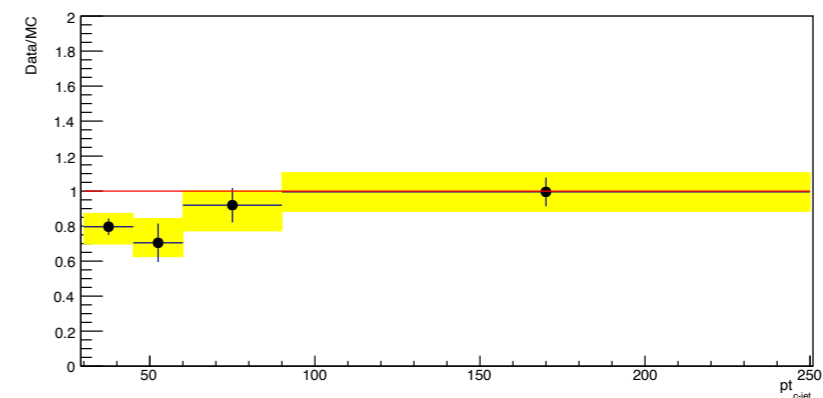
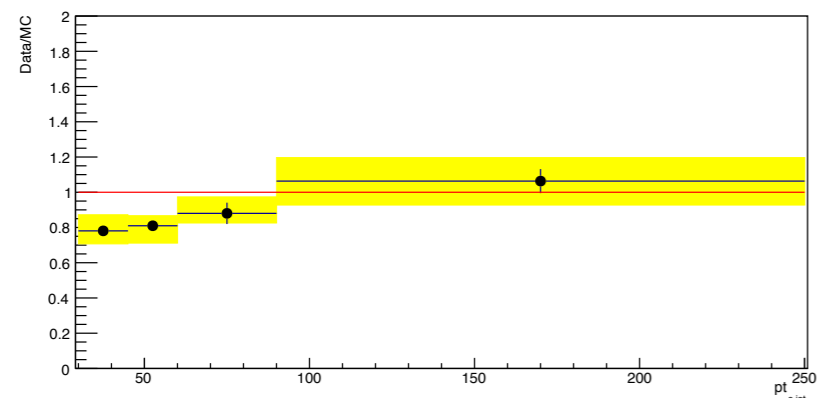
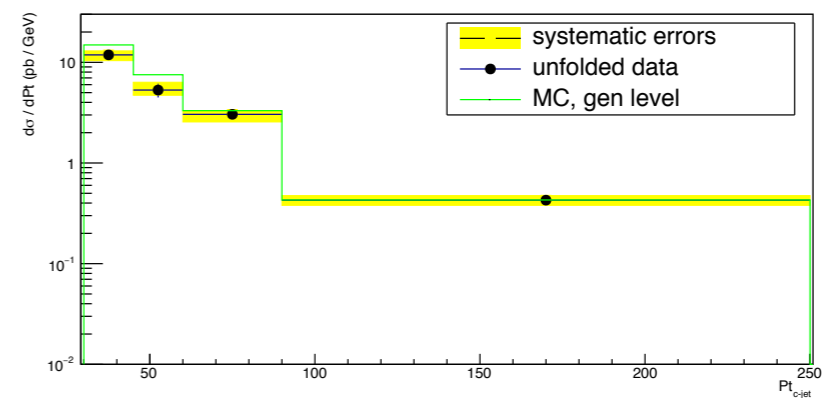
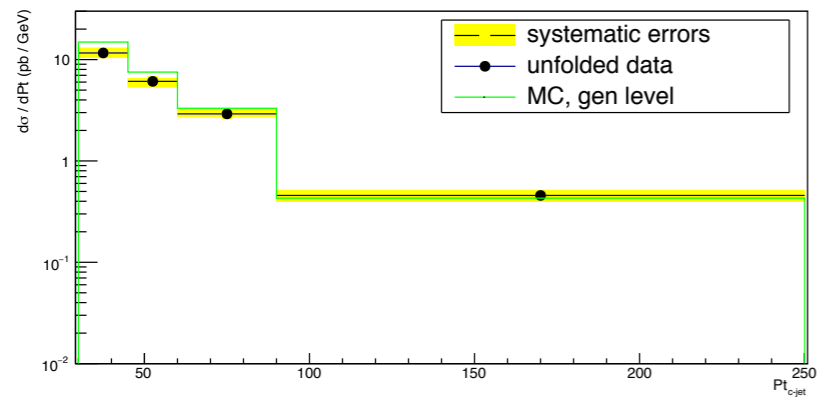
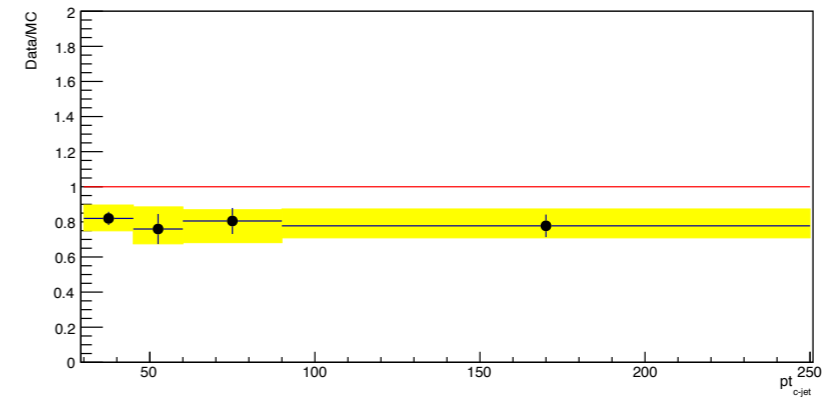
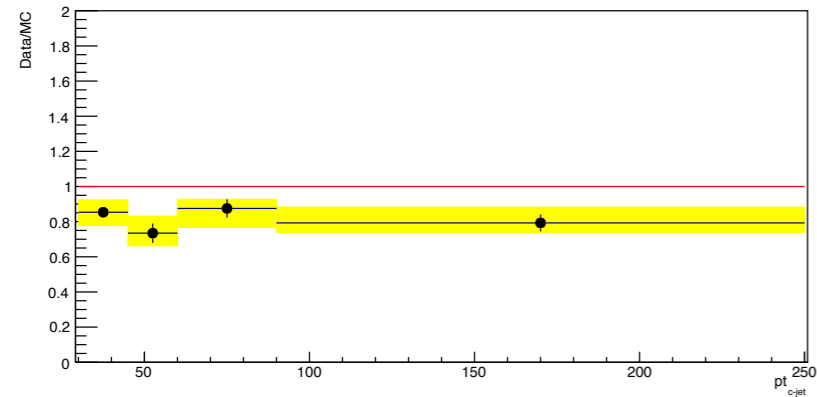
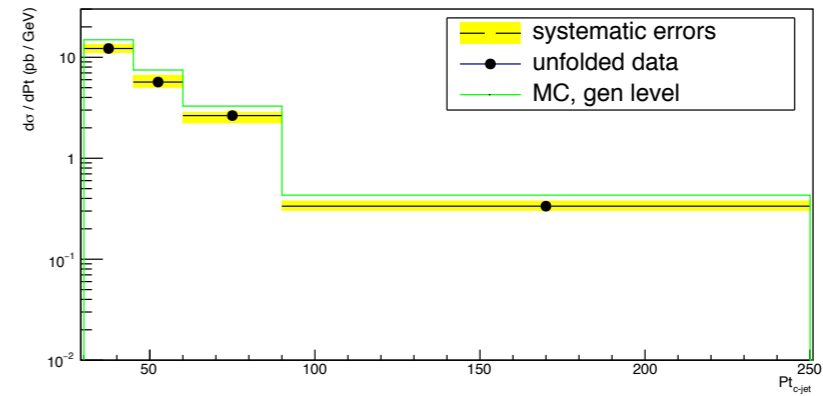
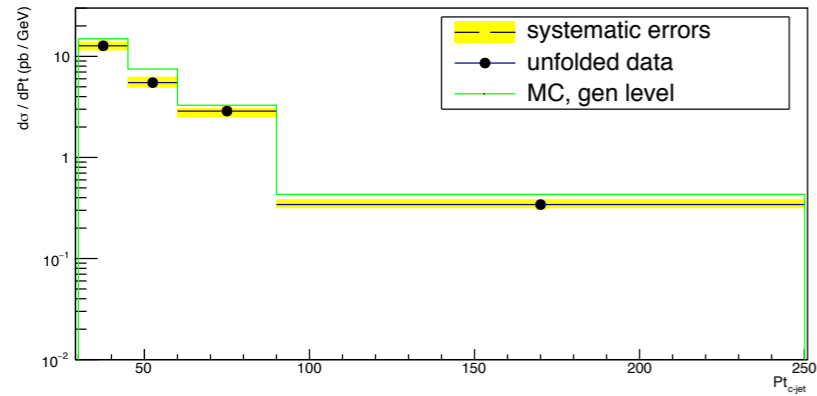
SVM change



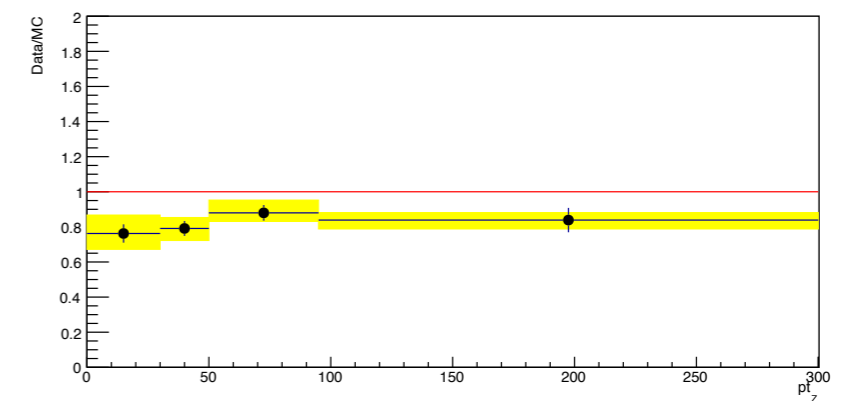
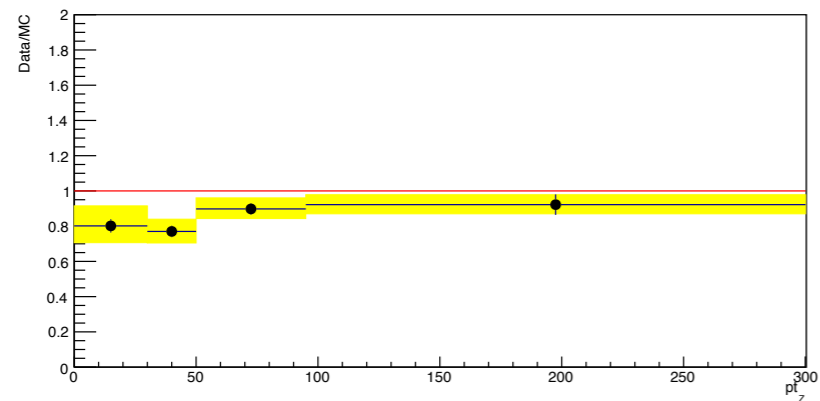
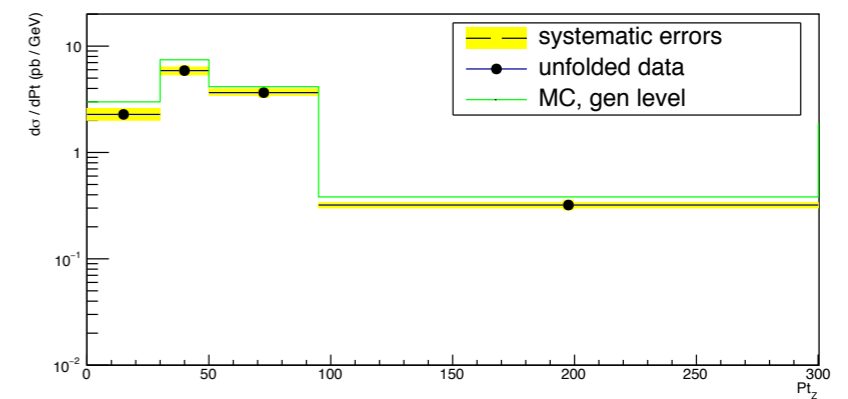
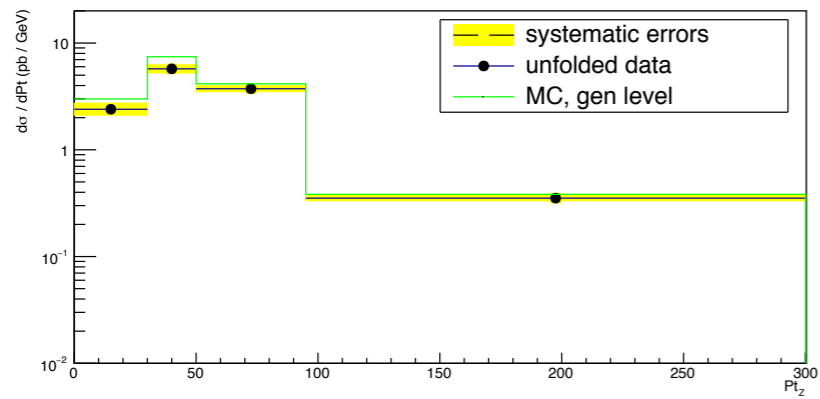
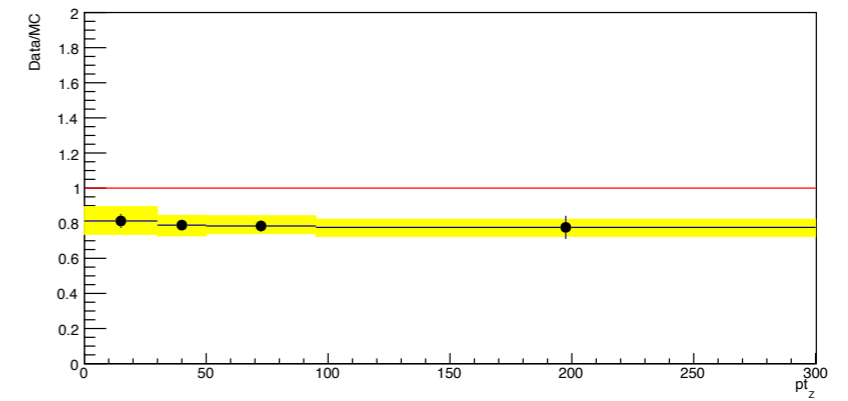
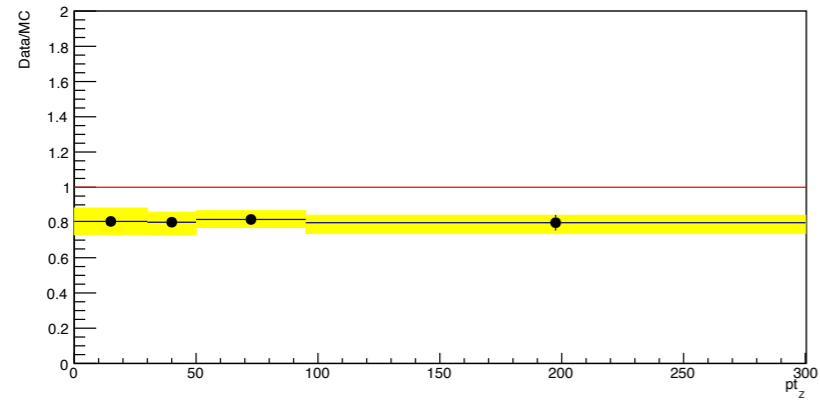
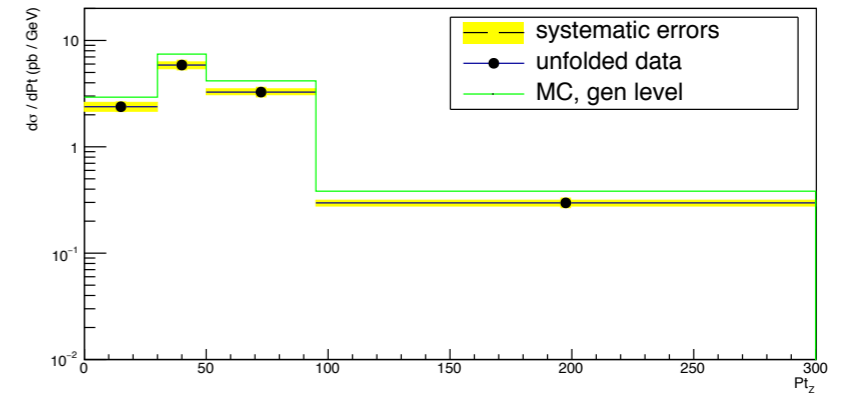
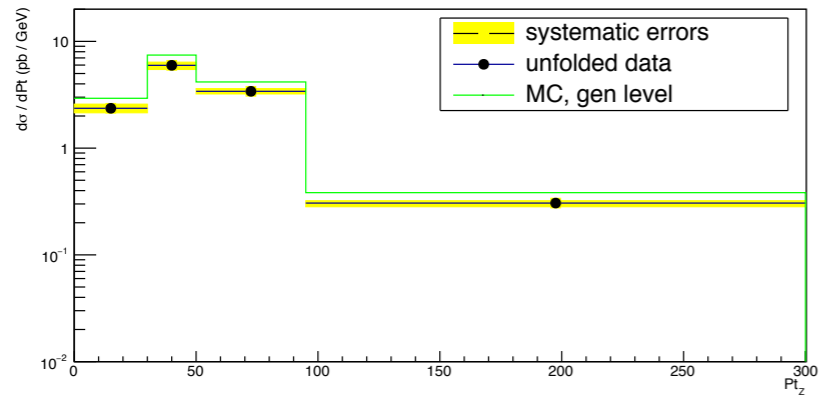
k-factors



unfolding results



unfolding results

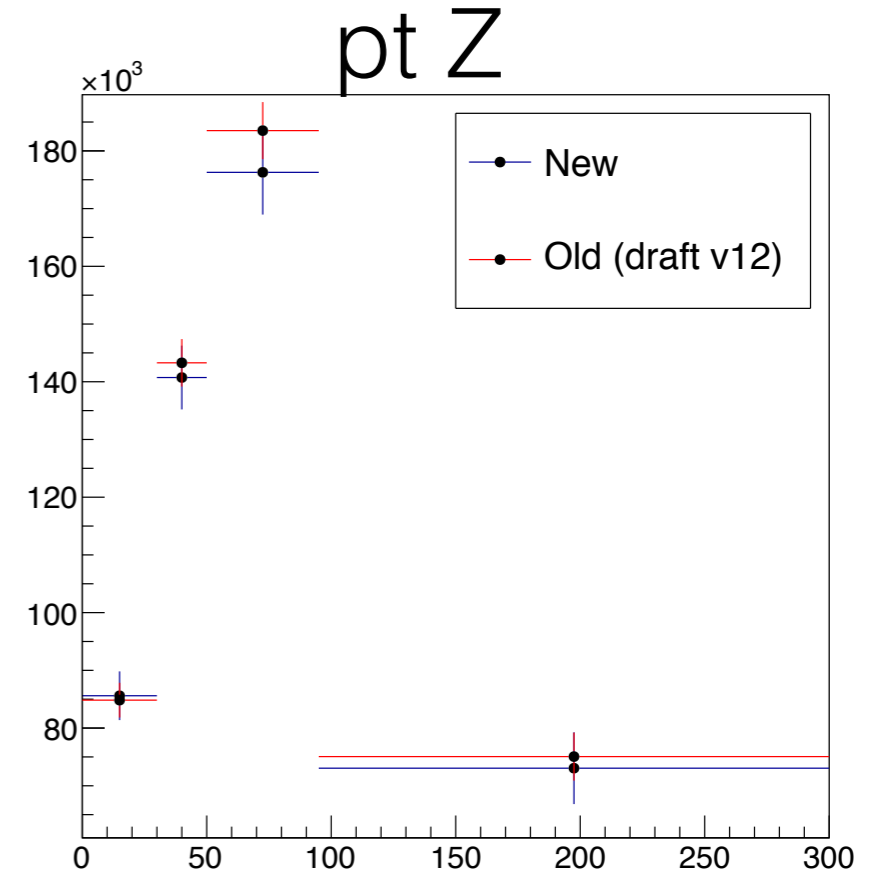
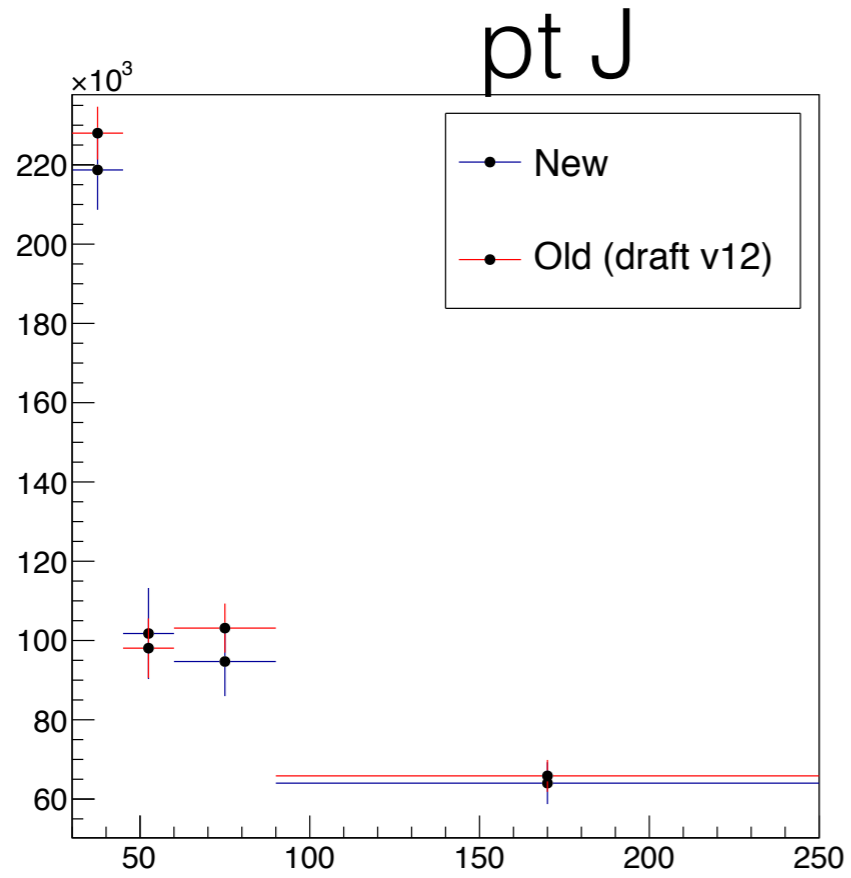


$\mu\mu$

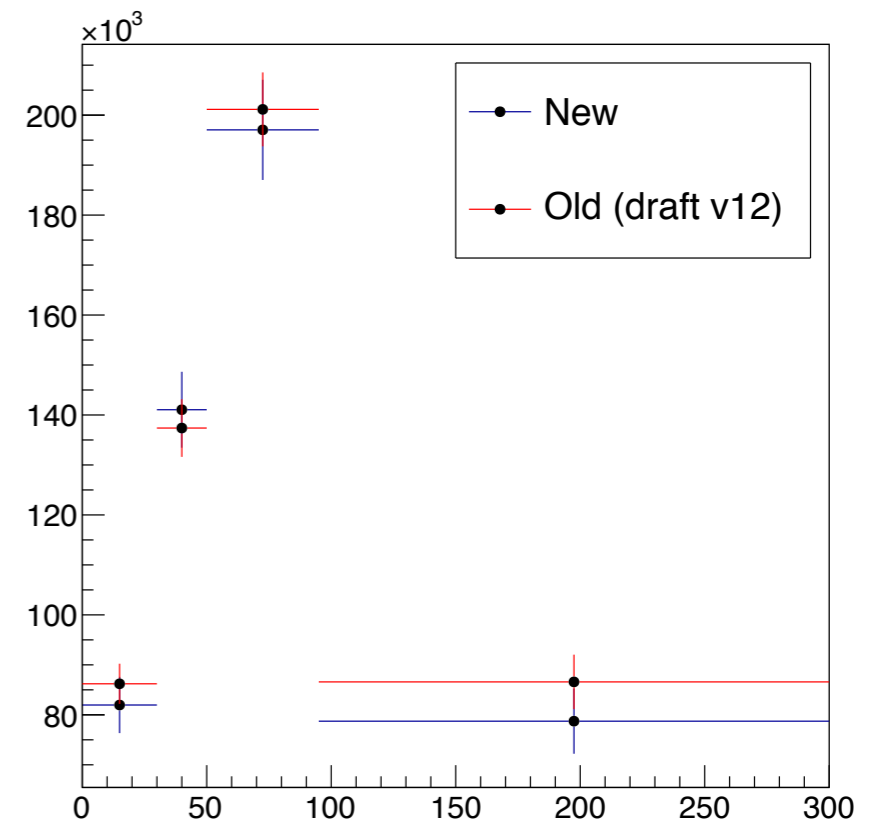
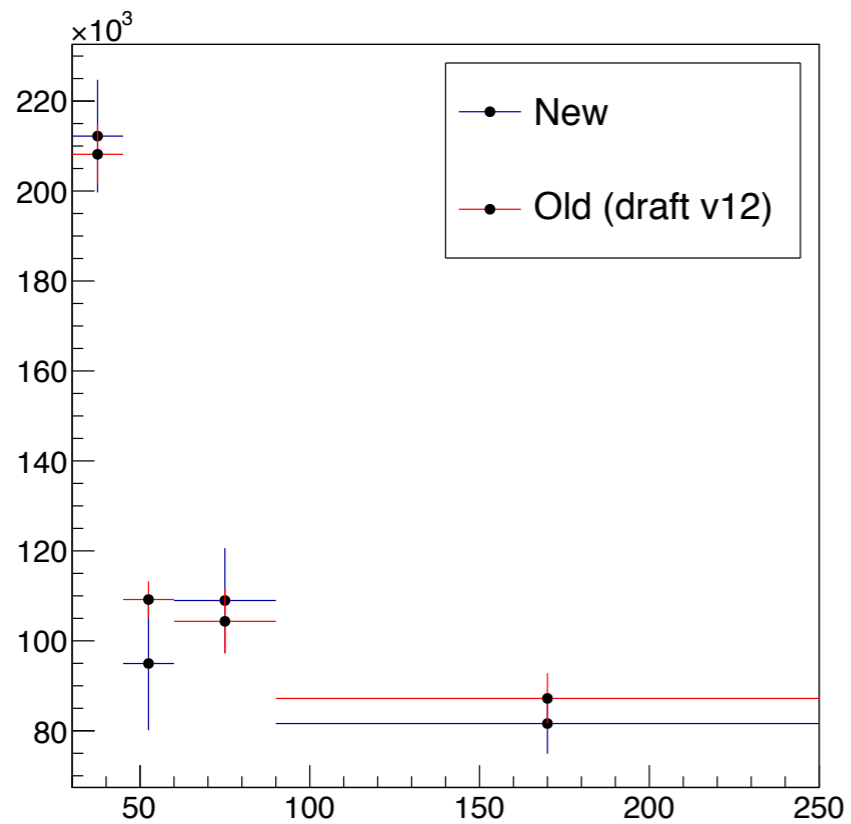
ee

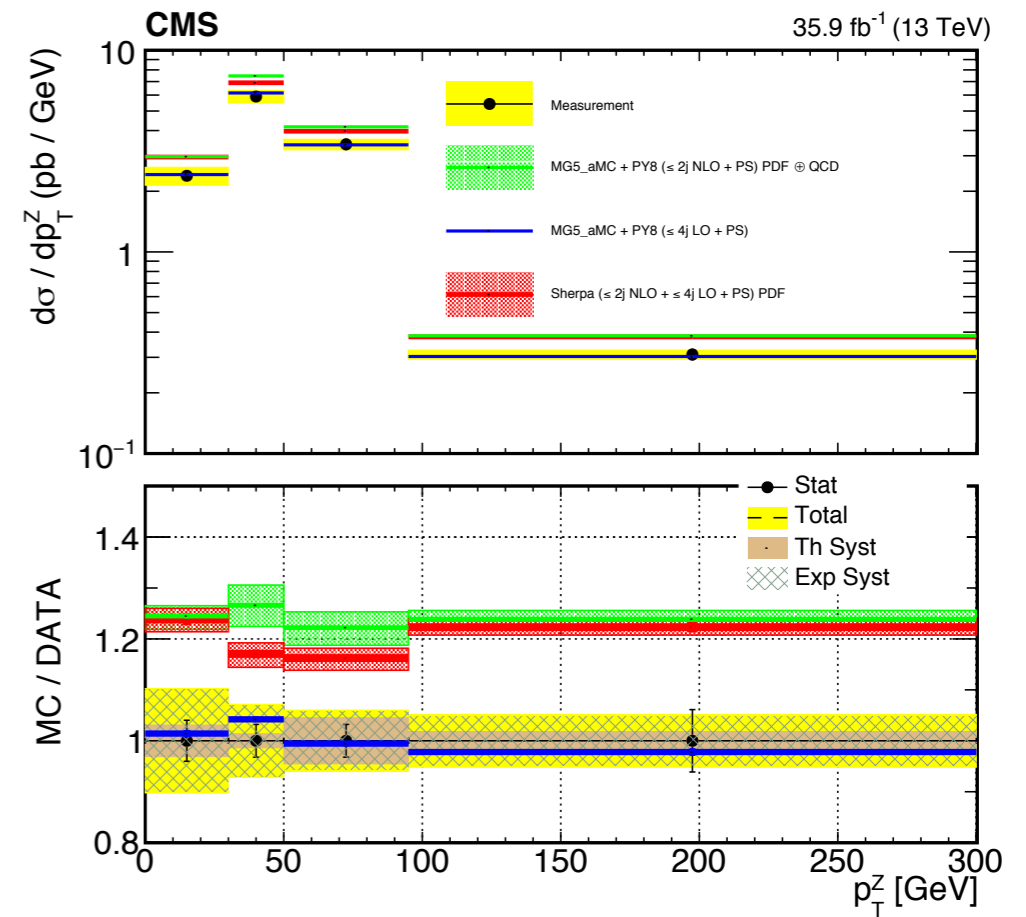
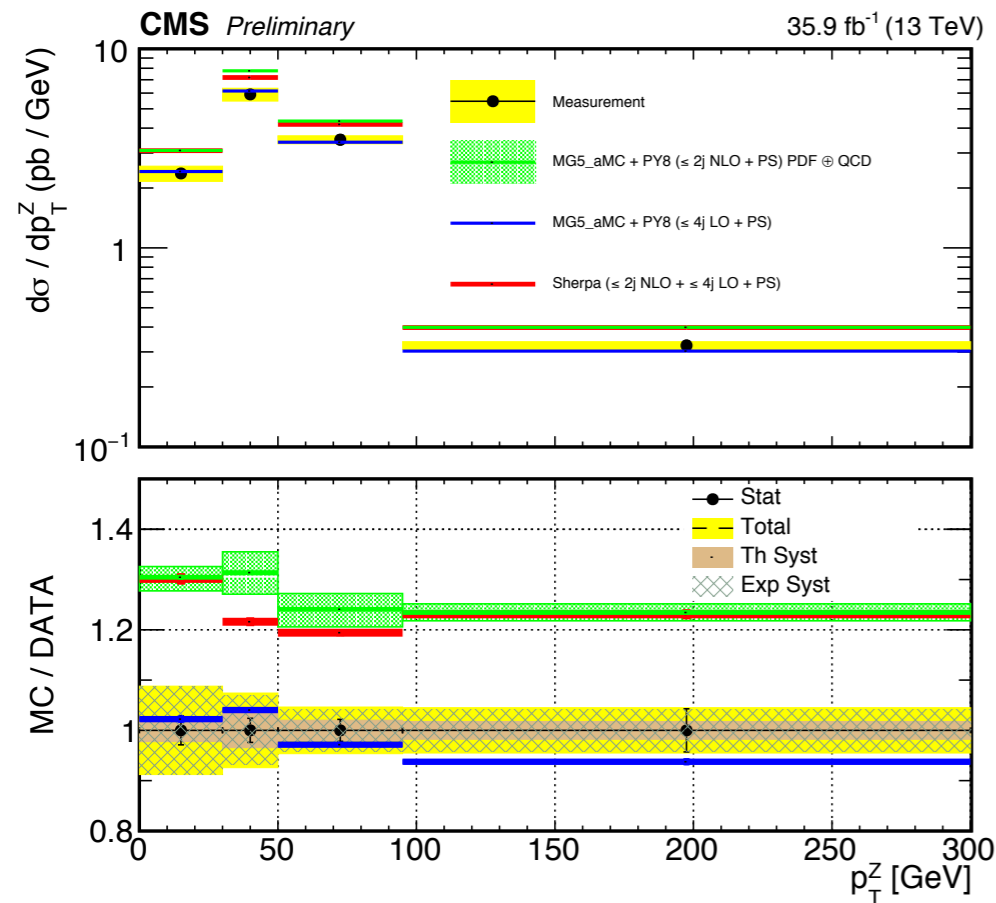
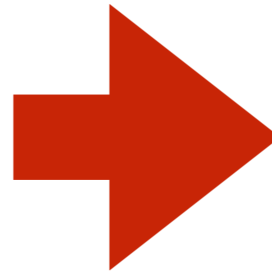
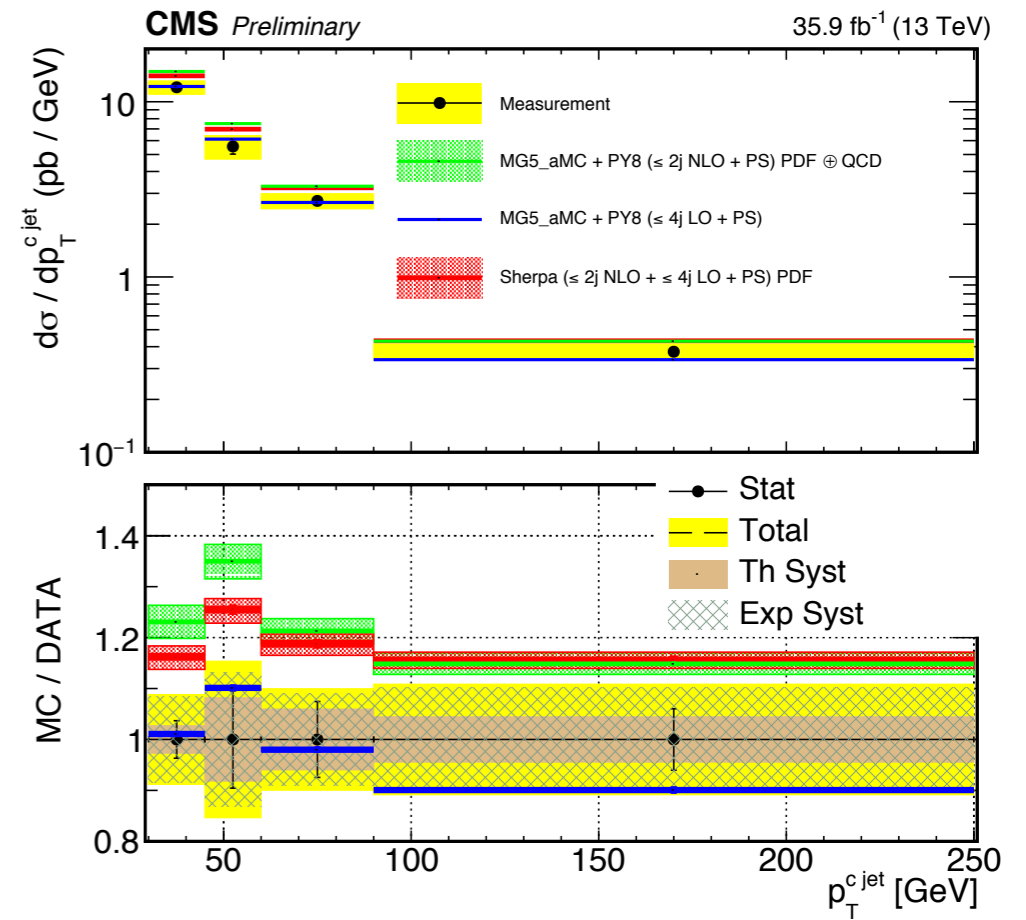
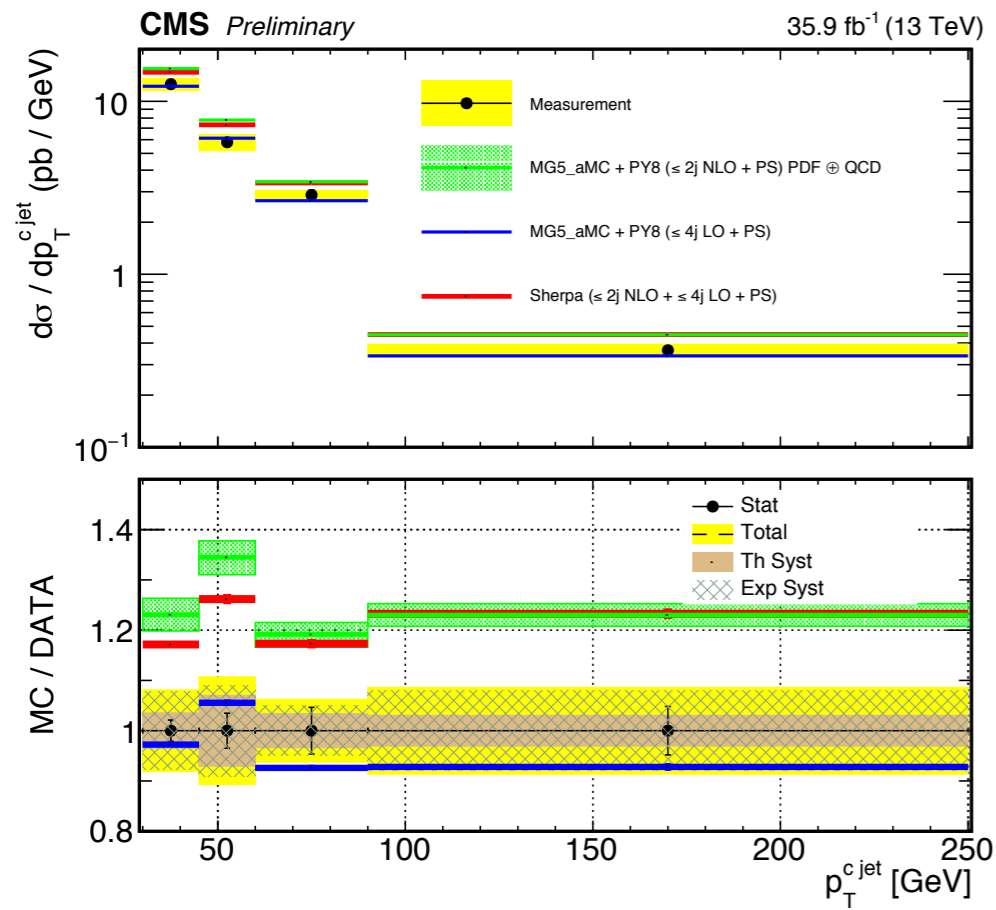
unfolding results change

$\mu\mu$



ee

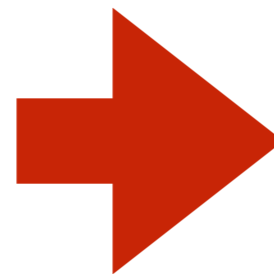




total fiducial cross-section changes (counting experiment)

Old

	σ_{fid}
pt c-jet, $\mu\mu$	$412.7 \pm 27.8(\text{syst}) \pm 6.5(\text{stat})$
pt Z, $\mu\mu$	$407.8 \pm 23.1(\text{syst}) \pm 7.3(\text{stat})$
pt c-jet, ee	$431.5 \pm 33.3(\text{syst}) \pm 9.4(\text{stat})$
pt Z, ee	$432.5 \pm 32.0(\text{syst}) \pm 9.9(\text{stat})$
pt c-jet, combined	$414.3 \pm 25.9(\text{syst}) \pm 5.4(\text{syst})$
pt Z, combined	$411.3 \pm 19.3(\text{syst}) \pm 5.9(\text{stat})$

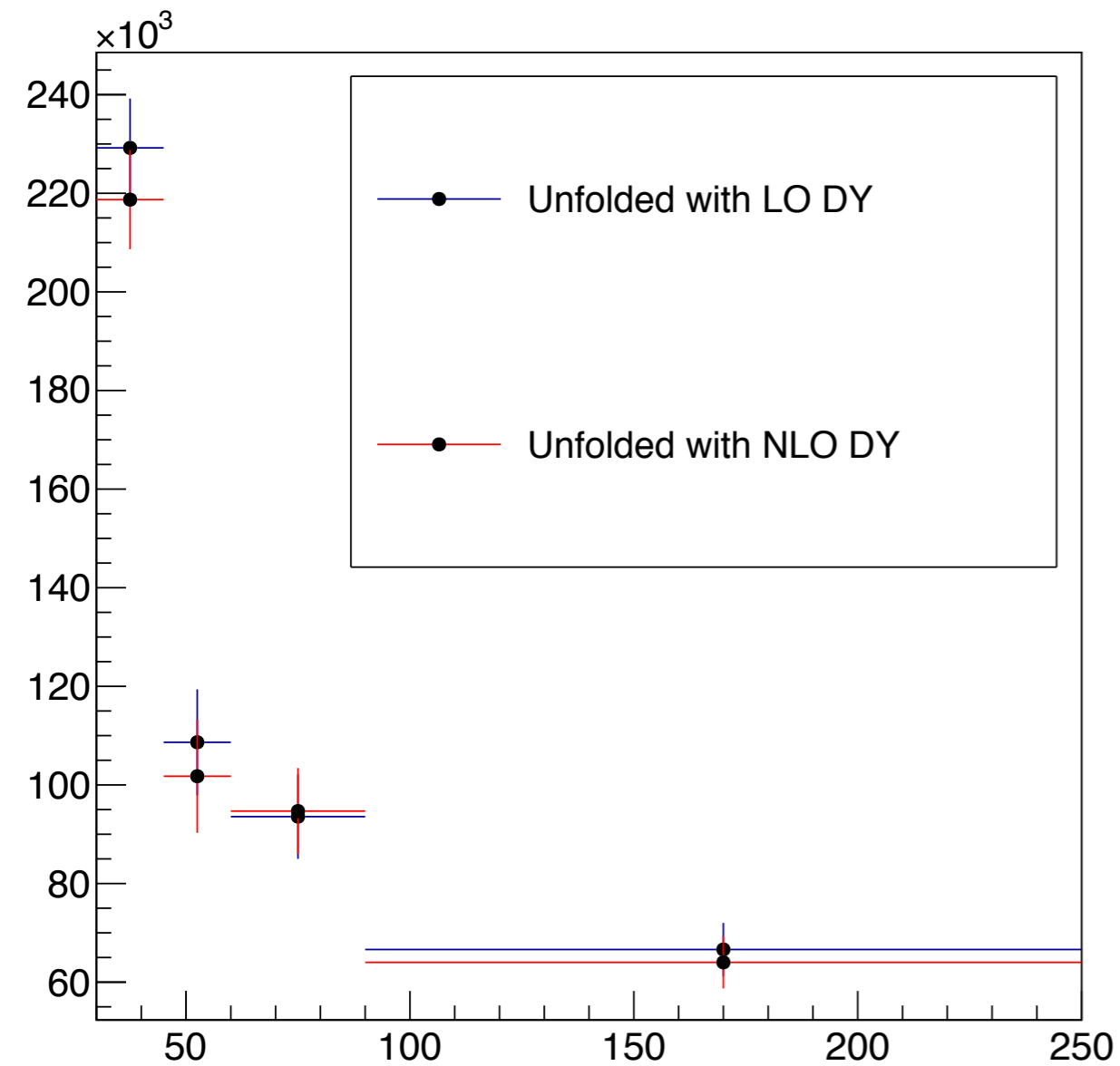


New

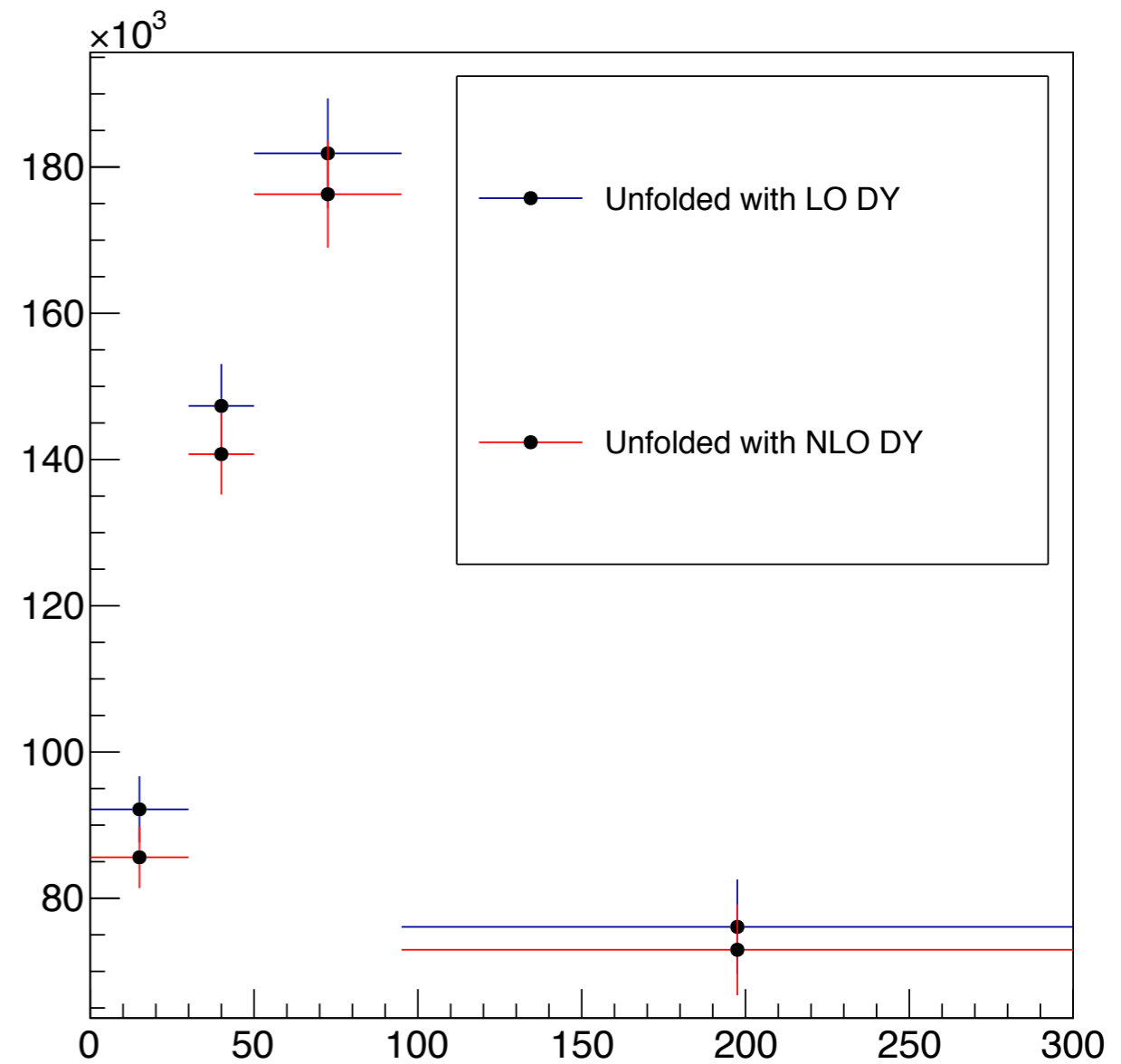
	σ_{fid}
pt c-jet, $\mu\mu$	$400.1 \pm 27.3(\text{syst}) \pm 9.1(\text{stat})$
pt Z, $\mu\mu$	$397.3 \pm 24.7(\text{syst}) \pm 9.9(\text{stat})$
pt c-jet, ee	$418.7 \pm 30.6(\text{syst}) \pm 11.9(\text{stat})$
pt Z, ee	$419.8 \pm 31.7(\text{syst}) \pm 13.0(\text{stat})$
pt c-jet, combined	$402.0 \pm 26.2(\text{syst}) \pm 7.3(\text{stat})$
pt Z, combined	$403.4 \pm 24.0(\text{syst}) \pm 7.9(\text{stat})$

Tests

data measurement (with NLO) unfolded with background, response and acceptance from LO



c -jet p_t



Z p_t

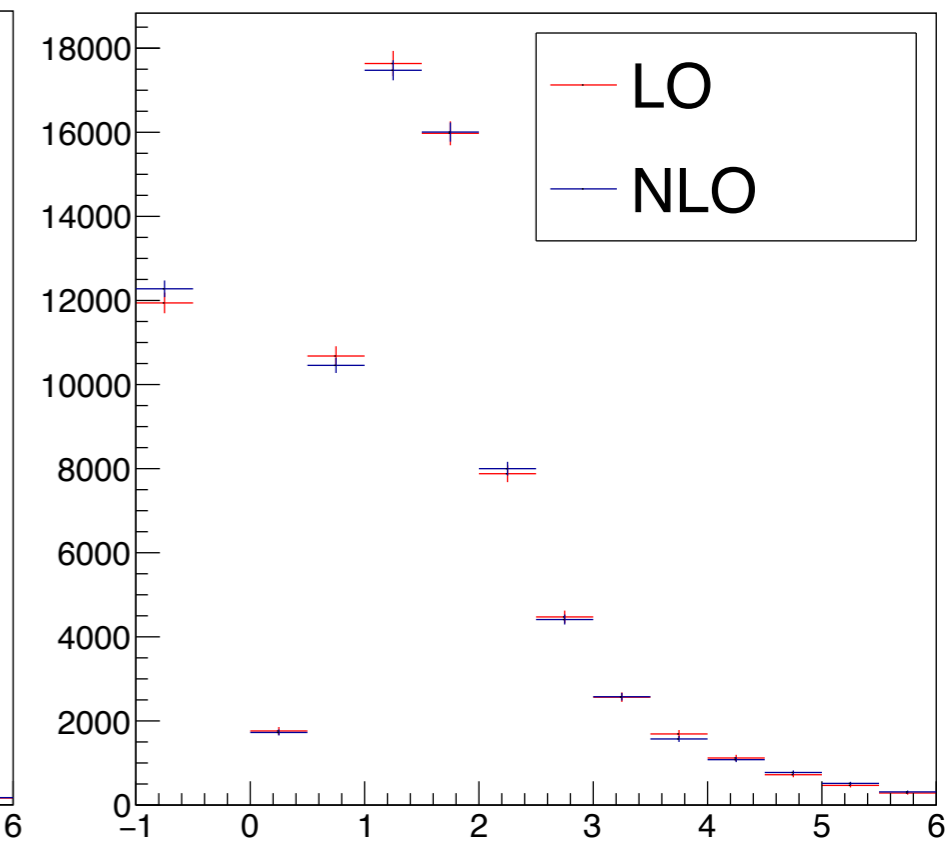
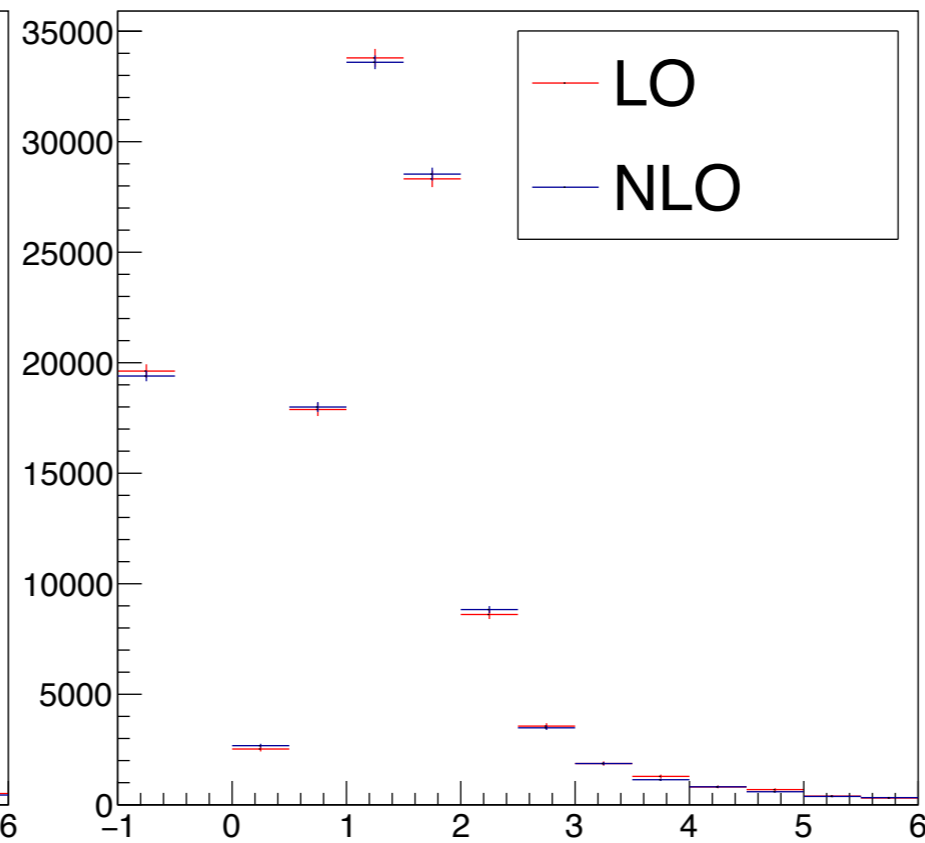
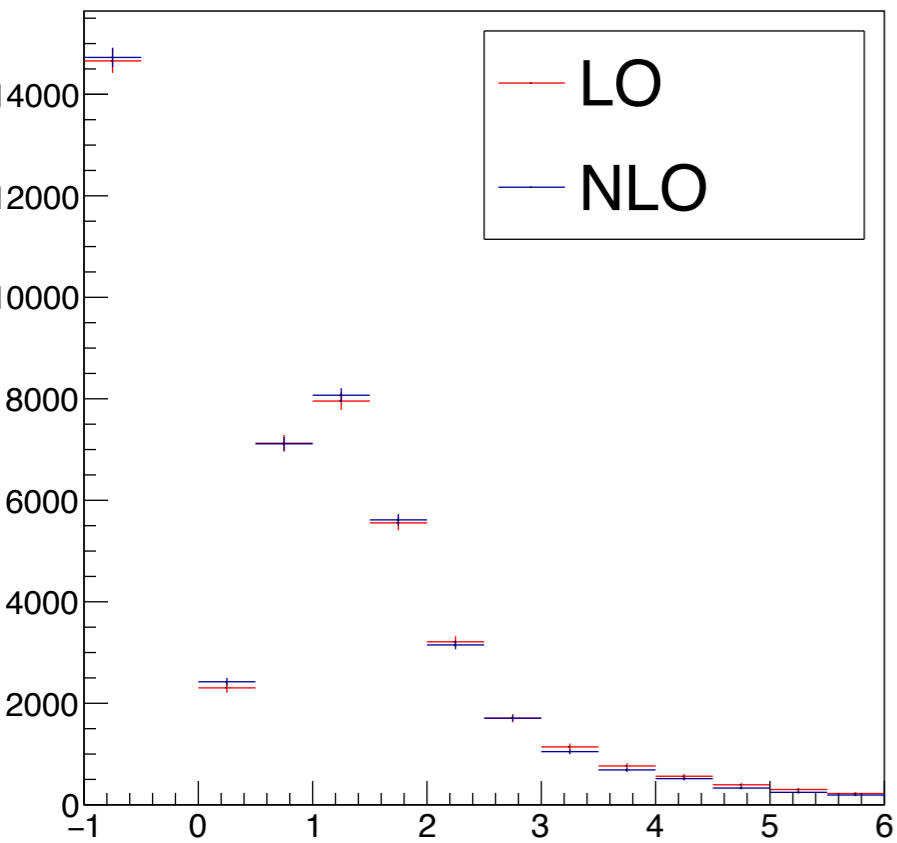
Measured number of charm events unfolded with two sets of background, response matrix and acceptance from LO and NLO madgraph. The results are in agreement within stat errors.

SVM distribution LO and NLO

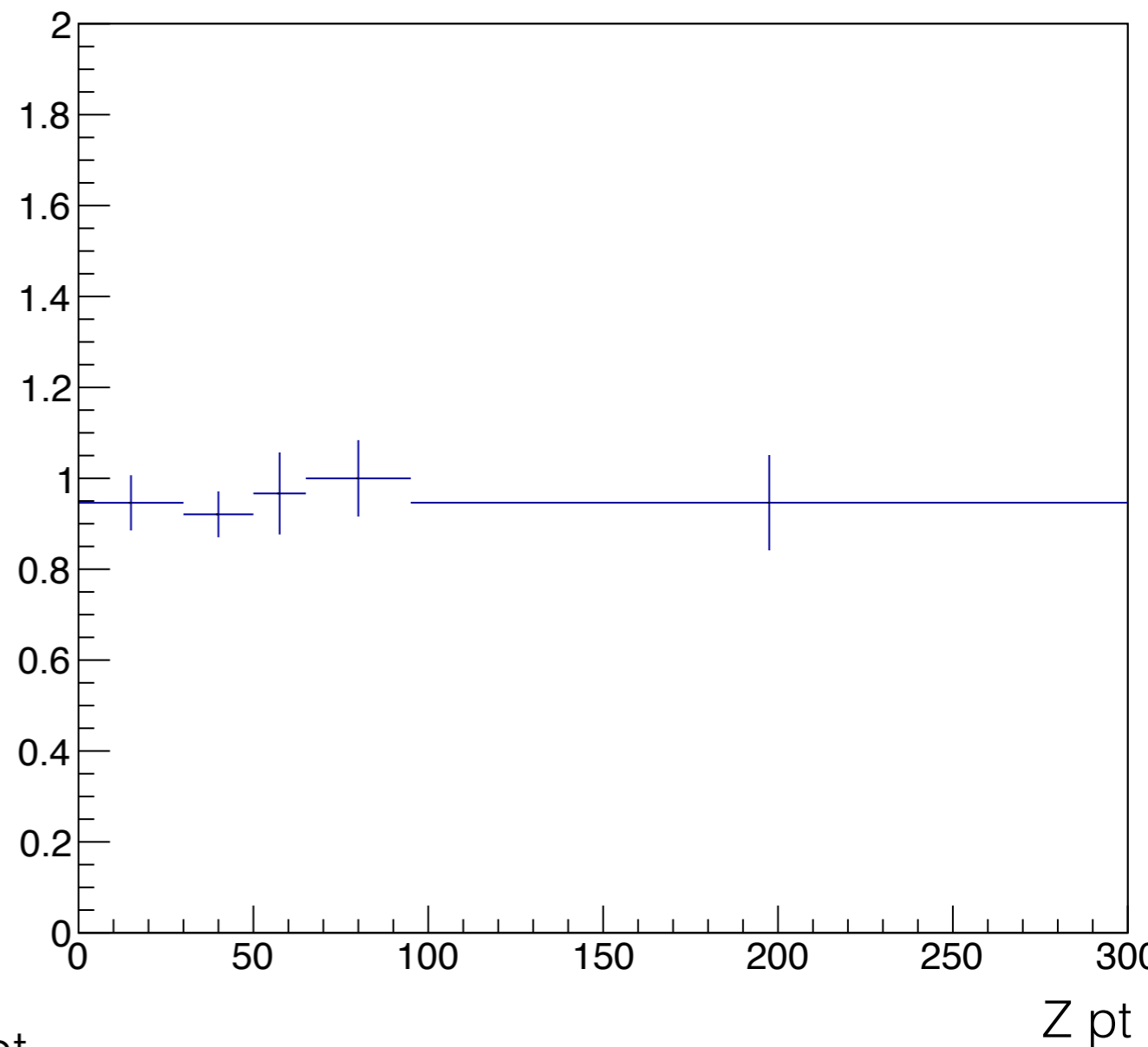
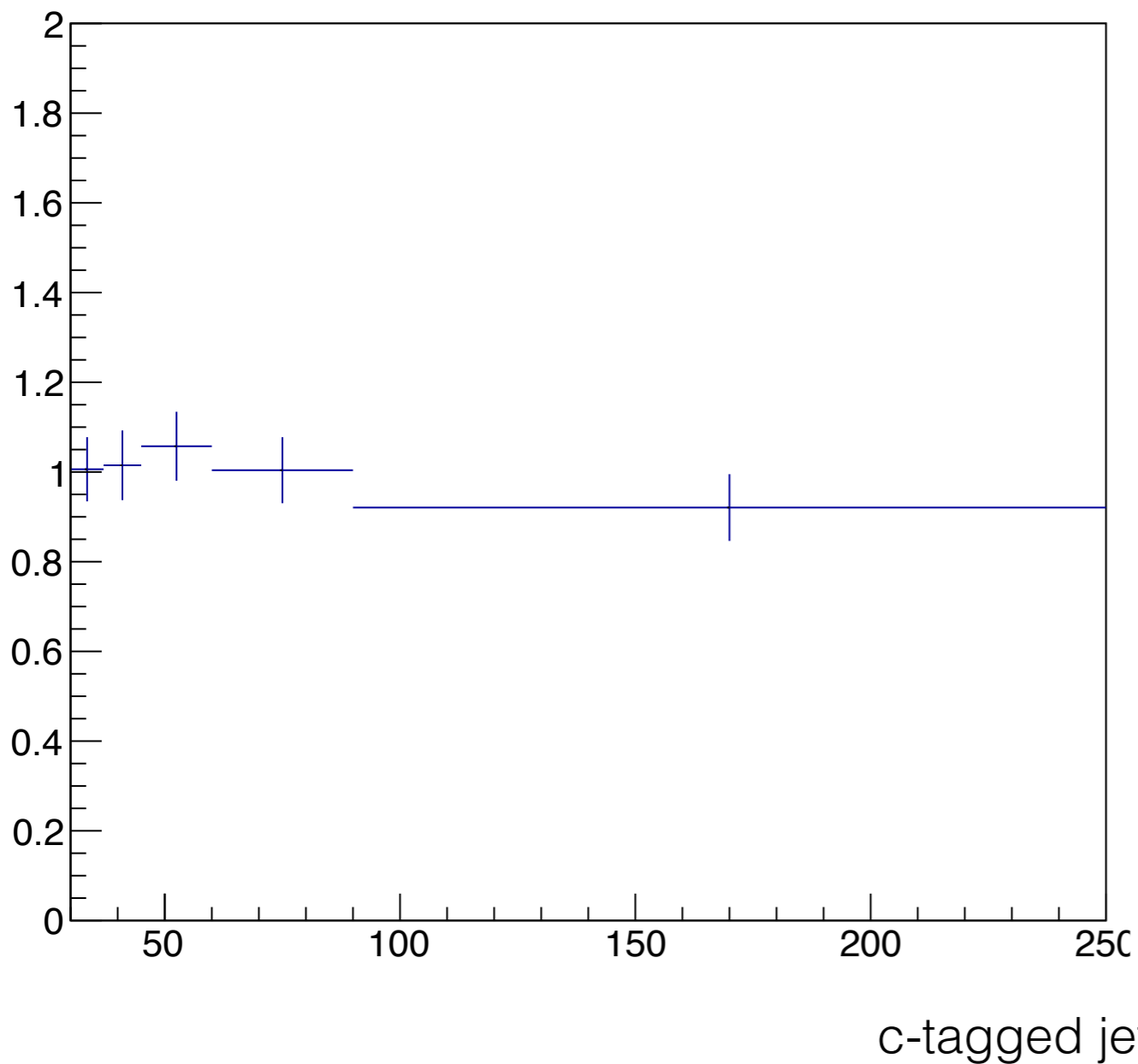
light

charm

bottom

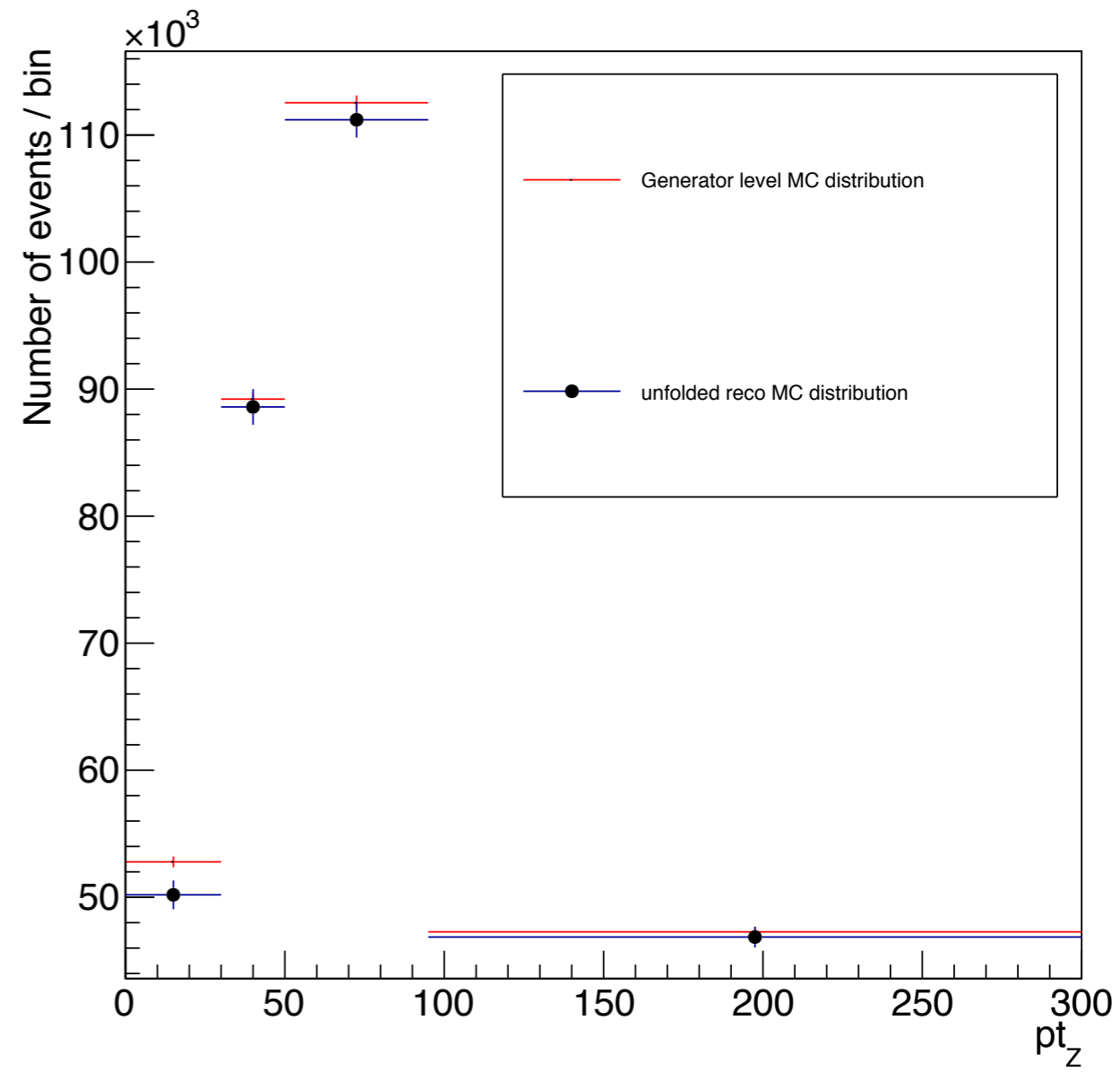
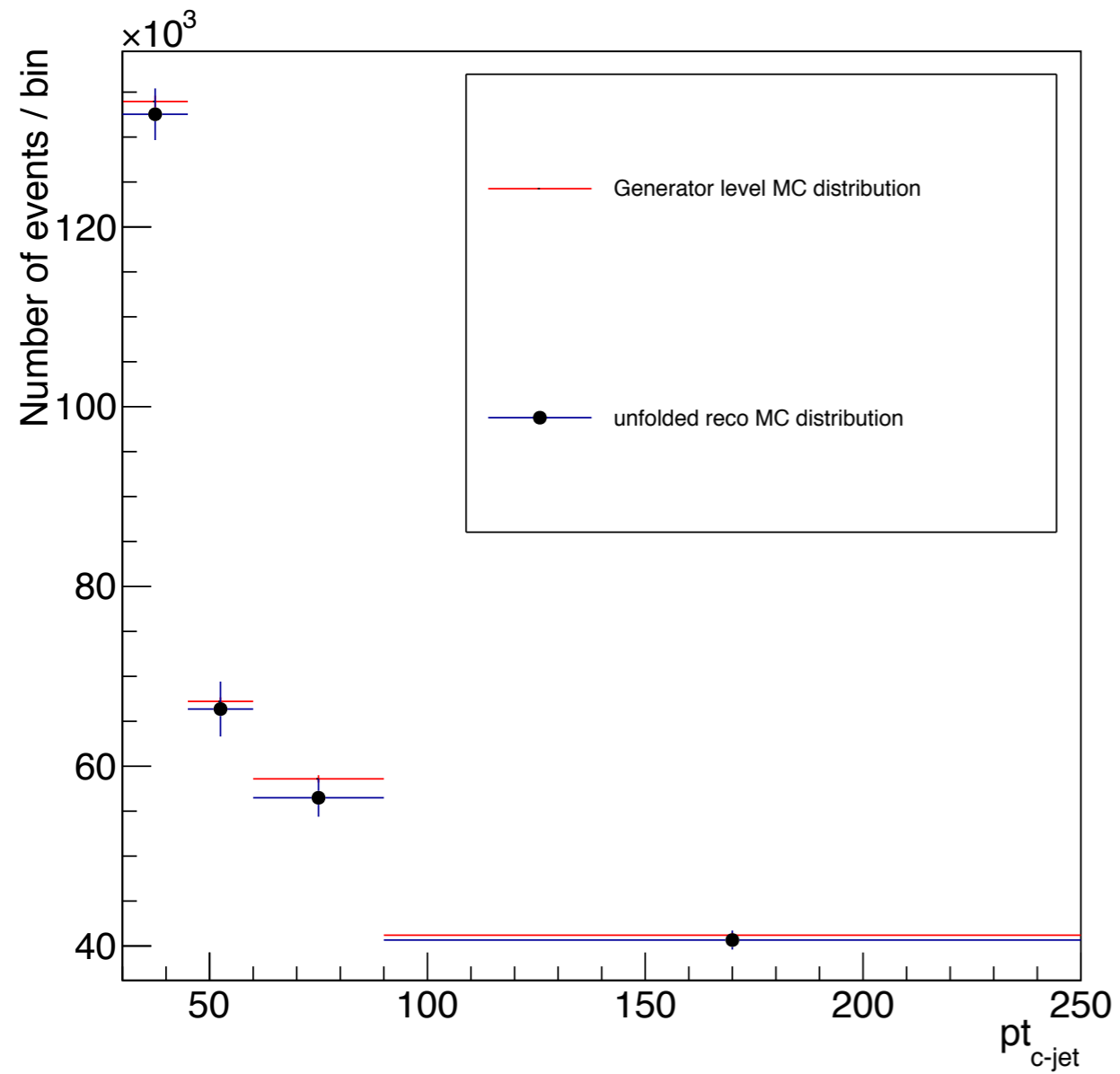


MC Charm x SFc (measured number of charm events) NLO/LO



DY split into two samples (add id events and even id events)

Sample 1 unfolded with sample 2

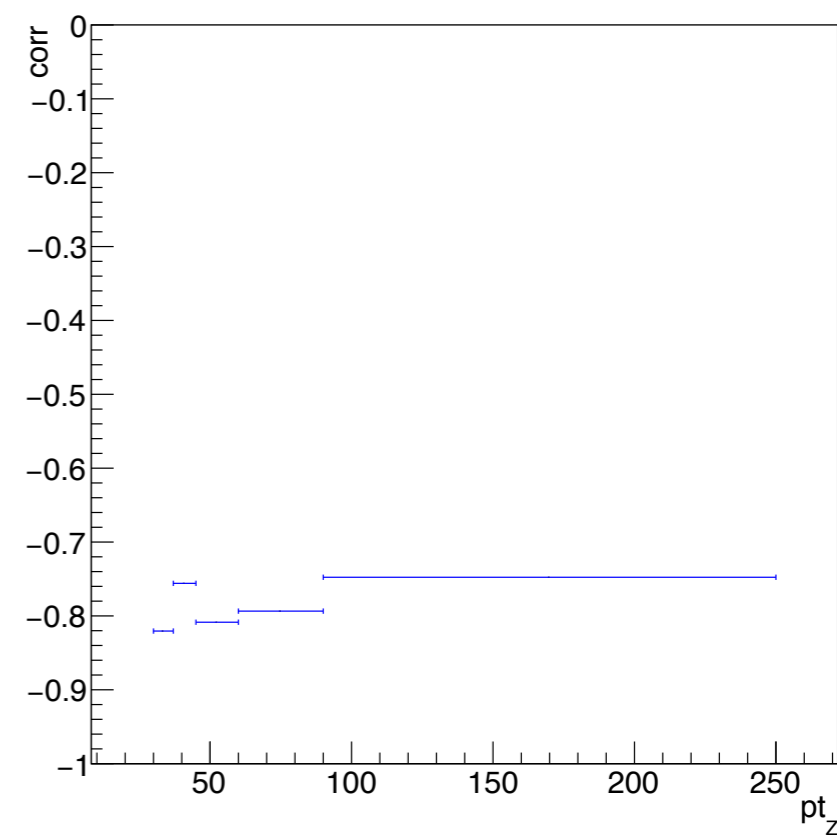
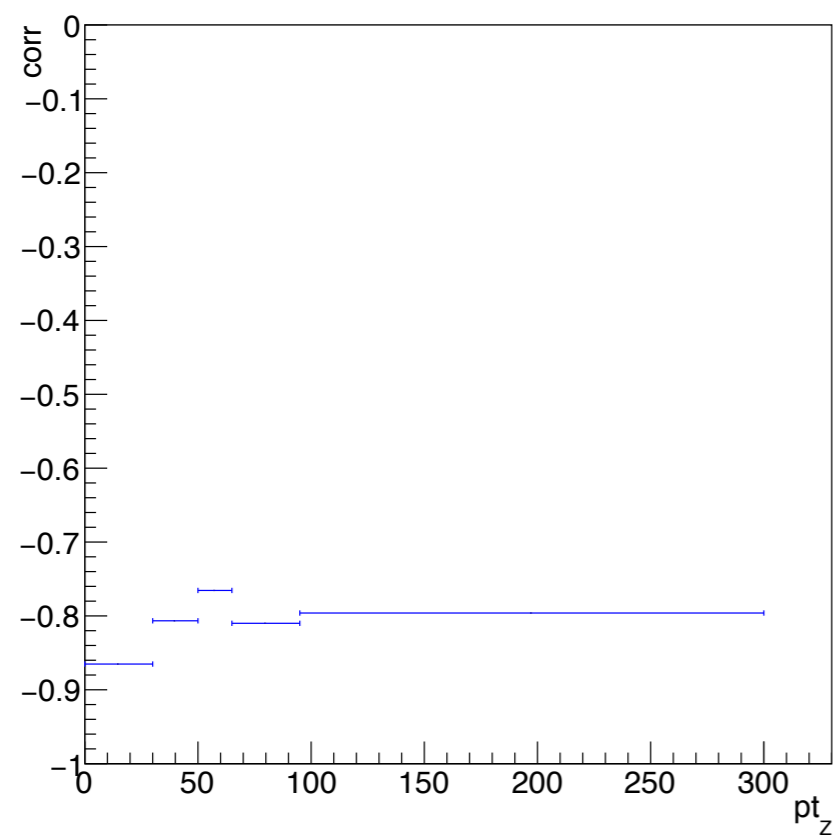


SFb-SFc correlations

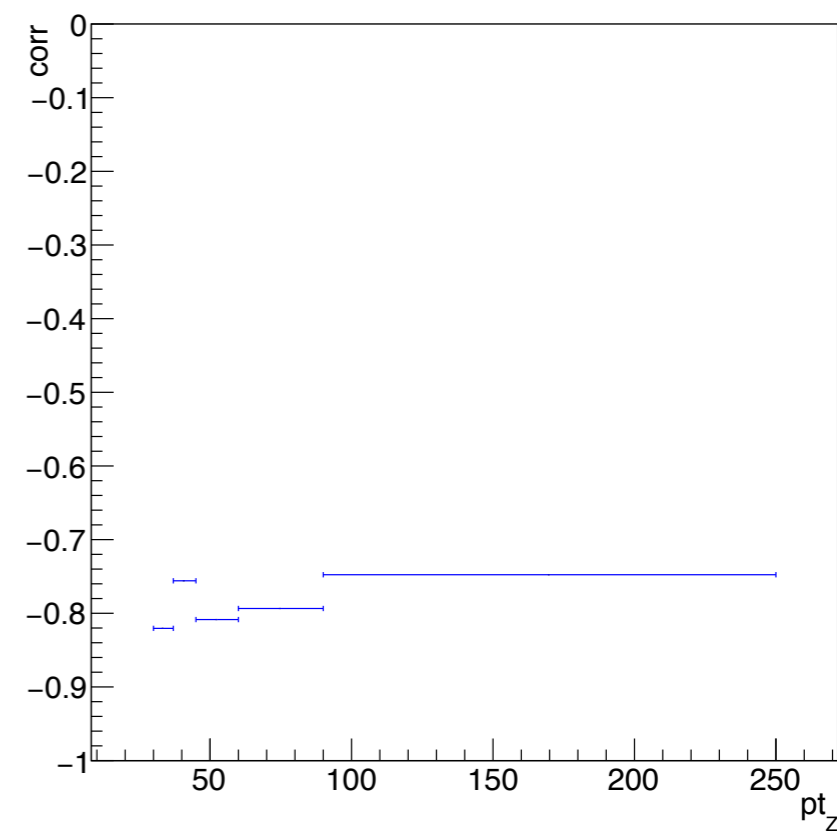
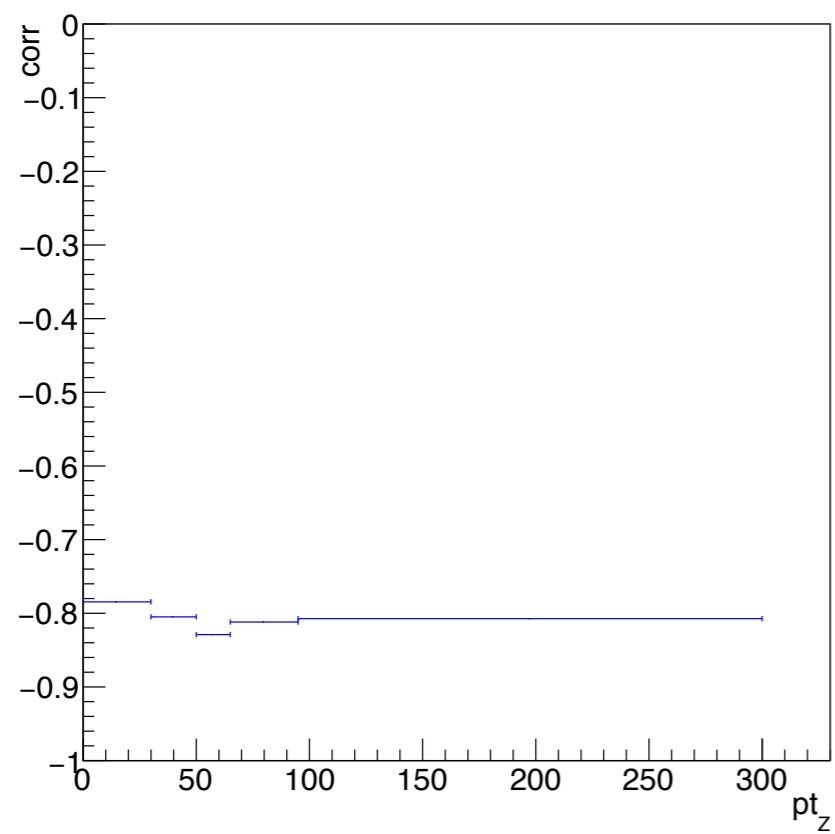
Z pt

J pt

$\mu\mu$



ee



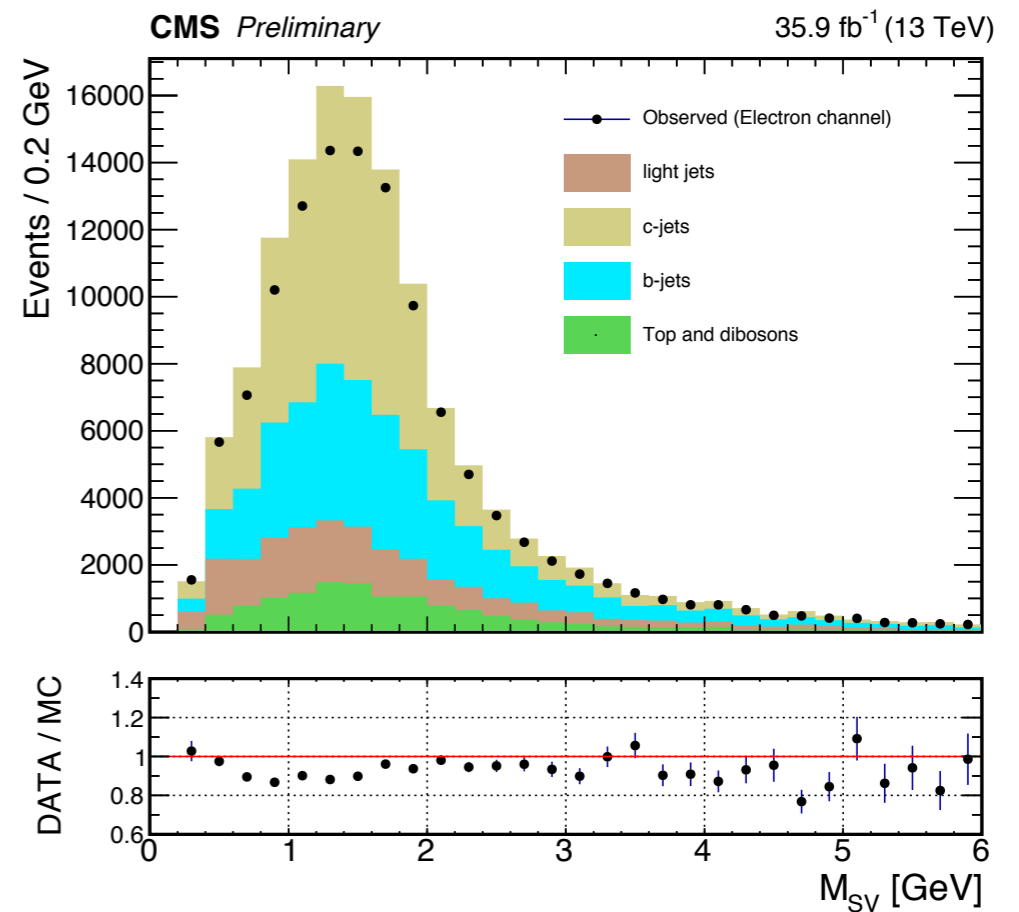
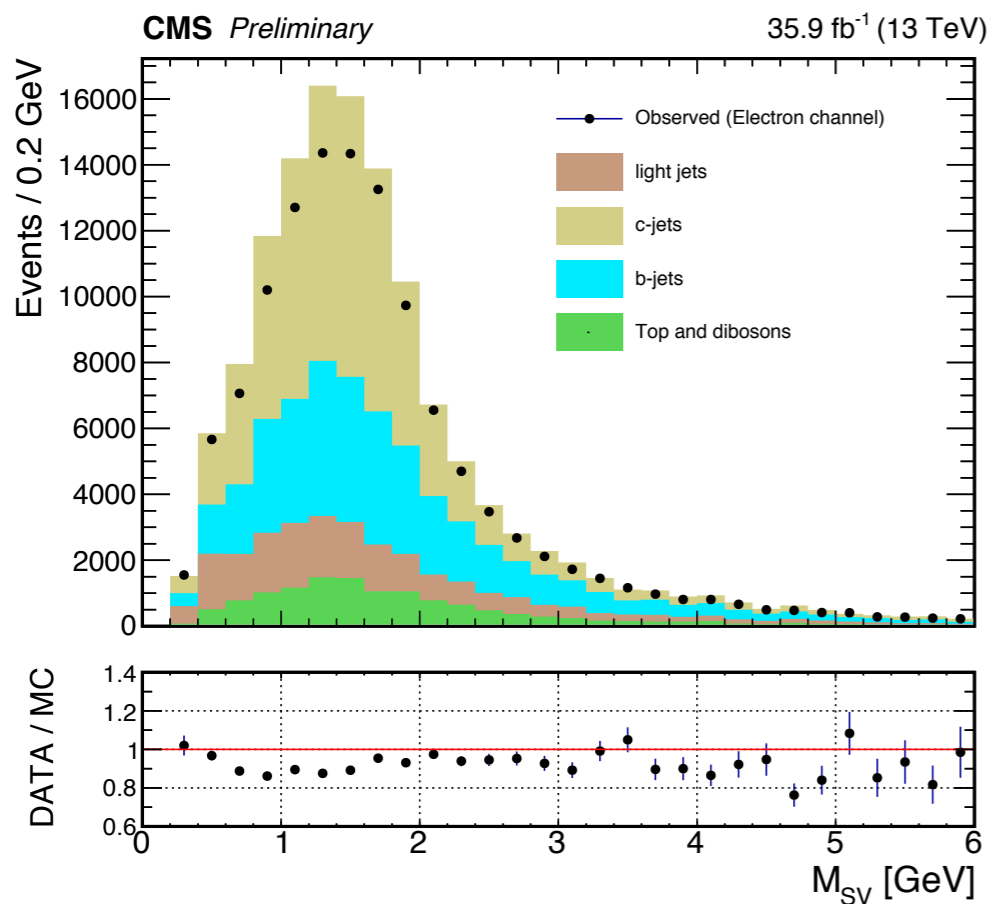
comparing HLT SF calculation methods

combinatoric formula:

$$\frac{(1 - (1 - \text{eff_mu1_DATA}) * (1 - \text{eff_mu2_DATA}))}{(1 - (1 - \text{eff_mu1_MC}) * (1 - \text{eff_mu2_MC}))}$$

(used in analysis)

SF calculated for highest
pt lepton matched with
trigger object



No significant difference between two methods is observed