

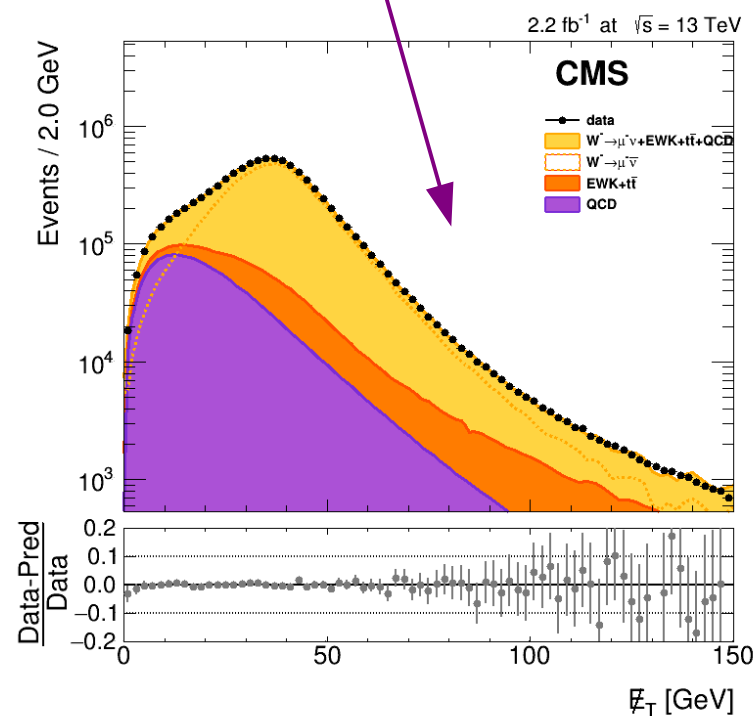
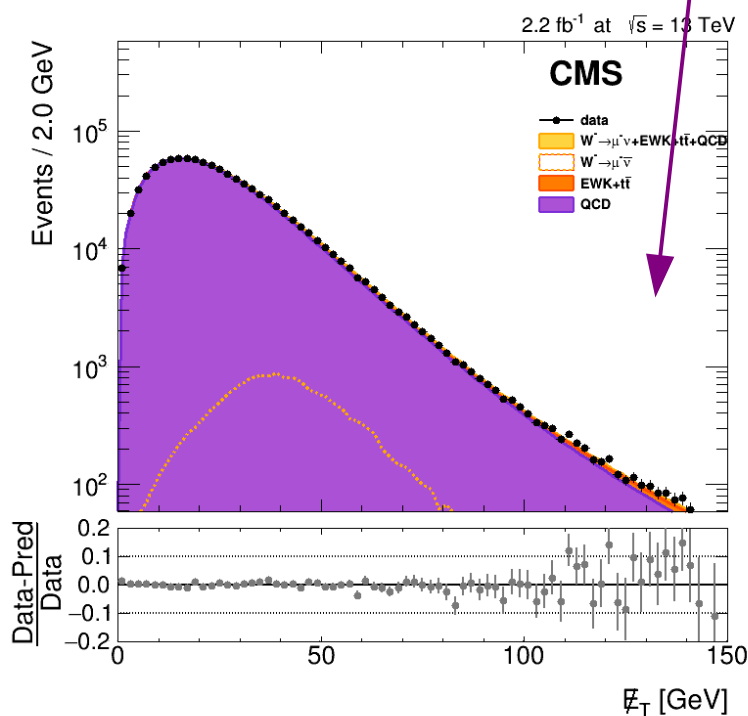
QCD background fits in eta bins

V. Danilov, K. Wichmann

QCD fit function

$$f_{\text{QCD}}(E_T^{\text{miss}}) = E_T^{\text{miss}} \exp \left(- \frac{E_T^{\text{miss}2}}{\sigma_0 + \sigma_1 E_T^{\text{miss}2} + \sigma_2 E_T^{\text{miss}}} \right)$$

- Fitted simultaneously in control and signal region
- For nominal results σ_1 the same for both regions
- For systematic uncertainties σ_1 different for different regions
 - How does fits look like?



QCD BG in 8 TeV analysis

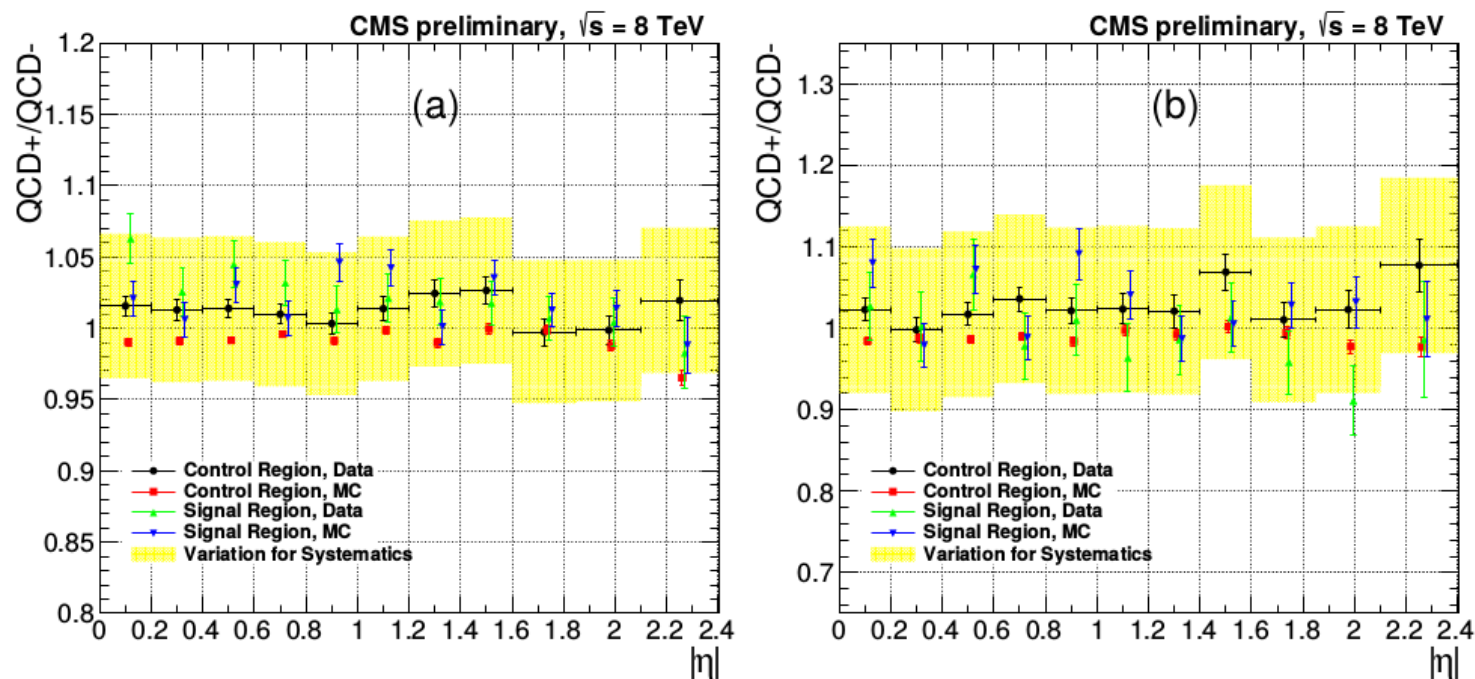
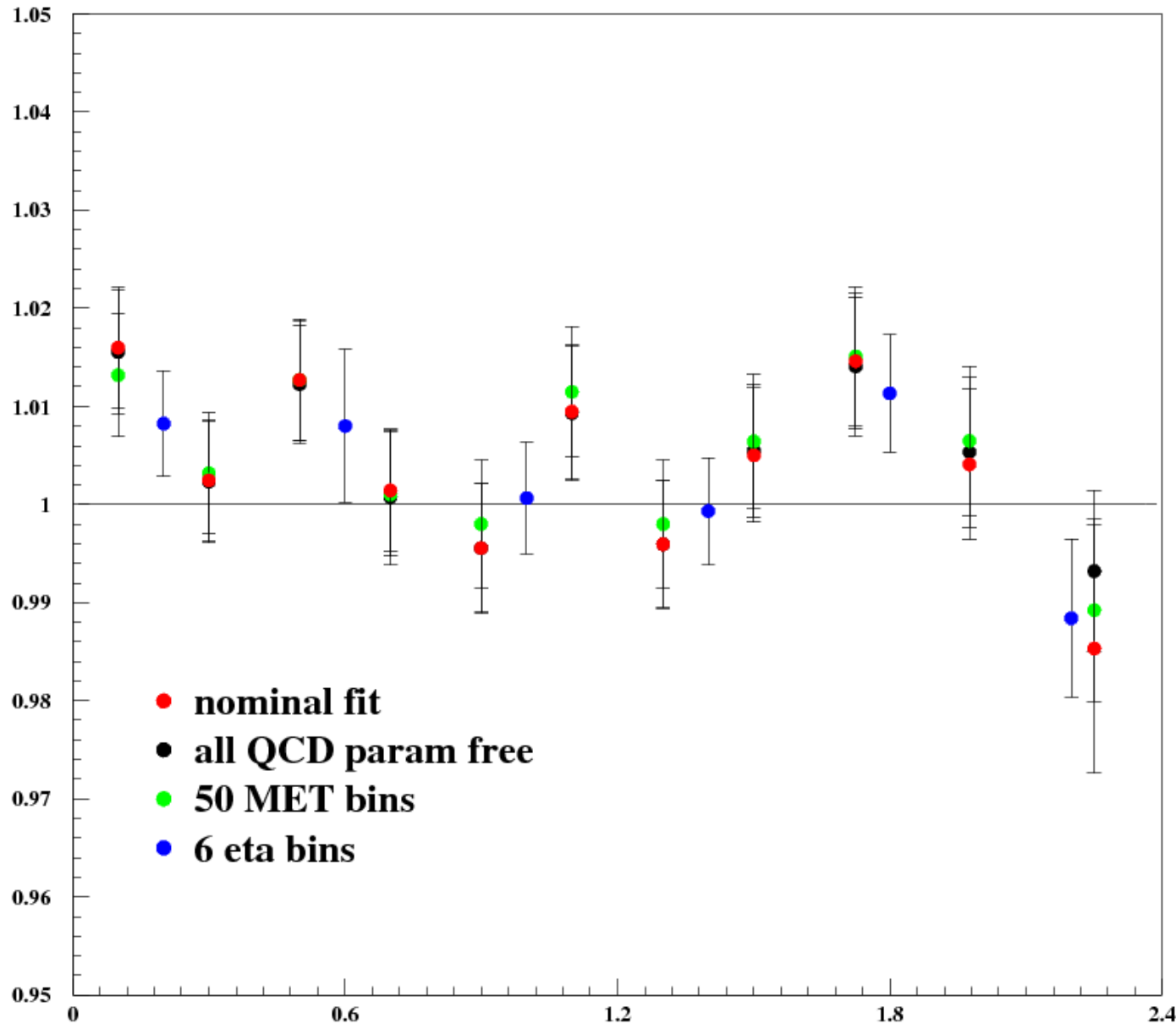


Figure 25: Comparison of the four methods of extracting the $QCD+/QCD-$ ratio. (a) for muon $p_T > 25 \text{ GeV}$. (b) for muon $p_T > 35 \text{ GeV}$. The yellow band shows the variation in the ratio that is used to estimate systematic uncertainty in the ratio.

- 4 methods to estimate QCD BG in μ^+ and μ^-
 - Fits to data signal region
 - Fits to data control region
 - QCD MC in control region
 - Fits to data signal region, separately for W^+ and $W^- \rightarrow$ what we do now!

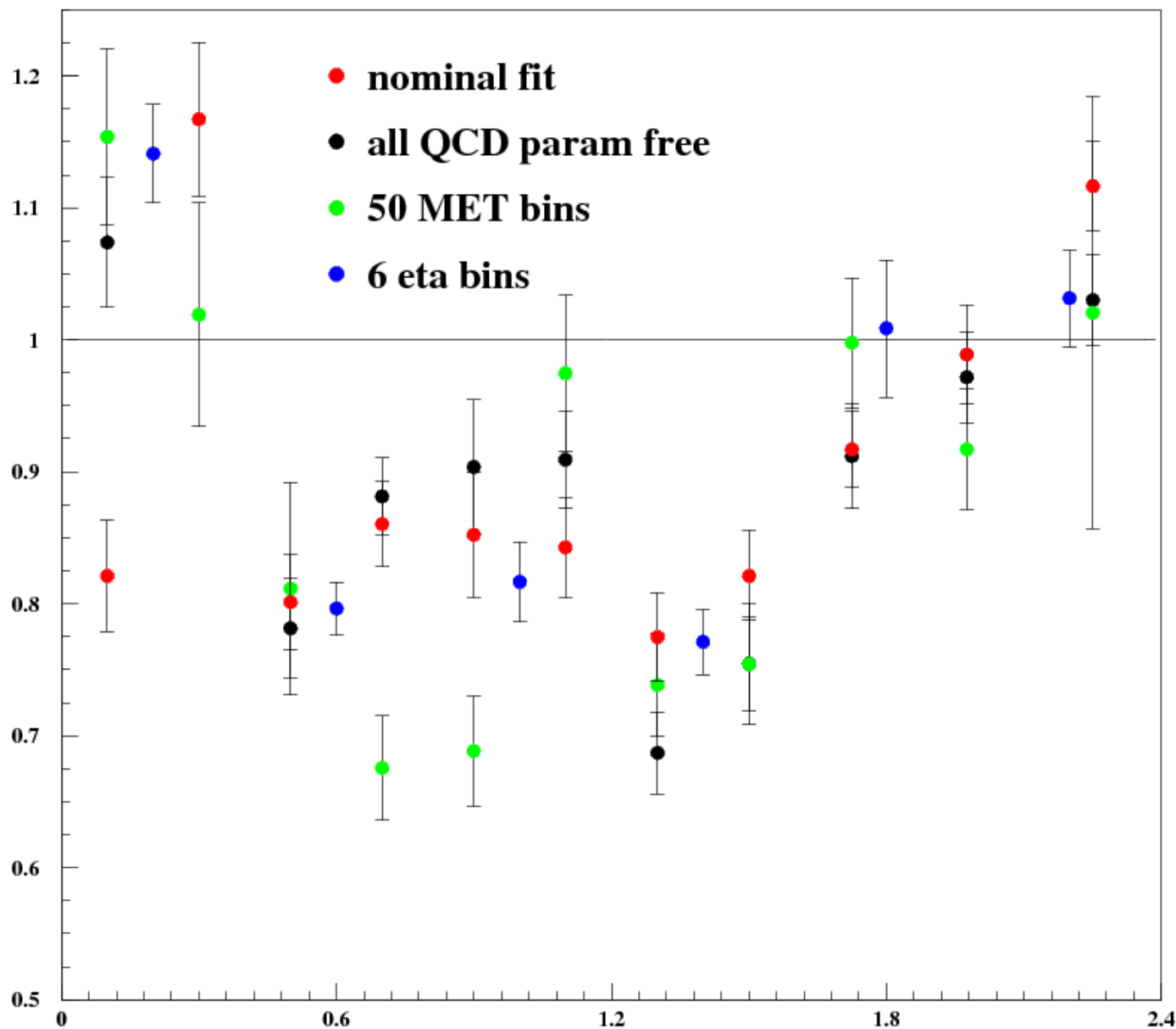
In our analysis: method 1

QCD+/QCD - data in control region



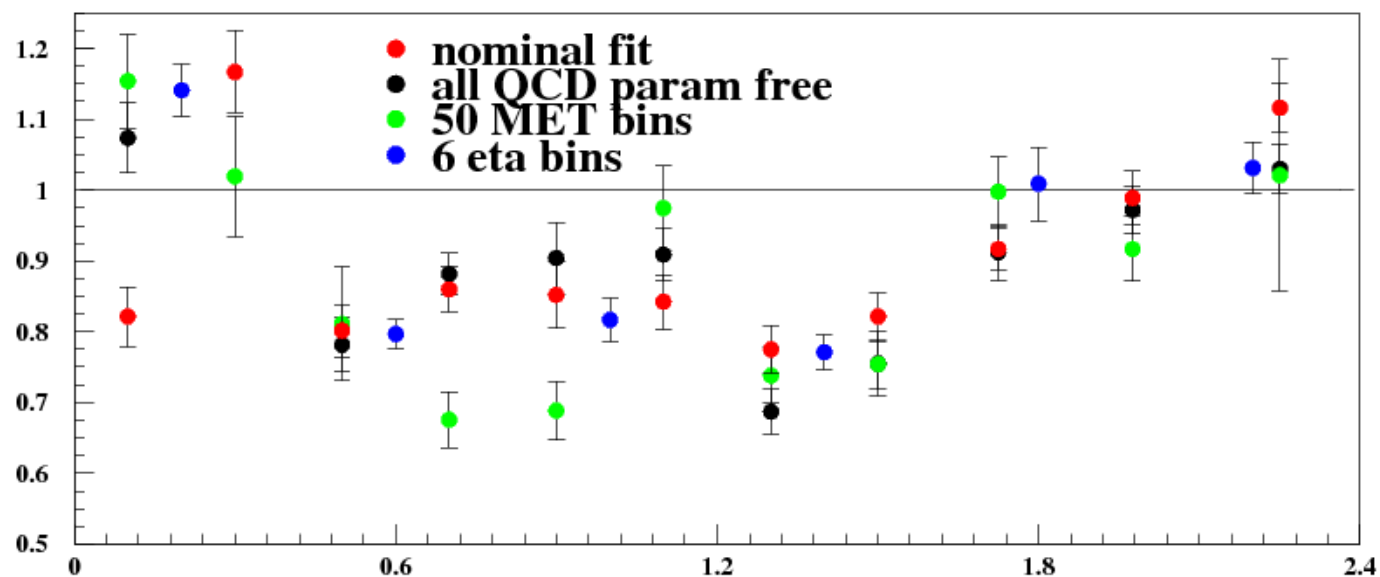
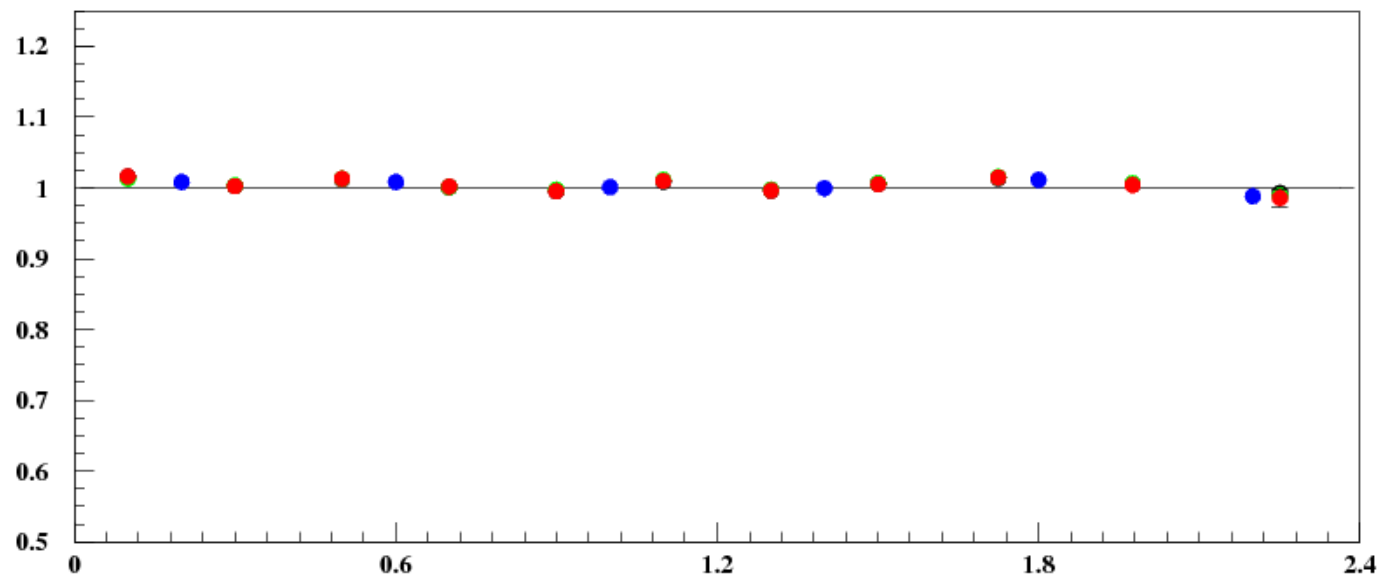
In our analysis: method 4

QCD+/QCD - data in signal region

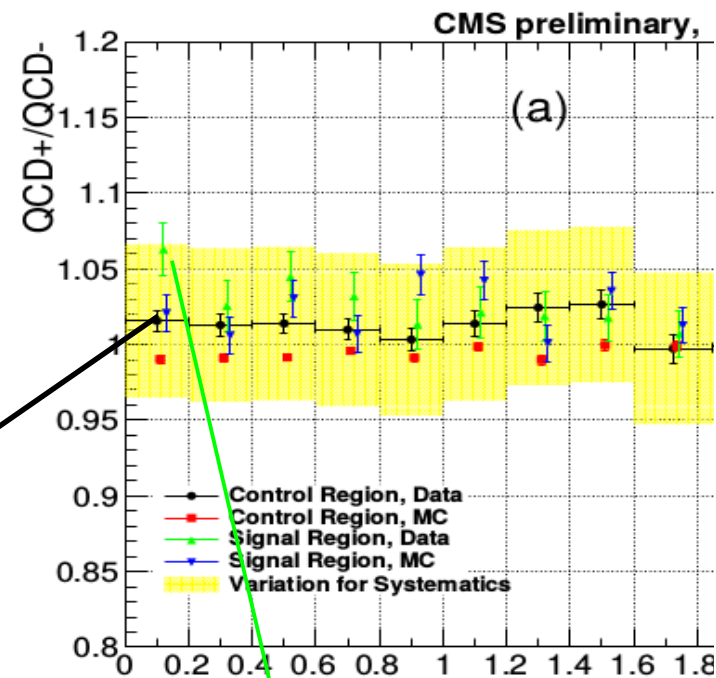


Control .vs. signal

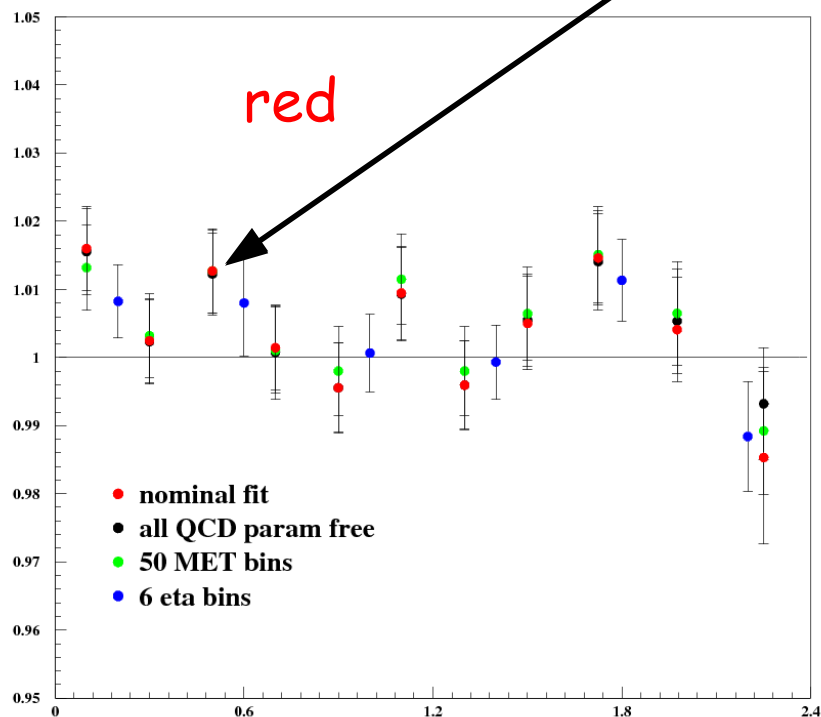
QCD+/QCD



Control .vs. signal



QCD+/QCD - data in control region



QCD+/QCD - data in signal region

