QCD background fits in eta bins

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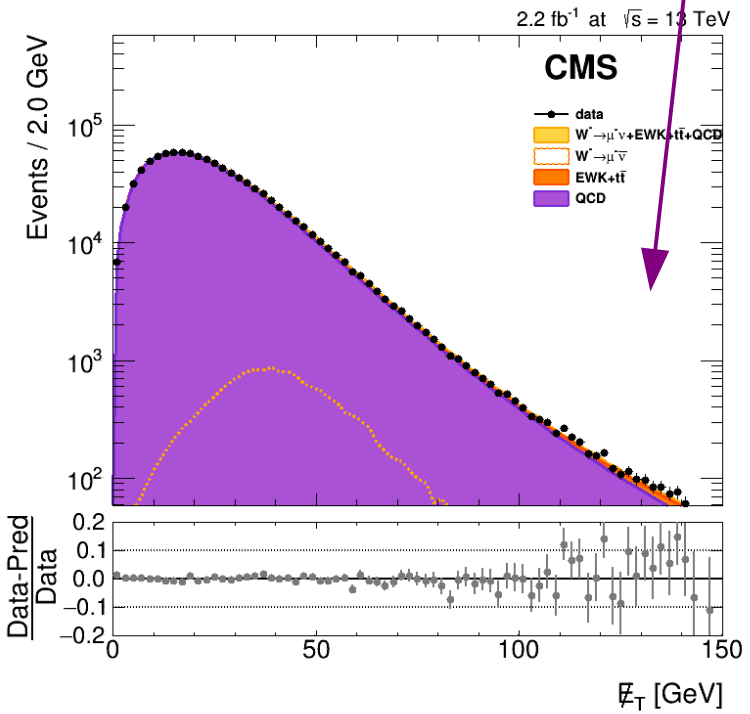
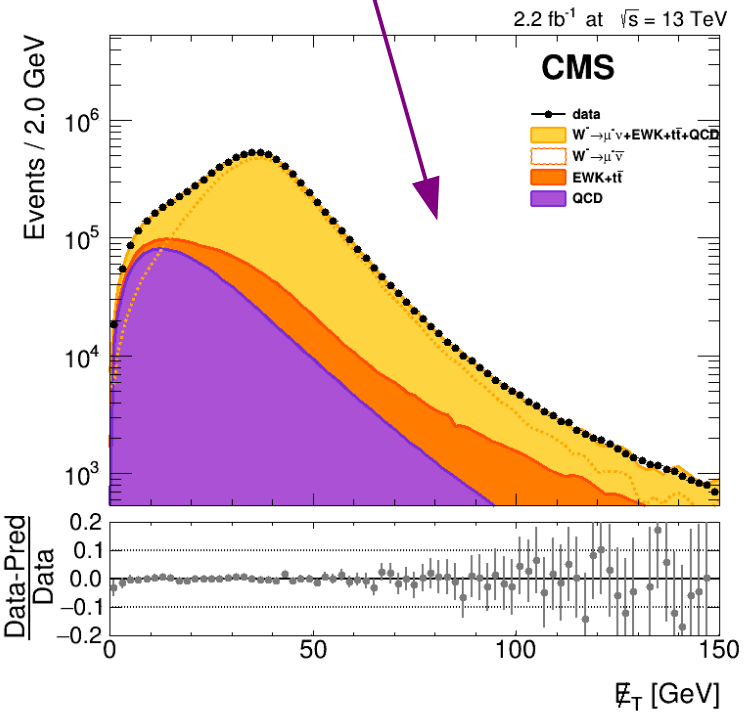
QCD fit function

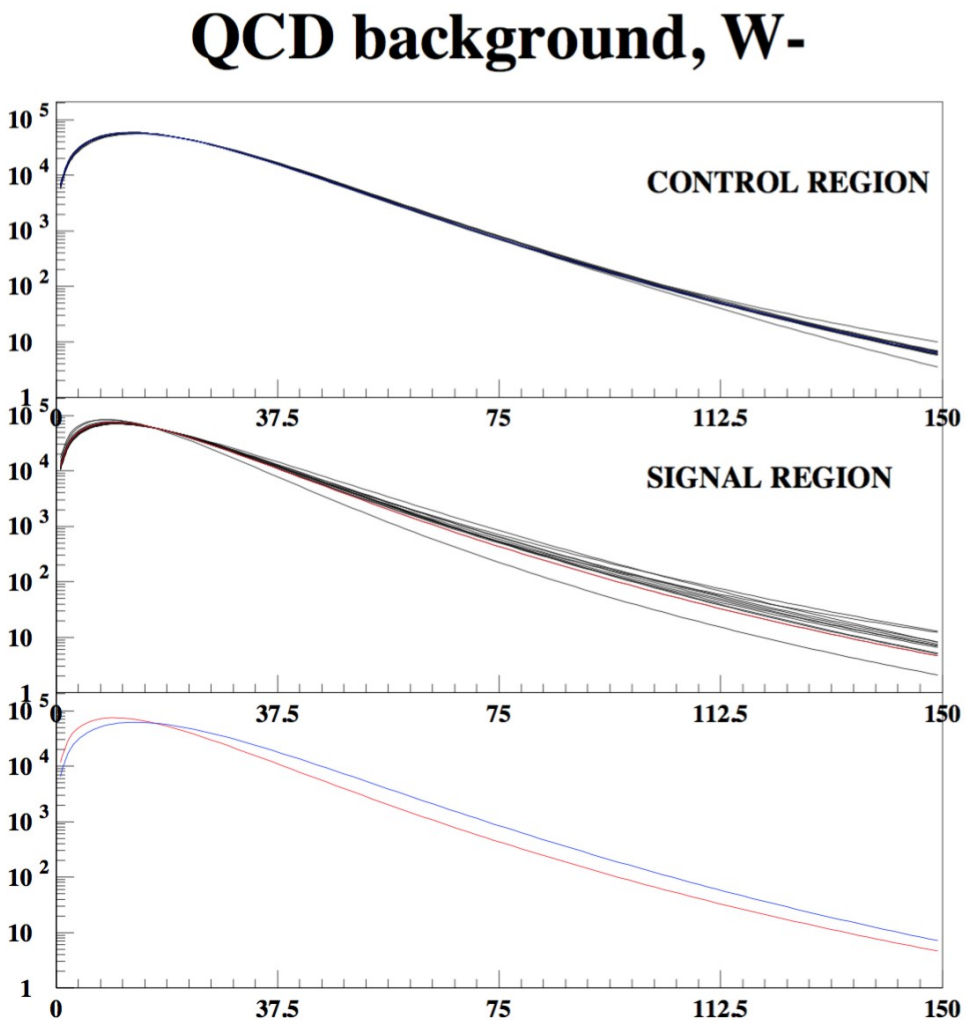
$$f_{\mathrm{QCD}}(E_{\mathrm{T}}^{\mathrm{miss}}) = E_{\mathrm{T}}^{\mathrm{miss}} \exp\left(-\frac{E_{\mathrm{T}}^{\mathrm{miss2}}}{\sigma_0 + \sigma_1 E_{\mathrm{T}}^{\mathrm{miss2}} + \sigma_2 E_{\mathrm{T}}^{\mathrm{miss}}}\right)$$

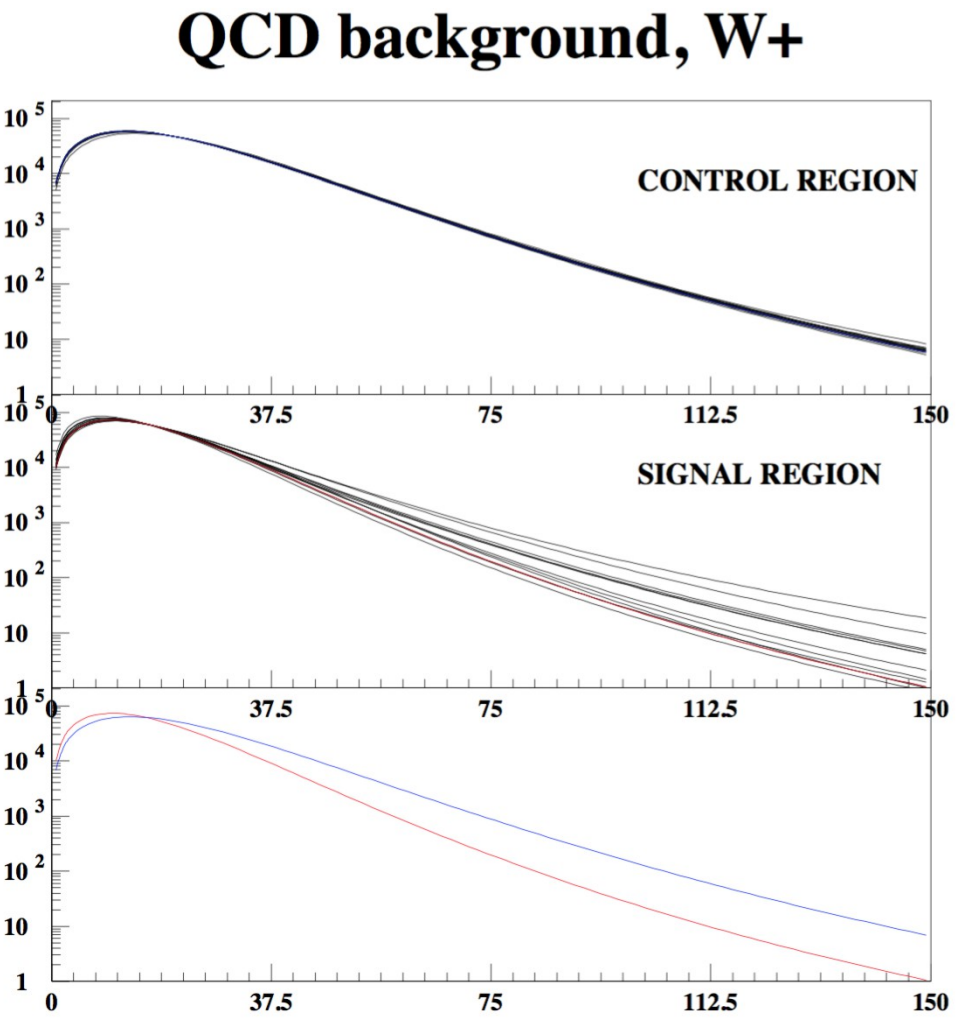
- Fitted simultaneously in control and signal region
- For nominal results sigma$_1$ the same for both regions
- For systematic uncertainties sigma$_1$ different for different regions
  - How does fits look like?





QCD background in eta bins for nominal fit



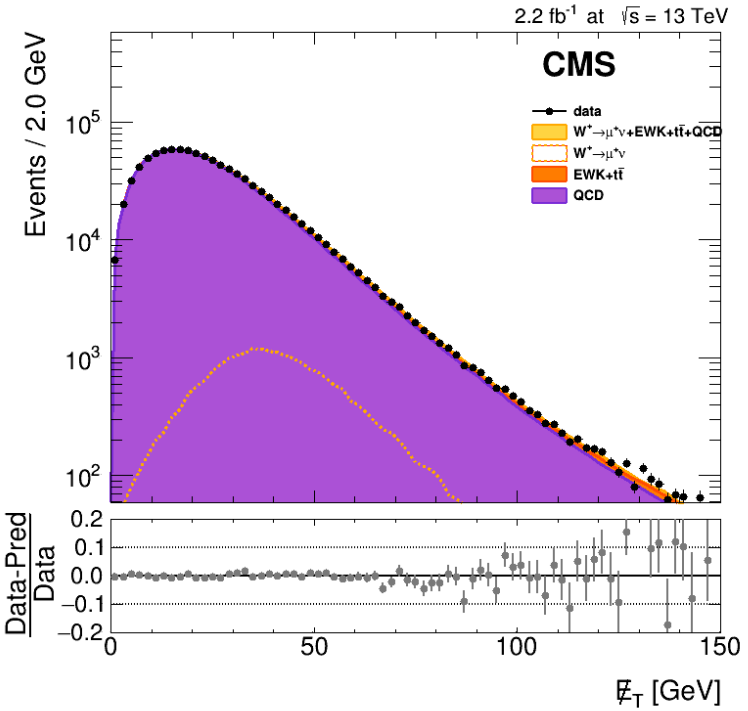


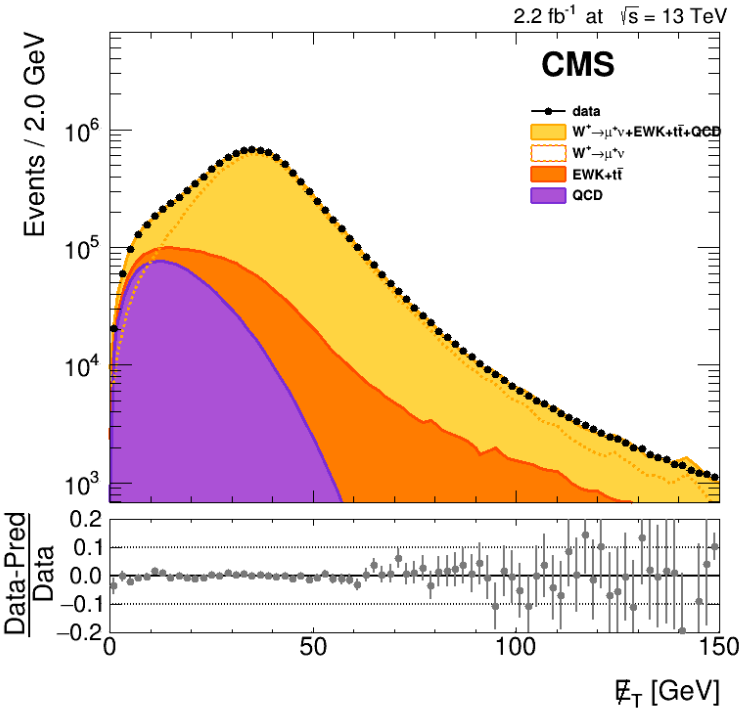
- Control region looks fine for all eta bins
- Small differences for signal region
- unctions for signal and control regions somehow different – a problem?

QCD fit function - systematics

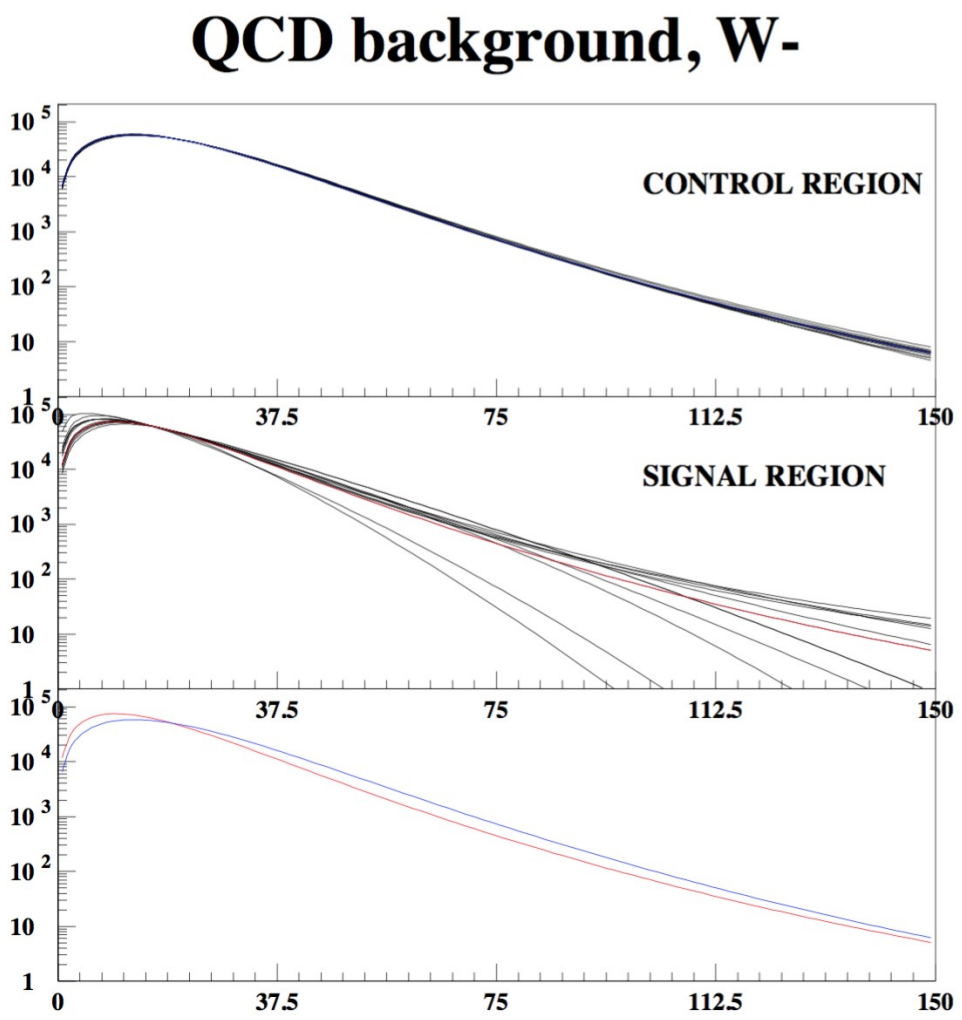
$$f_{\mathrm{QCD}}(E_{\mathrm{T}}^{\mathrm{miss}}) = E_{\mathrm{T}}^{\mathrm{miss}} \exp\left(-\frac{E_{\mathrm{T}}^{\mathrm{miss2}}}{\sigma_0 + \sigma_1 E_{\mathrm{T}}^{\mathrm{miss2}} + \sigma_2 E_{\mathrm{T}}^{\mathrm{miss}}}\right)$$

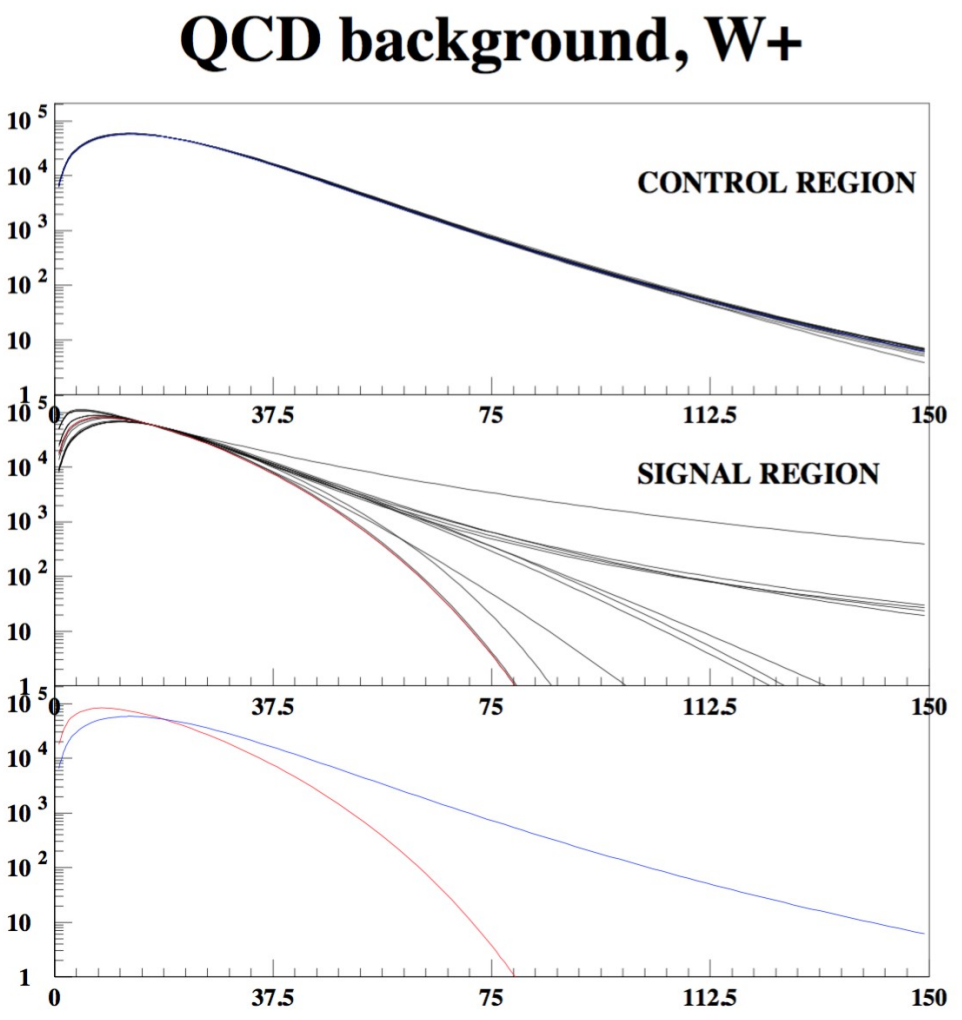
- Fitted simultaneously in control and signal region
- For nominal results sigma$_1$ the same for both regions
- For systematic uncertainties sigma$_1$ different for different regions
  - How does fits look like?



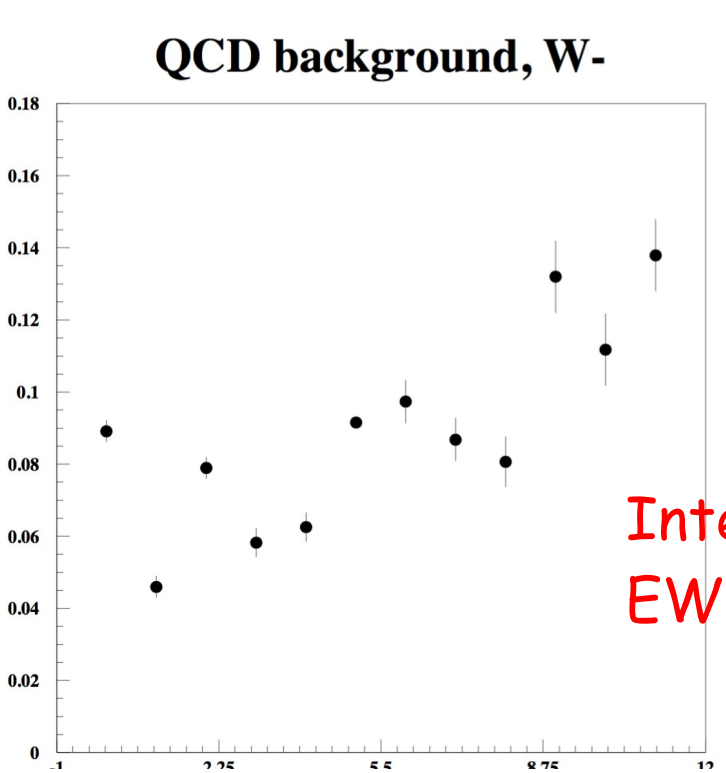


Systematic studies of QCD background

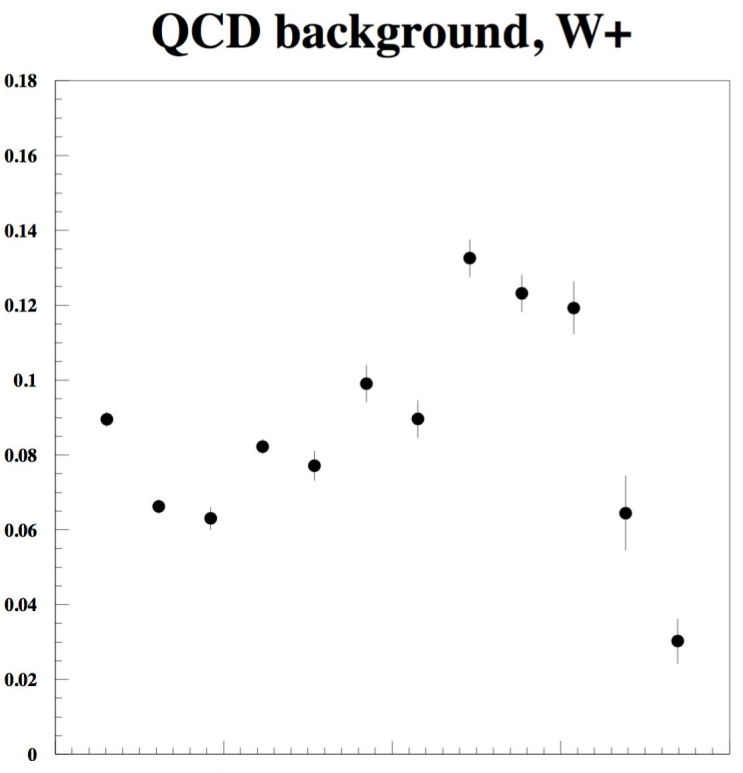


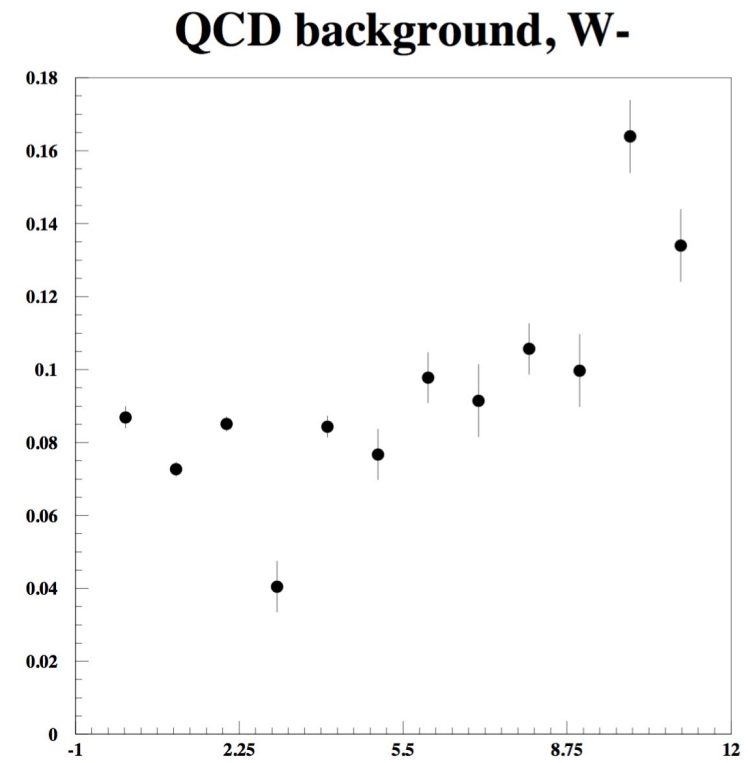


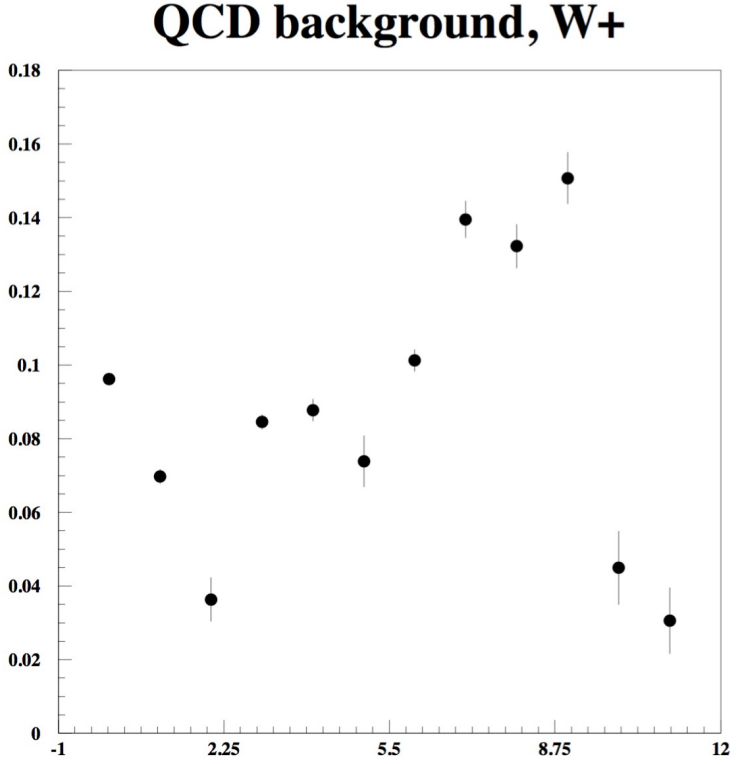
- Control region looks fine for all eta bins
- big differences for signal region – how systematics look like?
- For W+ shape very different for signal and control regions



Integral ratio
EW BG/signal







Maybe not enough signal and EW MC?

- SIGNAL
  - eWmunu = 3474762
- EWK+top
  - wx_select.raw = 170002
  - wm_select.raw = 6938082
  - zxx_select.raw= 4060187
  - ewk_select.raw= 2114015