UPC Cross Section Calculations

NPG Meeting

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UPC Jpsi Analysis

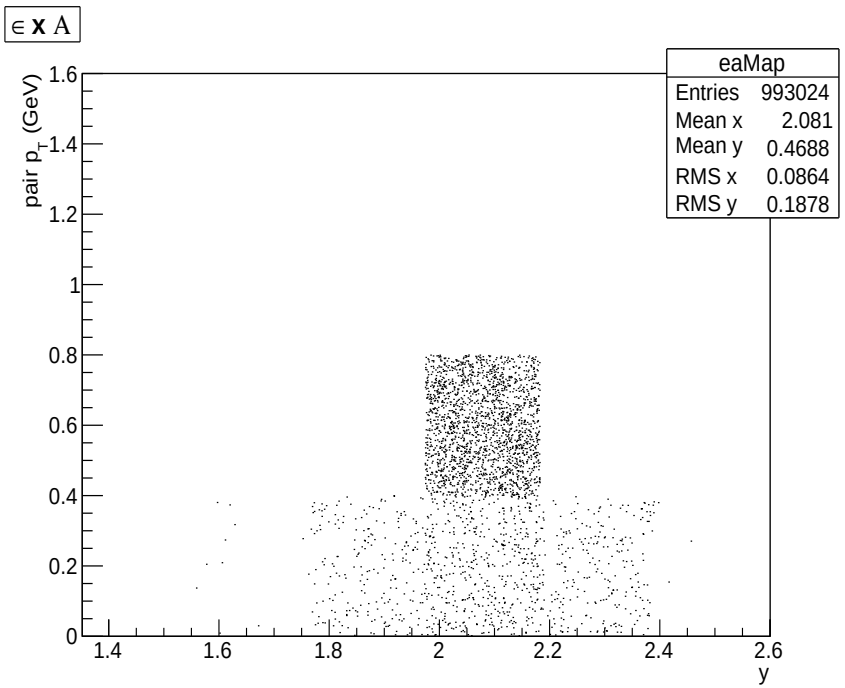
- Mass fit for UPC cross section calculations
- Differential Cross Setion as a function of p_T and y
- From raw yields apply weights:
  - Acceptance maps (done!)
  - Efficiency maps from Tag and Probe (work in progress!) what are my tags and probes? Not clear here since there are no global muons only tracker muons.

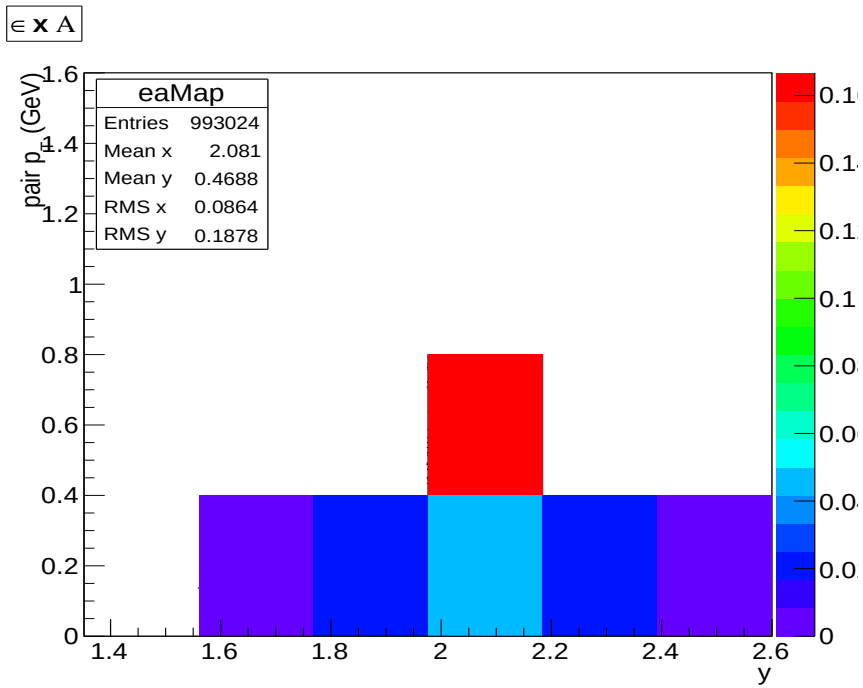
Fit detalis

- Gaussian for the yields and Exponetial background
- Try Crystal Ball and exponetial background
- Try convolution of Gaussian and Breit- Wigner and Crystal Ball and Breit - Wigner
- Try convolution of Crystal Ball and Breit - Wigner
  - Try non parametric fit
  - To do: Systematics, compare to Alice results.

Acceptance Maps for J/ψ

These are the efficincy maps we have so far:

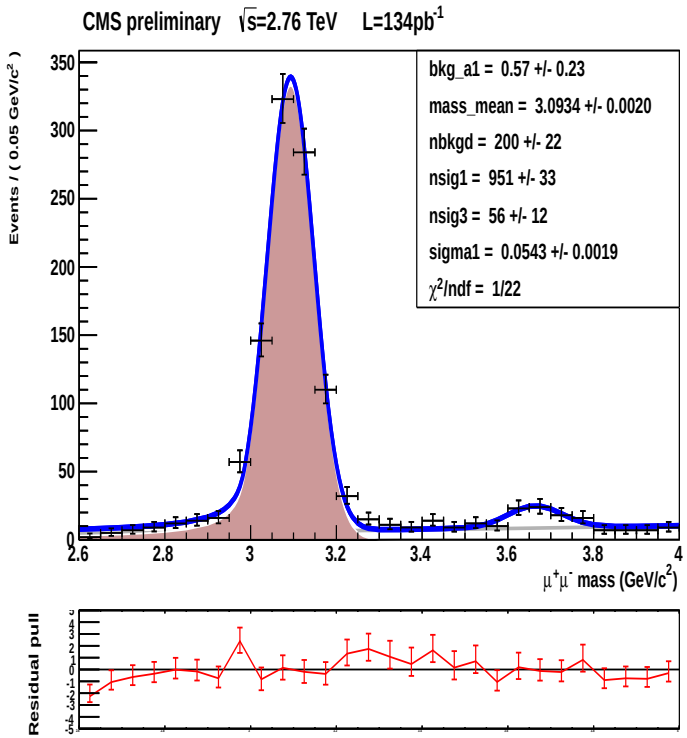


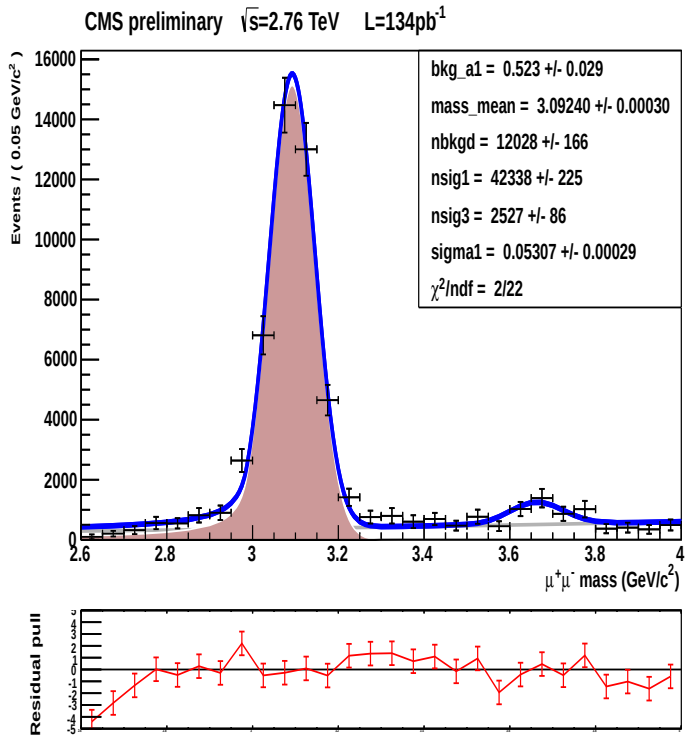


Yields for integrated $p_T \leq 3.0 GeV/c$ and $-2.4 \leq y \leq 2.4$

Example (For rapidity and p_T integrated:)

$p_T \leq 3.0 GeV/c$ and $-2.4 \leq y \leq 2.4$

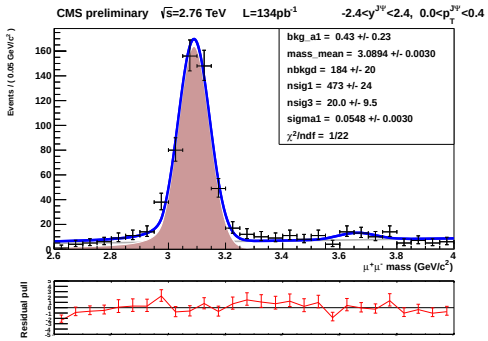


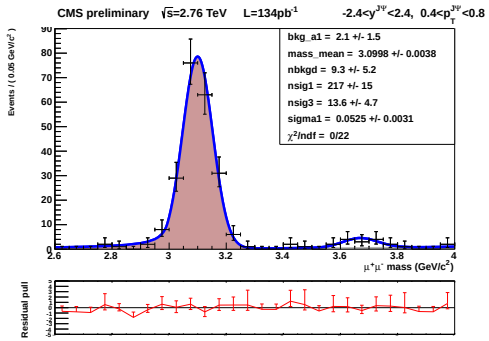


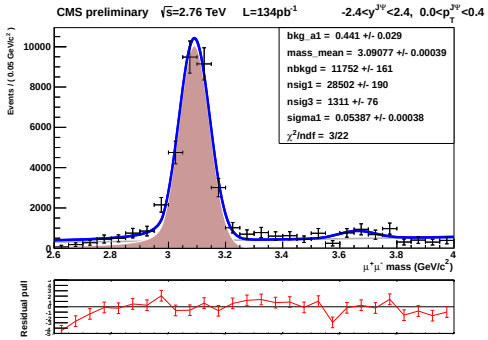
Yields for different p_T and y bins

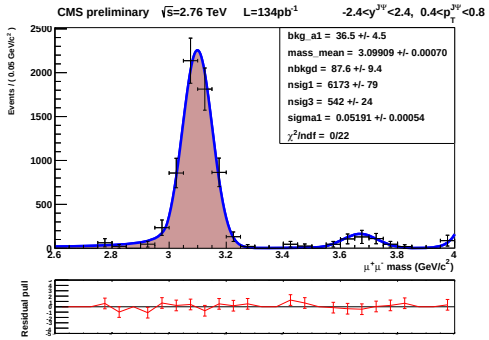
Example (For smaller rapidity and p_T bins:)

$p_T \leq 0.4 GeV/c$, $0.4 \leq p_T \leq 0.8 GeV/c$ and $-2.4 \leq y \leq 2.4$ Top row are the raw fits, bottom row are the weigthed fits after folding acceptance maps





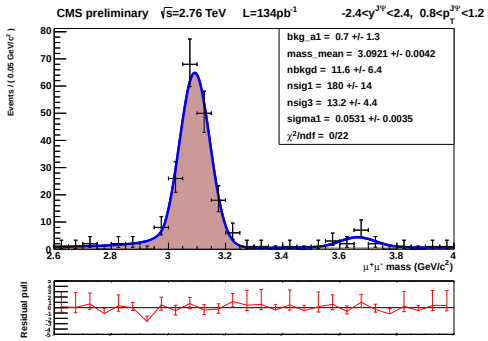


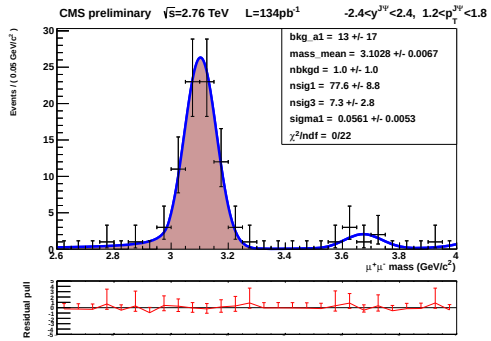


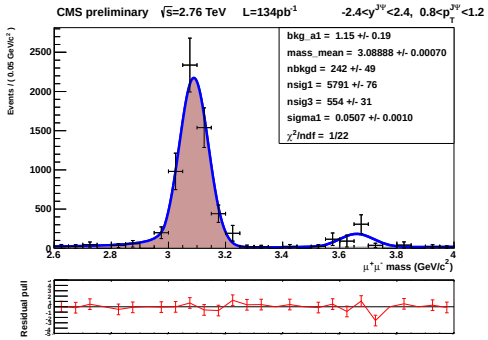
Yields for different p_T and y bins

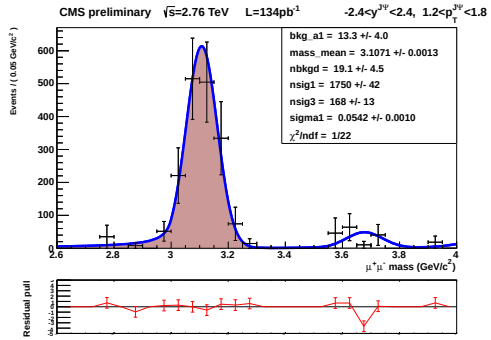
Example (For smaller rapidity and p_T bins:)

$0.8 \leq p_T \leq 1.2 GeV/c$, $1.2 \leq p_T \leq 1.6 GeV/c$ and $-2.4 \leq y \leq 2.4$ Top row are the raw fits, bottom row are the weigthed fits after folding acceptance maps









Conclusions

- Choosing the binning is not trivial
- Weighted yields imply the cross section's lower bound is $\sigma \geq 0.315\ mb$
- Fold in the efficiency maps
  - Try to fix efficiency maps
  - To do: Systematics, compare to Alice results.