Scaled Momentum Spectra in the Target Region in DIS

Status Report

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Event Acceptances

MC ARIADNE 4.12 06/07p

X_{Bj} → 2.0×10^{-4} – 0.5

1 → 18-th bin

Q^2 → 10 GeV² – 20480 GeV²

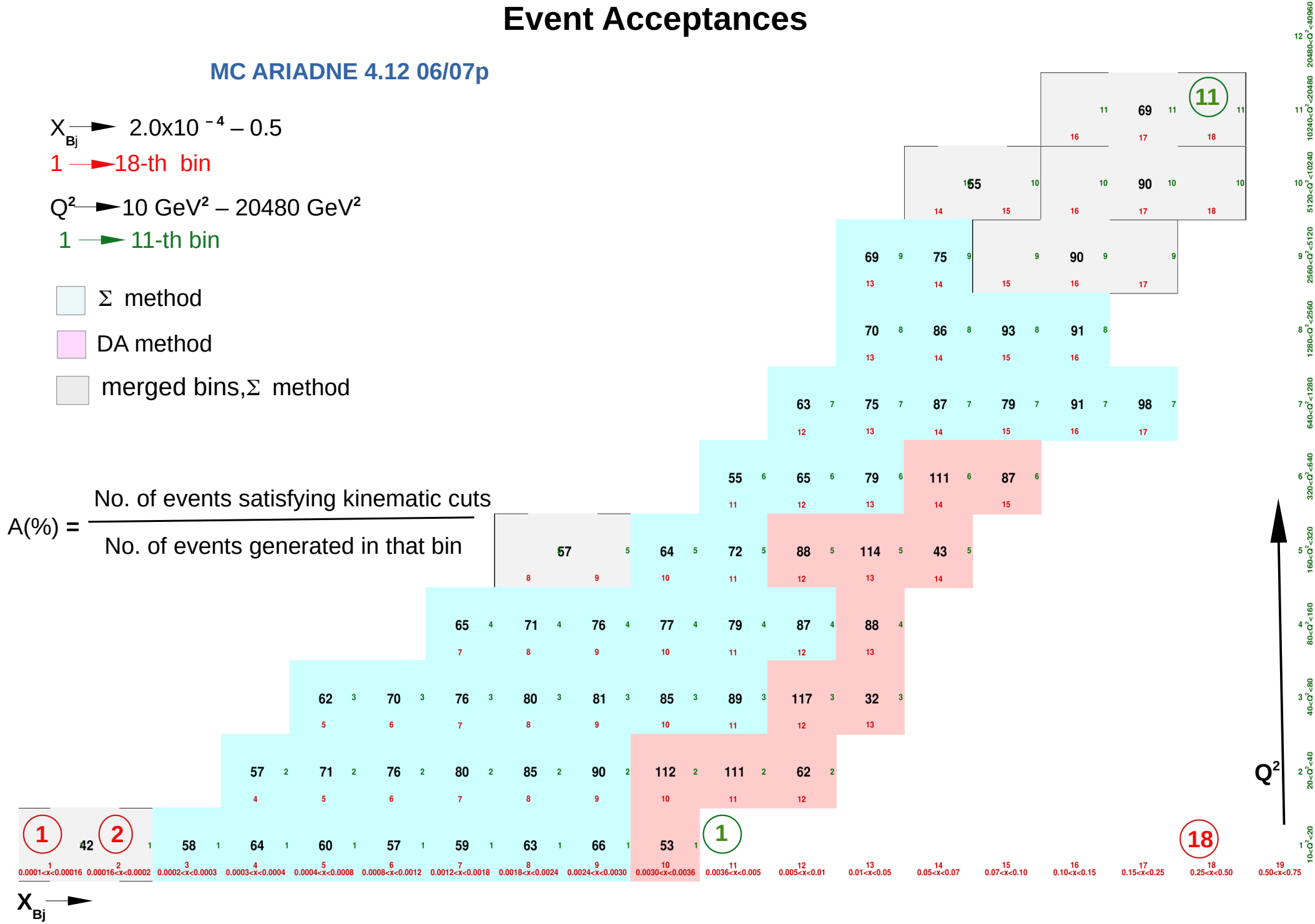
1 → 11-th bin

Σ method

DA method

merged bins, Σ method

$$A(\%) = \frac{\text{No. of events satisfying kinematic cuts}}{\text{No. of events generated in that bin}}$$



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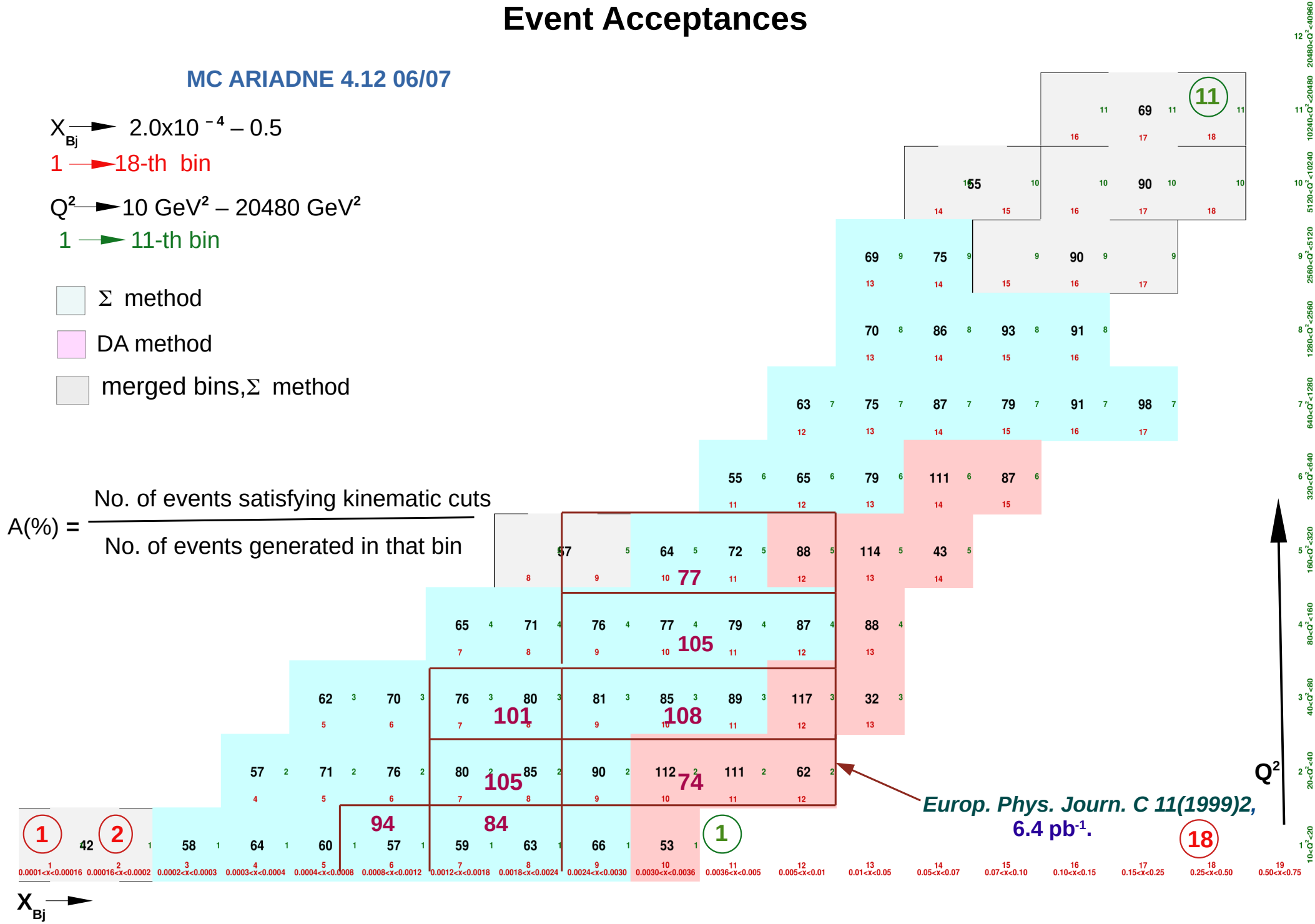


Event selection

Data 06/07p, **MC** ARIADNE 4.12 06/07p

Evtake, STTtake, MVDtake

Trigger

~~DIS03~~ SPP09

Electron / positron

$E_e > 10$ GeV

lepton box cut >20

Chimney cut

Sienin[0]

Cleaning cuts

reconstructed vertex $|Z_{vtx}| < 40$ cm

$40 \text{ GeV} < E - pz < 60 \text{ GeV}$

Physics & Kinematics Requirements

$Q^2_{DA} > 10 \text{ GeV}^2$

$y_{el} < 0.95$

$y_{JB} > 0.04$

Track selection

tracks associated with primary vertex

$p_T > 150$ MeV

nsl $\geqslant 3$

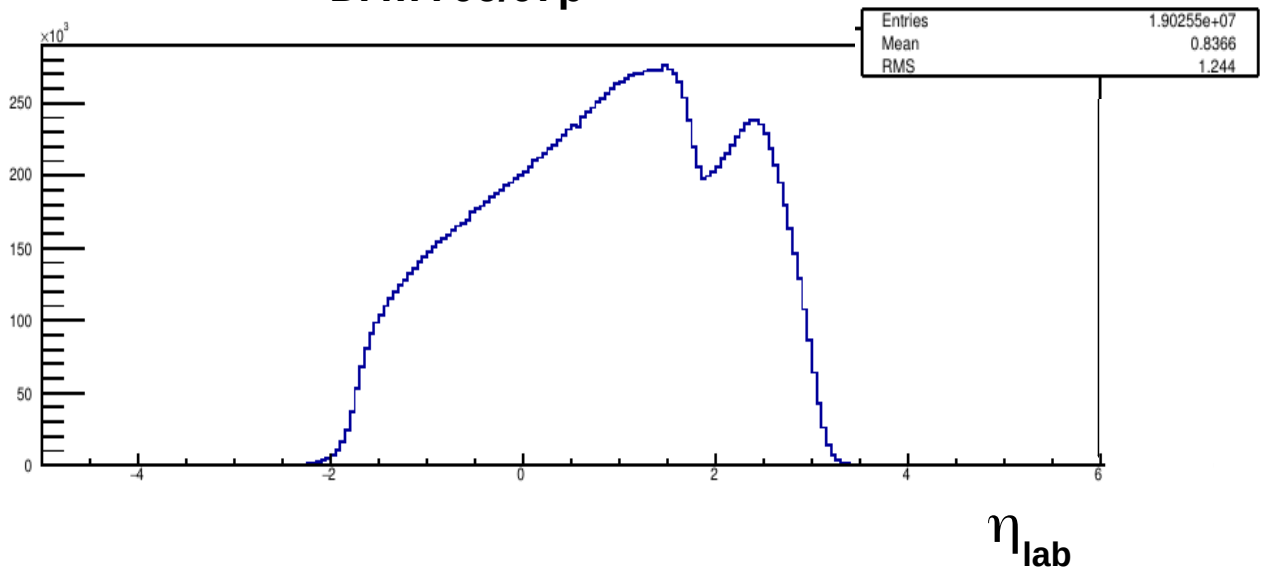
$-1.75 < \eta < 2.7$

- for final analysis 04, 06e, 06/07p will be used

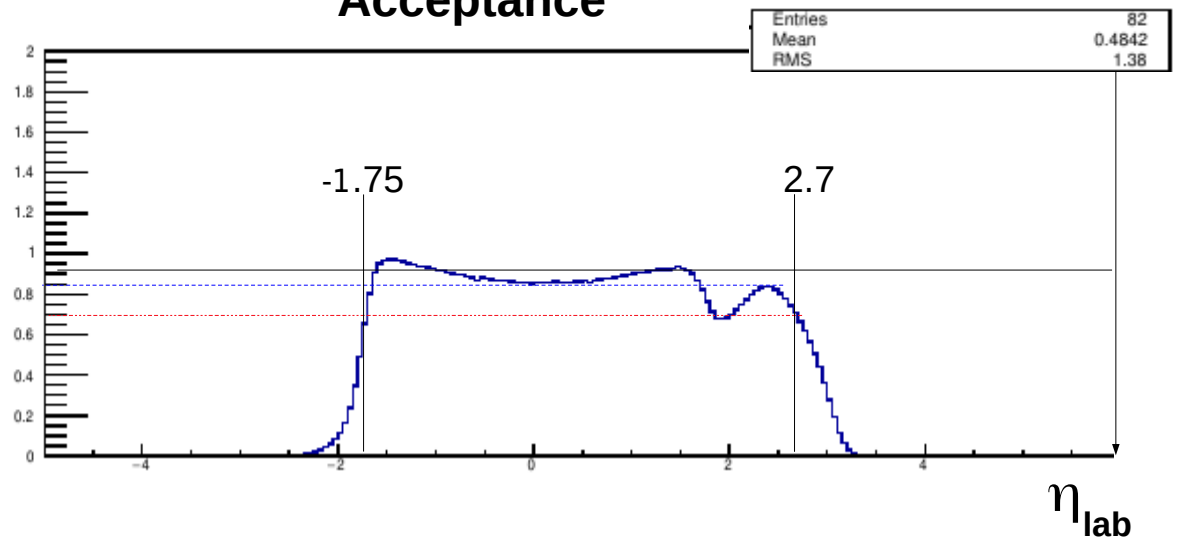
- no STT in 2005 due to insufficient cooling

ZTT tracks ⟶ MVD + CTD +STT

DATA 06/07p



Acceptance



How does this increase the acceptance?

$\eta = 1.75$ ⟶ **? ?**

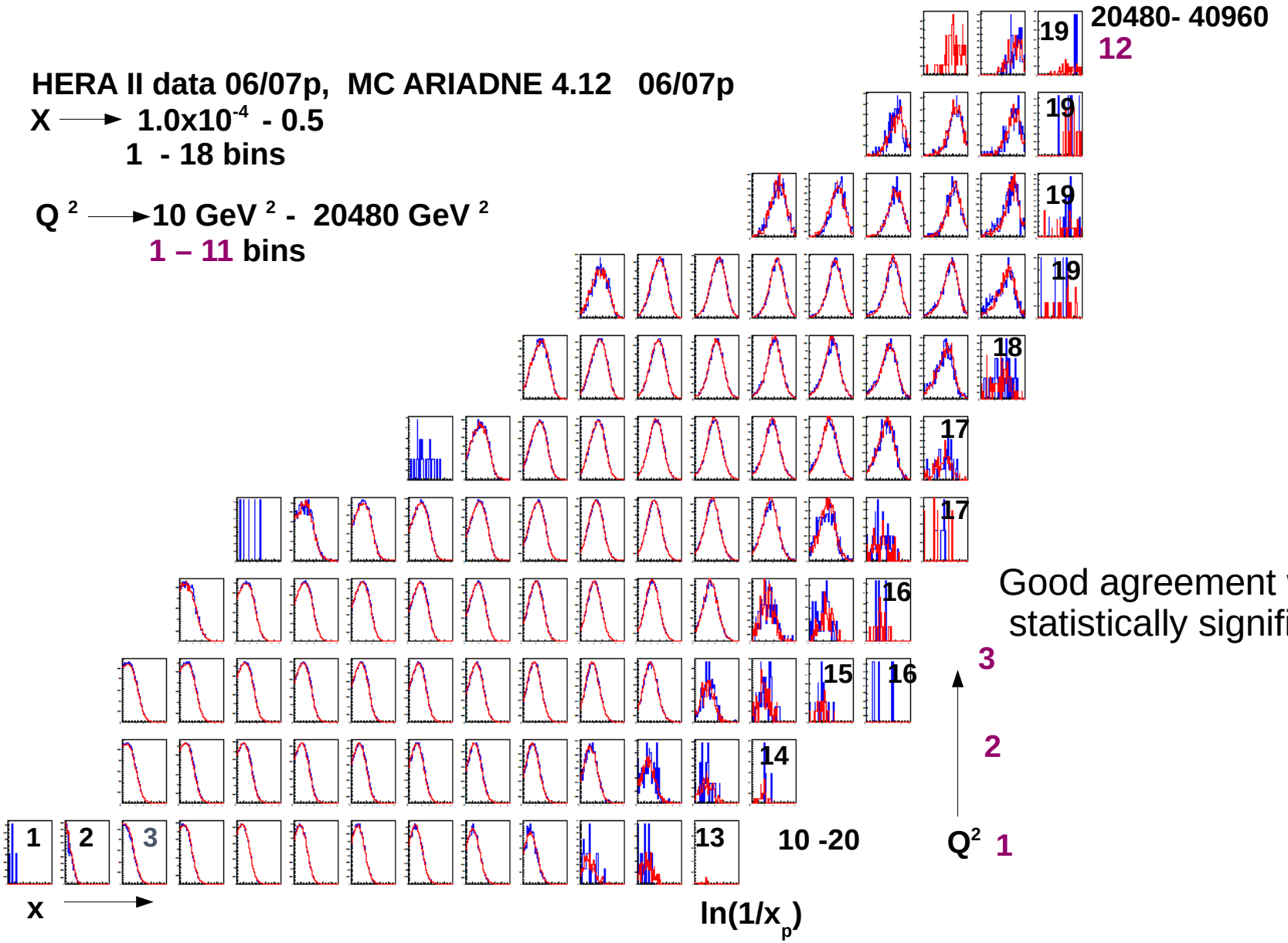
.90

.84

.70

$\eta = 2.7$?

to be refined



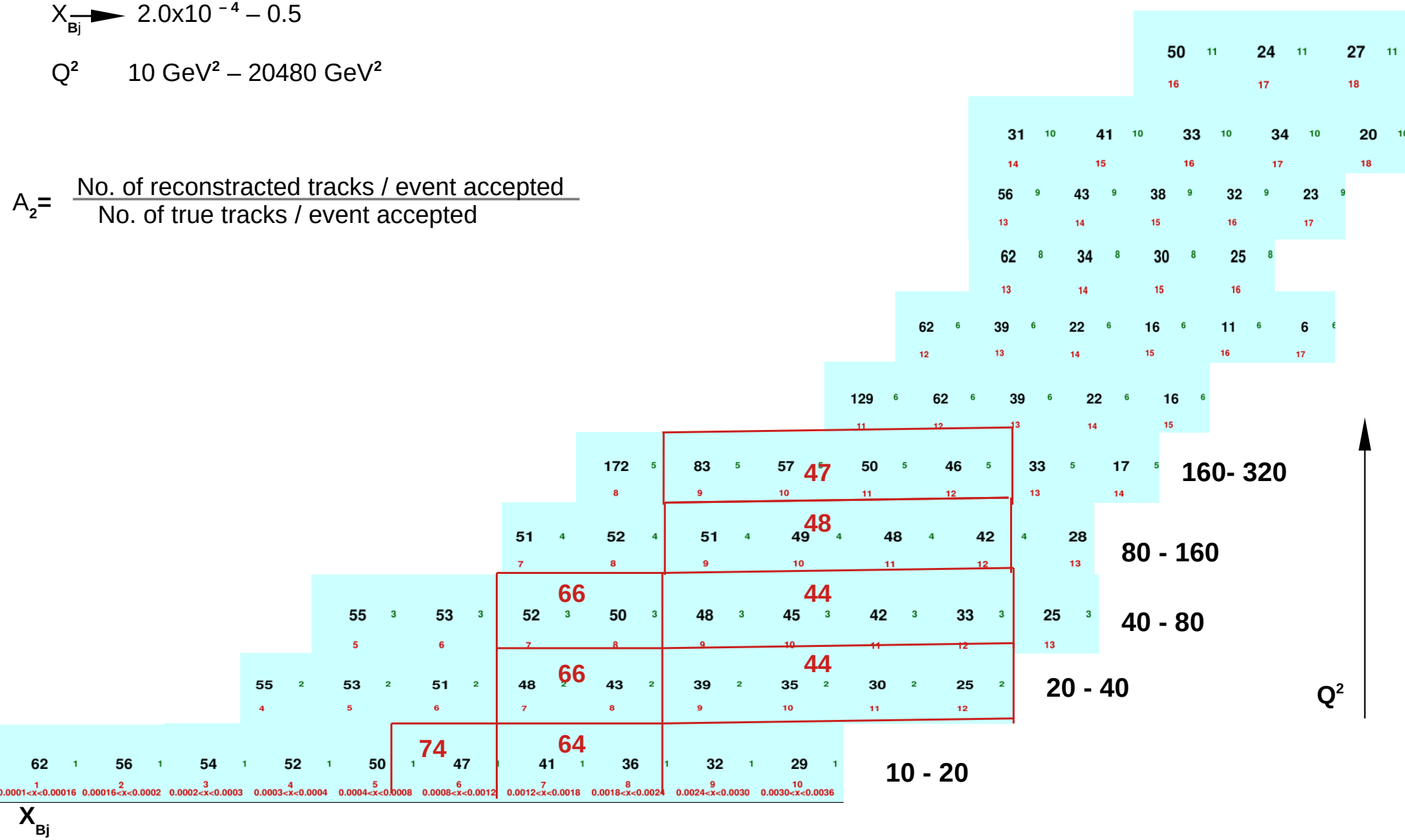
Good agreement with MC in all statistically significant bins

Track Acceptances

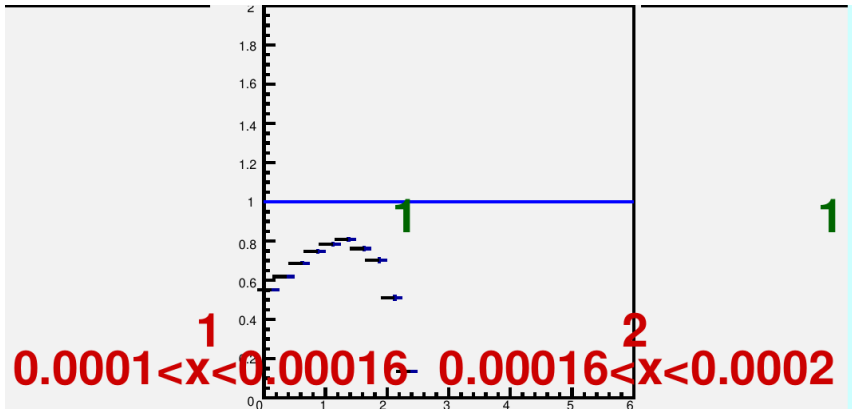
X_{Bj} → 2.0x10 $^{-4}$ – 0.5

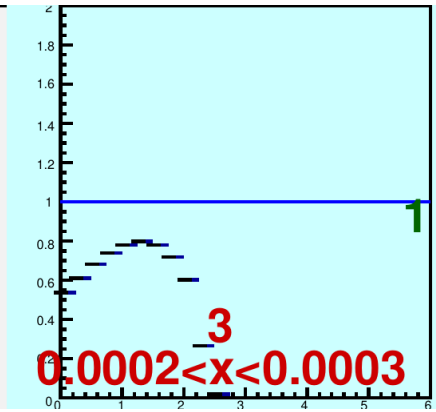
Q^2 10 GeV² – 20480 GeV²

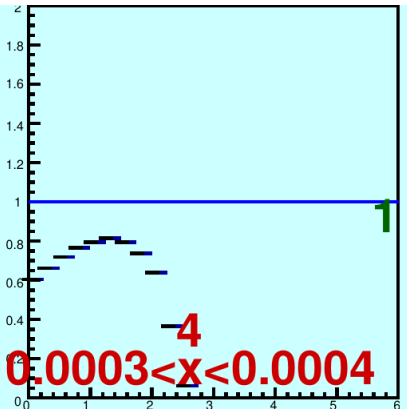
$$A_2 = \frac{\text{No. of reconstracted tracks / event accepted}}{\text{No. of true tracks / event accepted}}$$

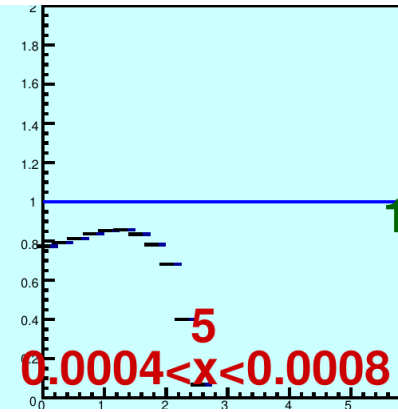


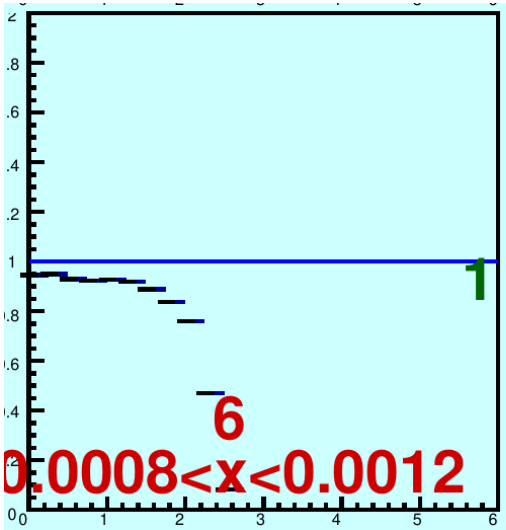
Track Acceptances

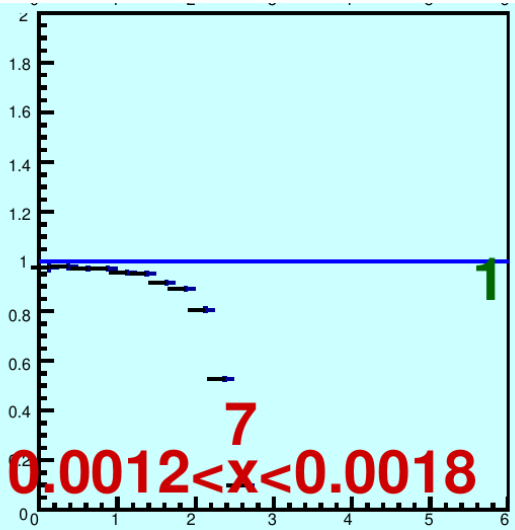


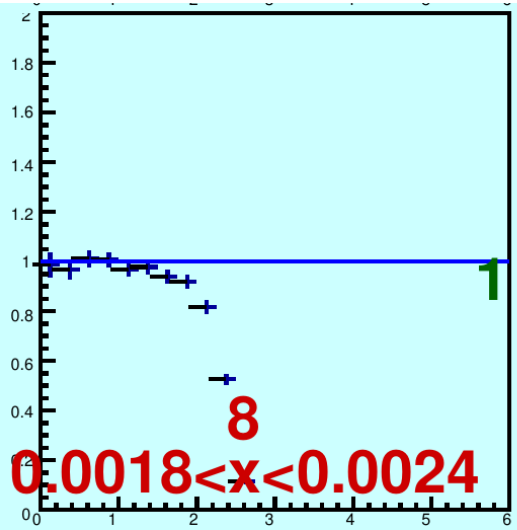


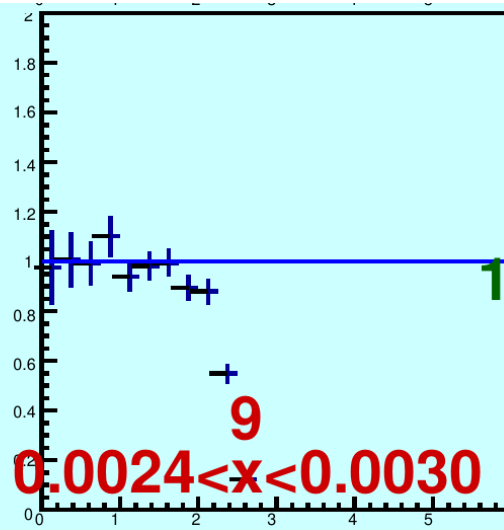


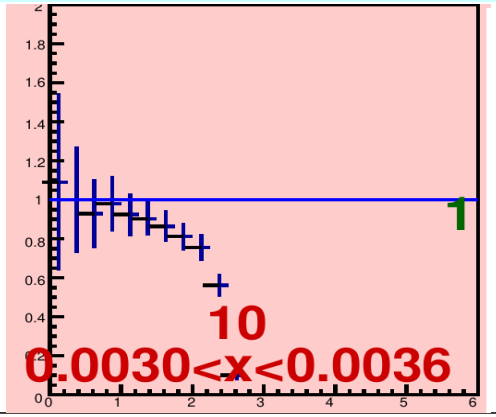












$\ln(1/x_p)$

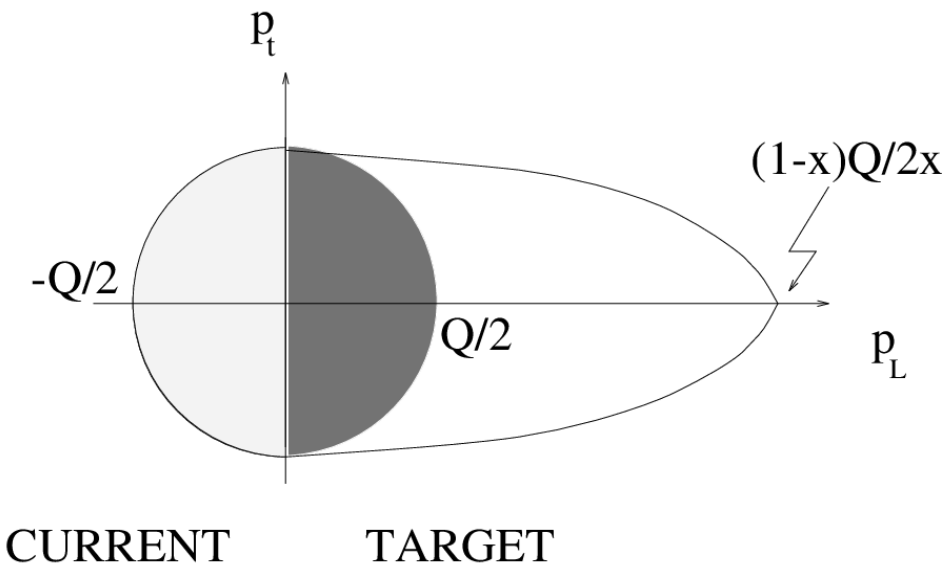
$$X_p = \frac{p^{Breit}}{p_{max}}$$

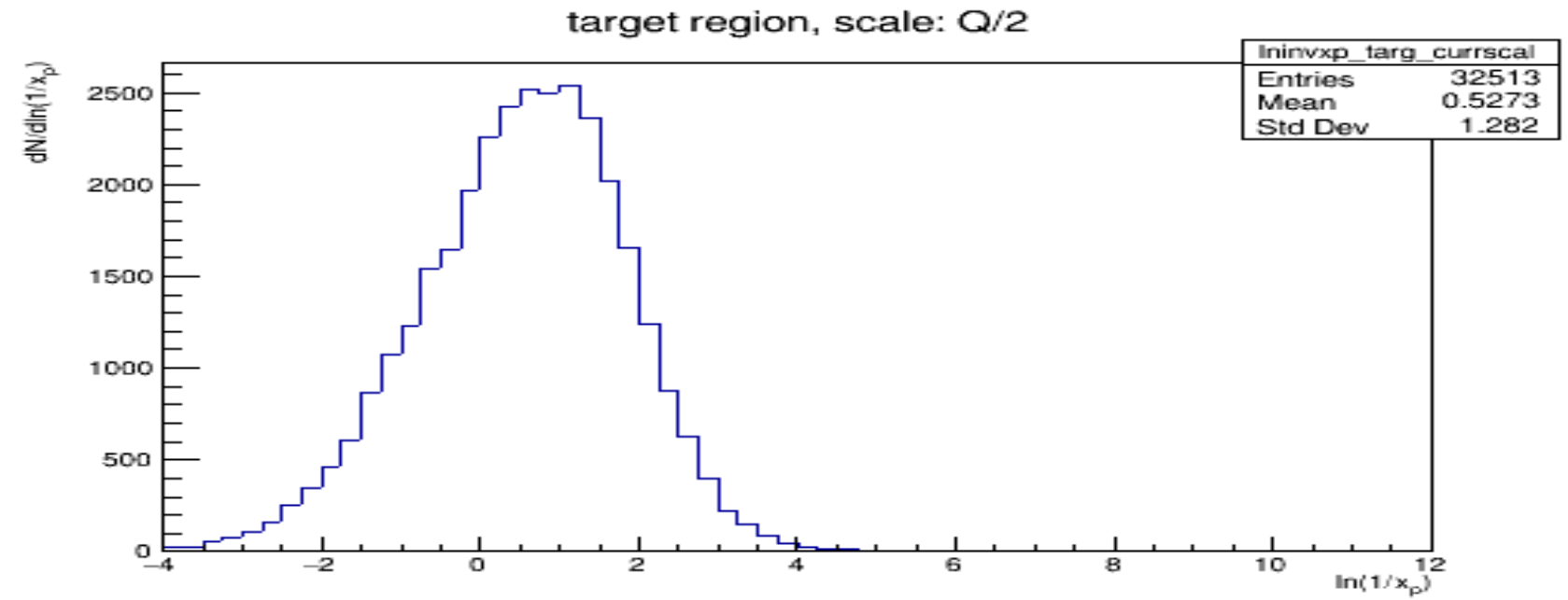
$10 < Q^2 < 20$

$0.07 < X_p < 1.0$

mostly humpback distributions

What scale should be used in the aalysis?




target region, scale: Q/2
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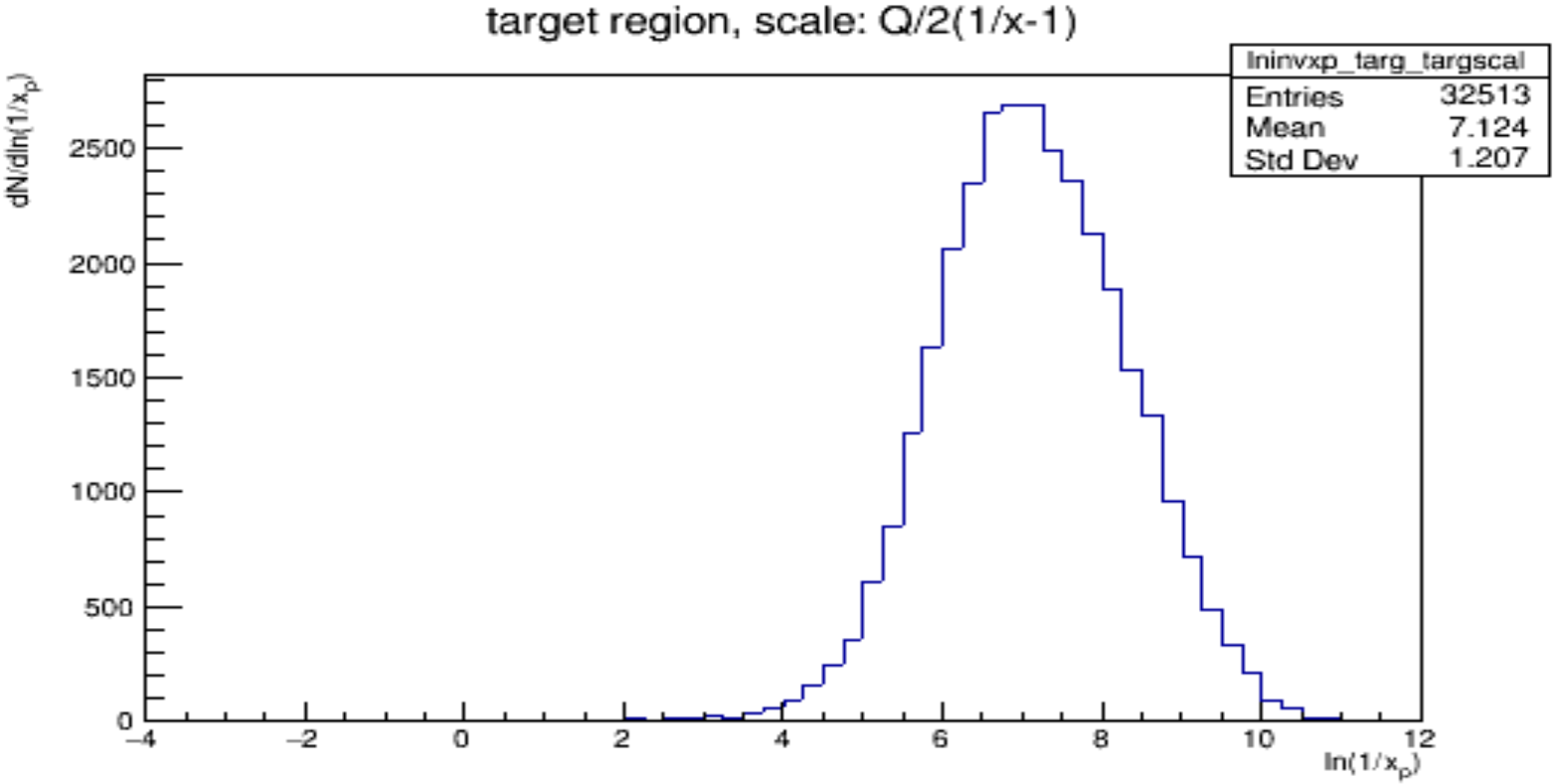
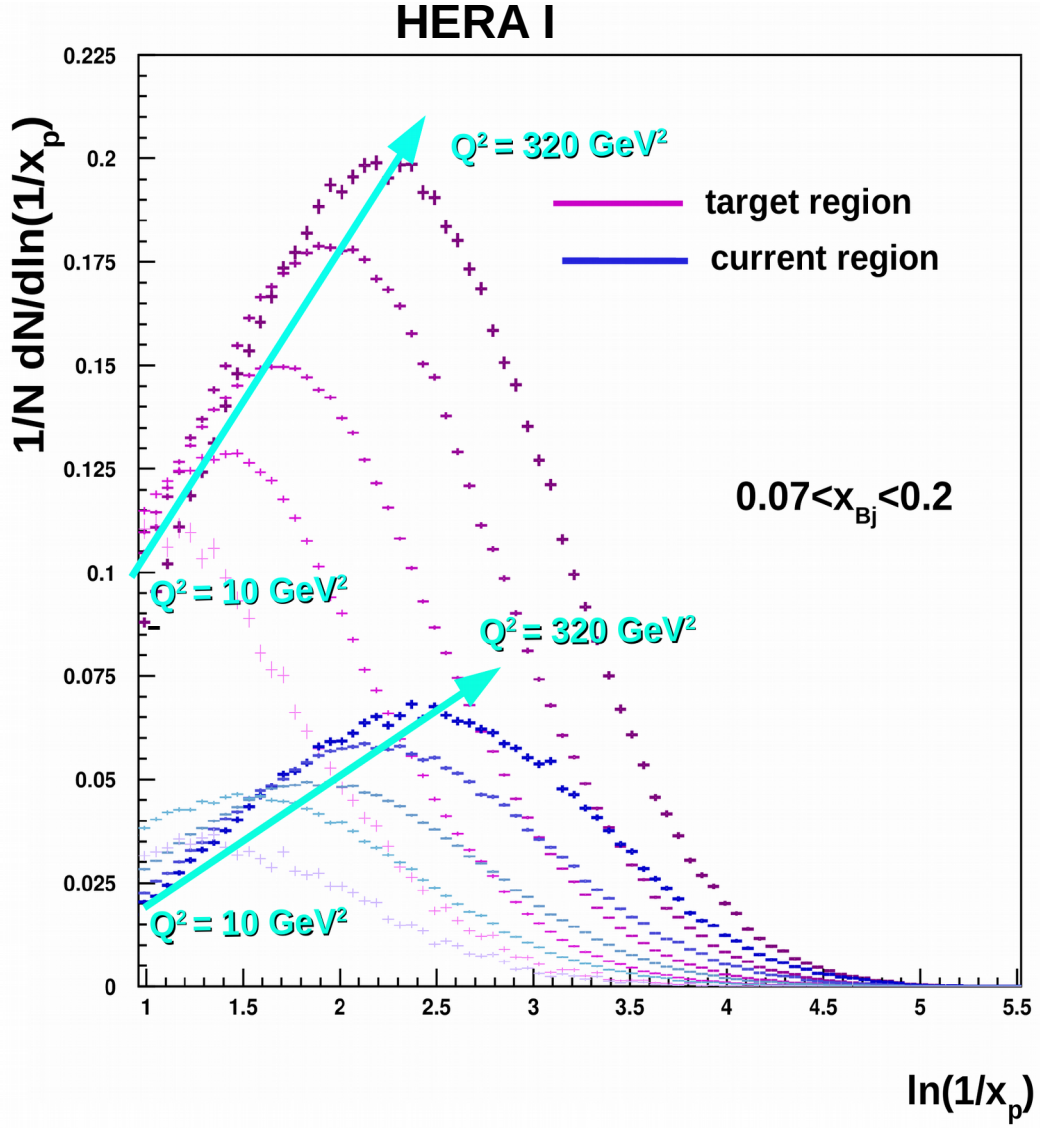
Entries 32513
Mean 0.5273
Std Dev 1.282
dN/dln(1/x_p)
ln(1/x_p)


target region, scale: Q/2(1/x-1)
lninvxp_targ_targscal
Entries 32513
Mean 7.124
Std Dev 1.207
dN/dln(1/x_p)
ln(1/x_p)



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