J/Psi events

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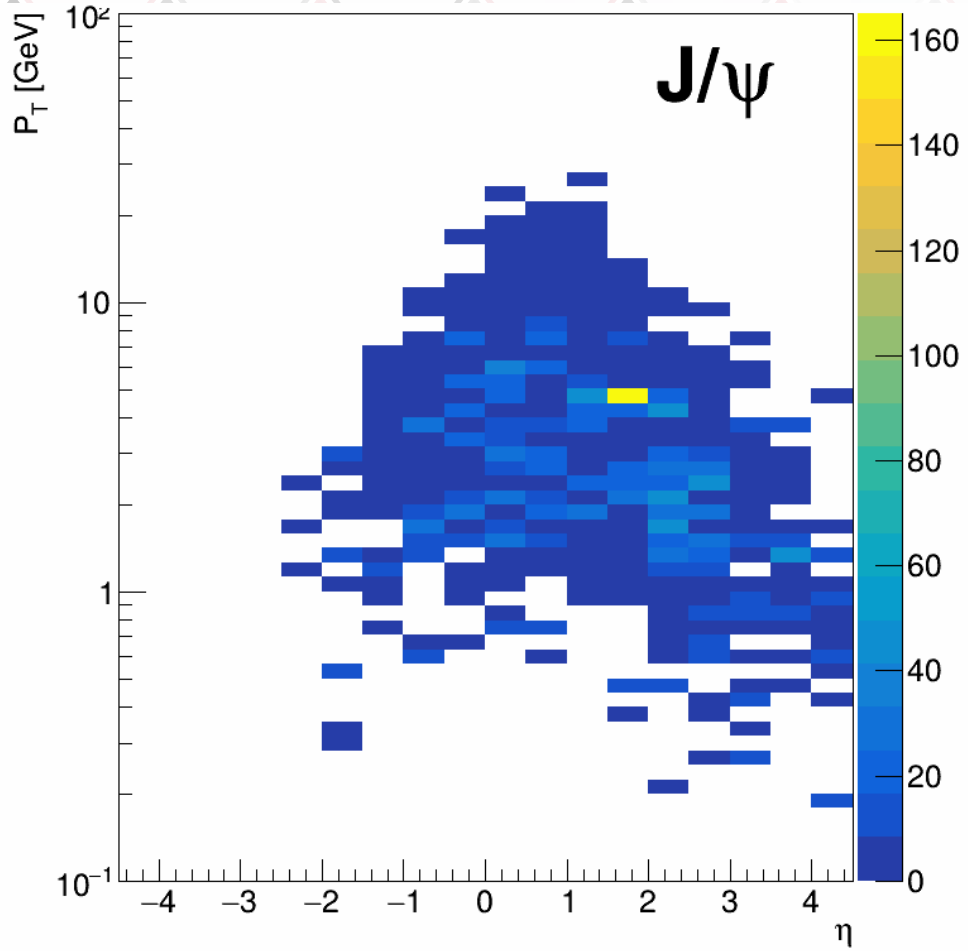
Rough cross section estimates based on event numbers

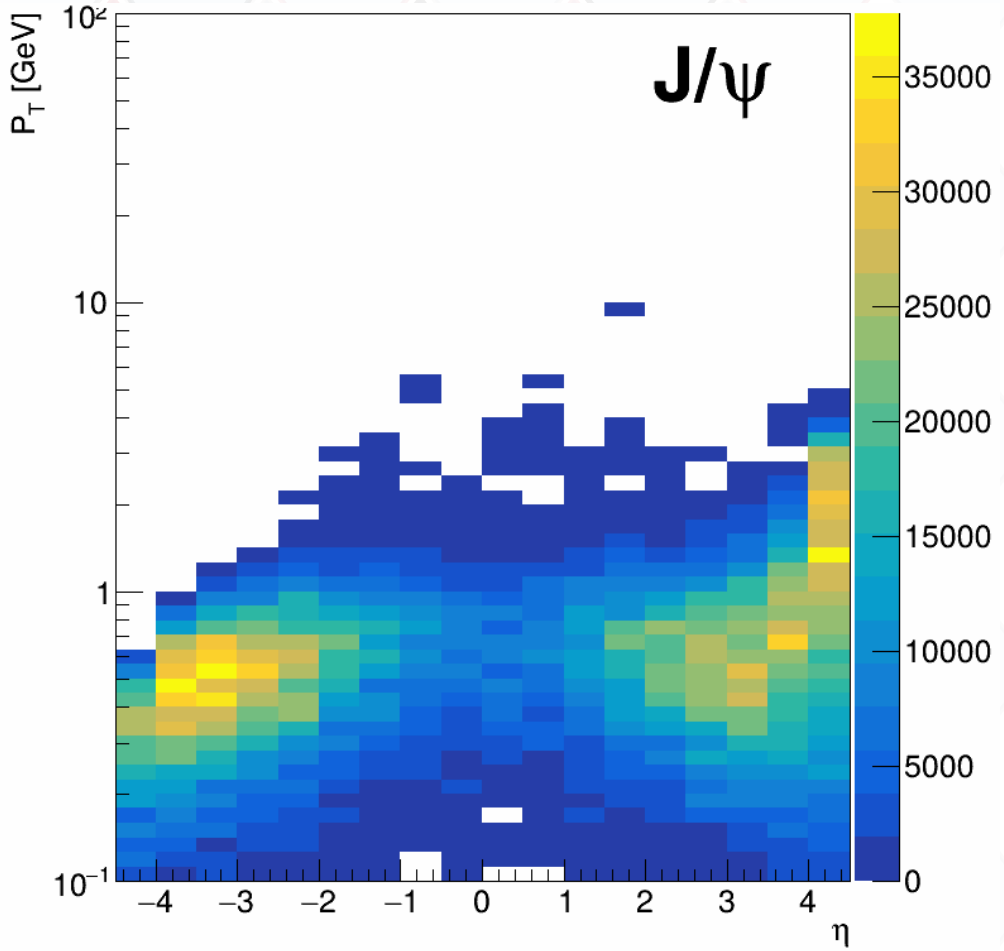
	N J/Psi	Lumi fb^{-1}	J/Psi xsec fb	B^+	B^+ xsec	D^0	D^0 xsec
Q2>1	18	6.73E-03	2.67E+03	259	3.85E+04	97211	1.44E+07
Q2>10	159	7.21E-02	2.21E+03	2981	4.13E+04	321898	4.46E+06
Q2>100	942	1.48E+00	6.36E+02	16180	1.09E+04	284700	1.92E+05
Q3>1000	521	6.30E+01	8.27E+00	9062	1.44E+02	131395	2.09E+03
0<Q2<1	32844	9.26E-04	3.55E+07	1564	1.69E+06	442885	4.78E+08

- All based on the MCParticle Branches of the 25.03.1 Production (DIS/NC/… and SIDIS/…/q2_0to1)
- For the Pythia8 simulation 5M events were assumed, but a few do not pass through the full simulation, so actual cross sections slightly larger
- Especially hidden HF might depend strongly on MC Generator treatment (large theoretical uncertainties)
- Similarly, low Q^2 uncertainties may be large (total xsec 54 μbarn , 50M generated events)

Total distributions for J/Psi (in Lab frame)

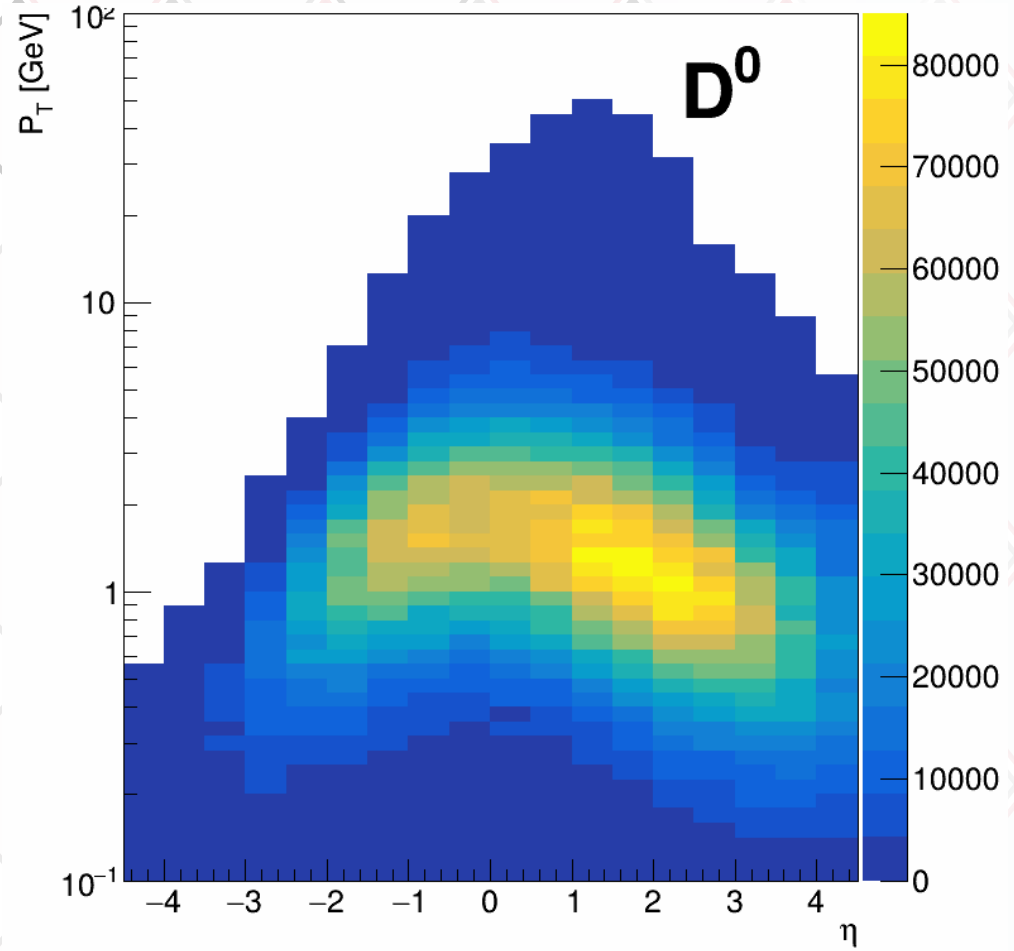


DIS/NC w/DIS cuts

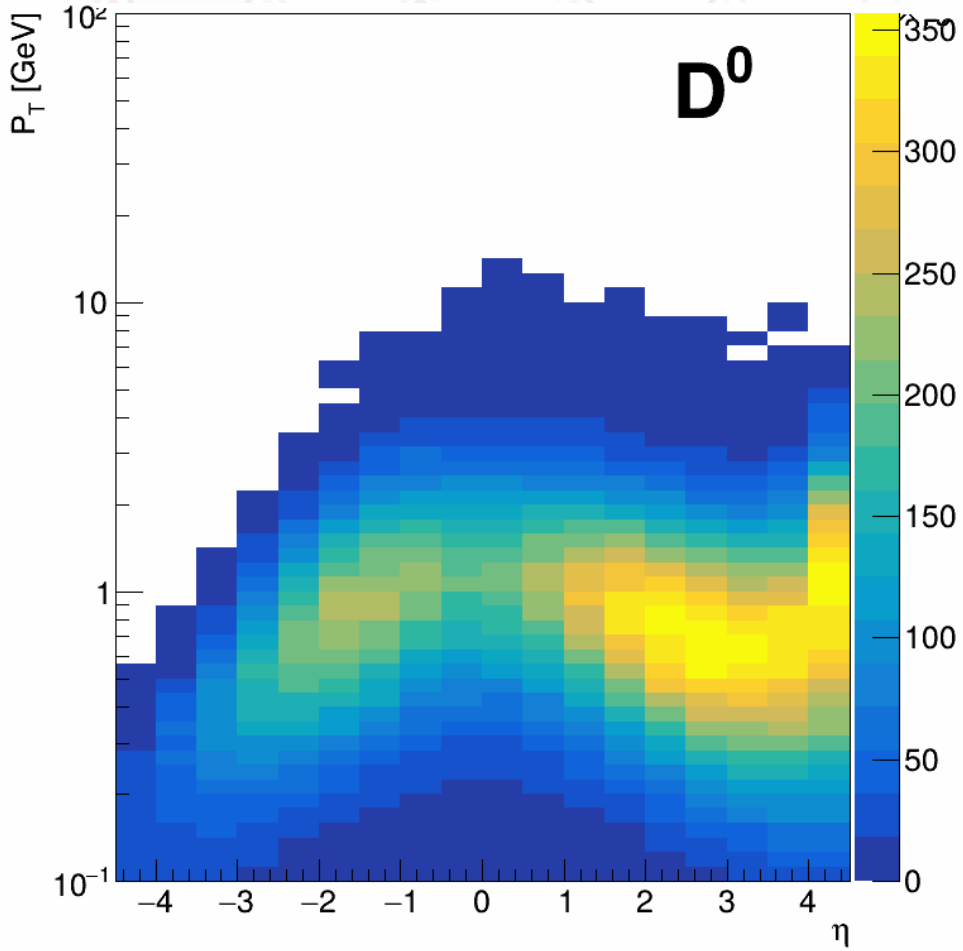


SIDIS/q2_0to1, w/o DIS (x,Q2,y, W cuts) cuts

D^0 events

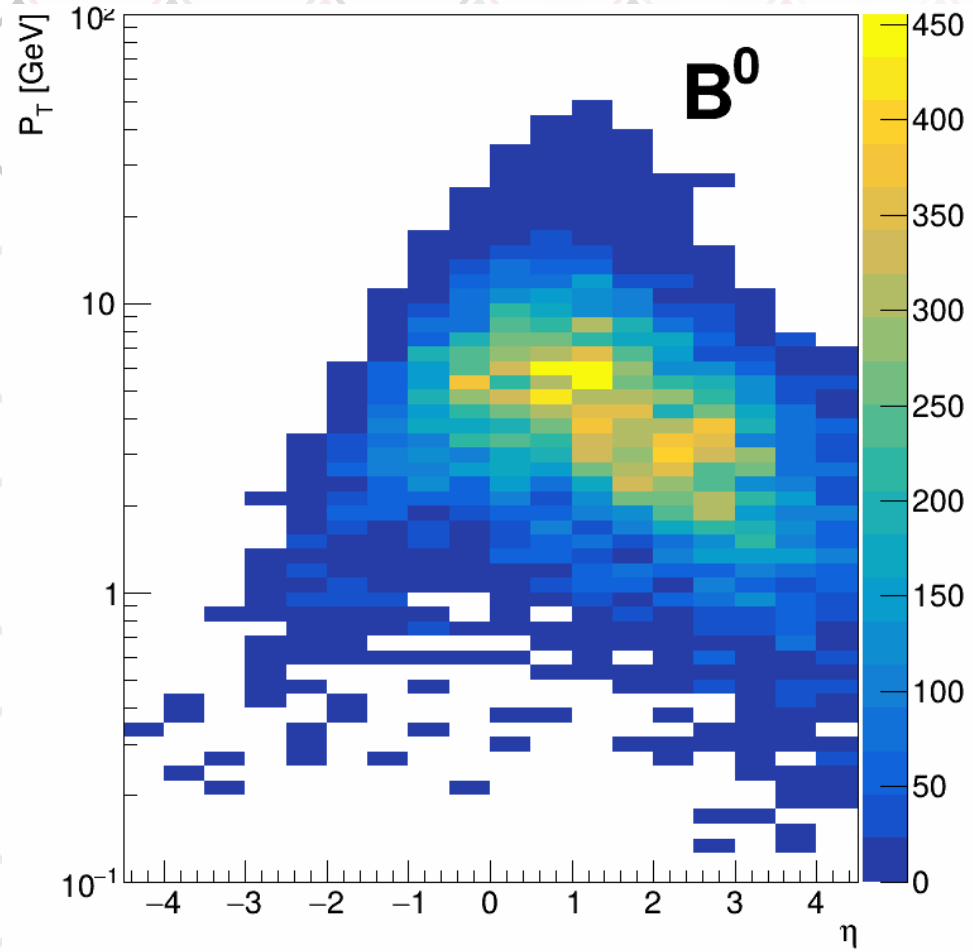


DIS/NC w/DIS cuts

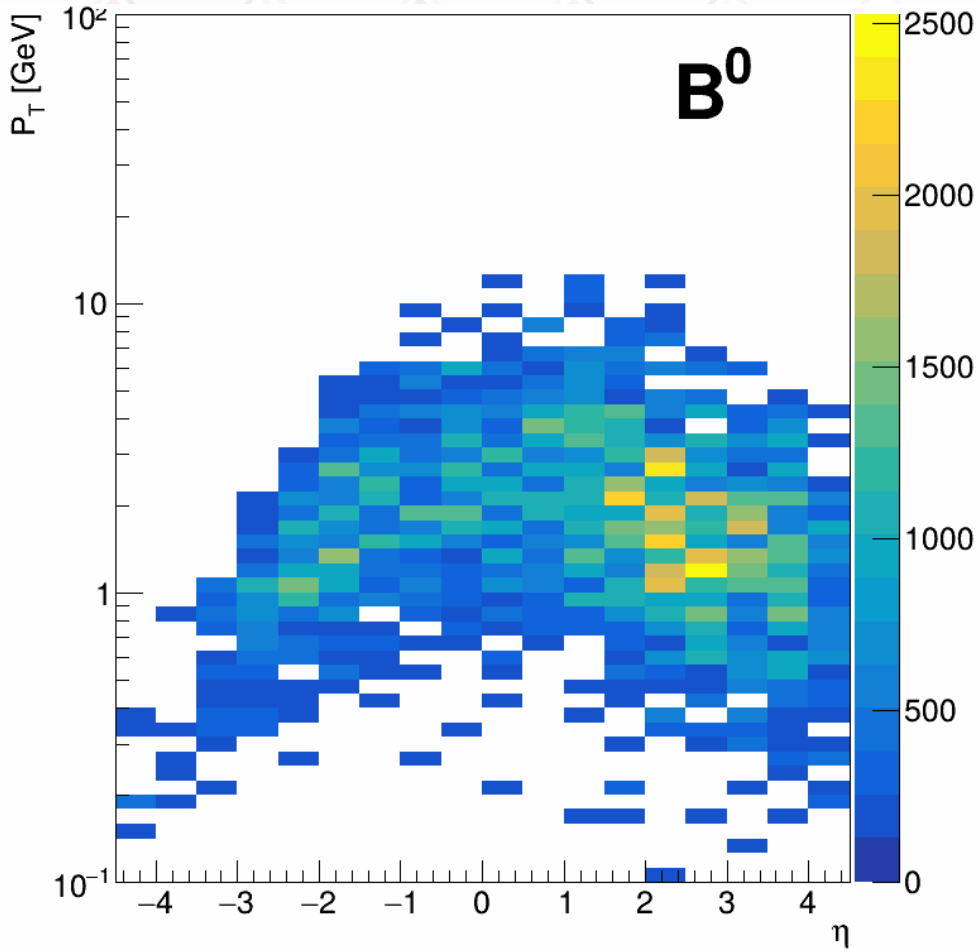


SIDIS/q2_0to1, w/o DIS (x,Q2,y, W cuts) cuts

B^0 events

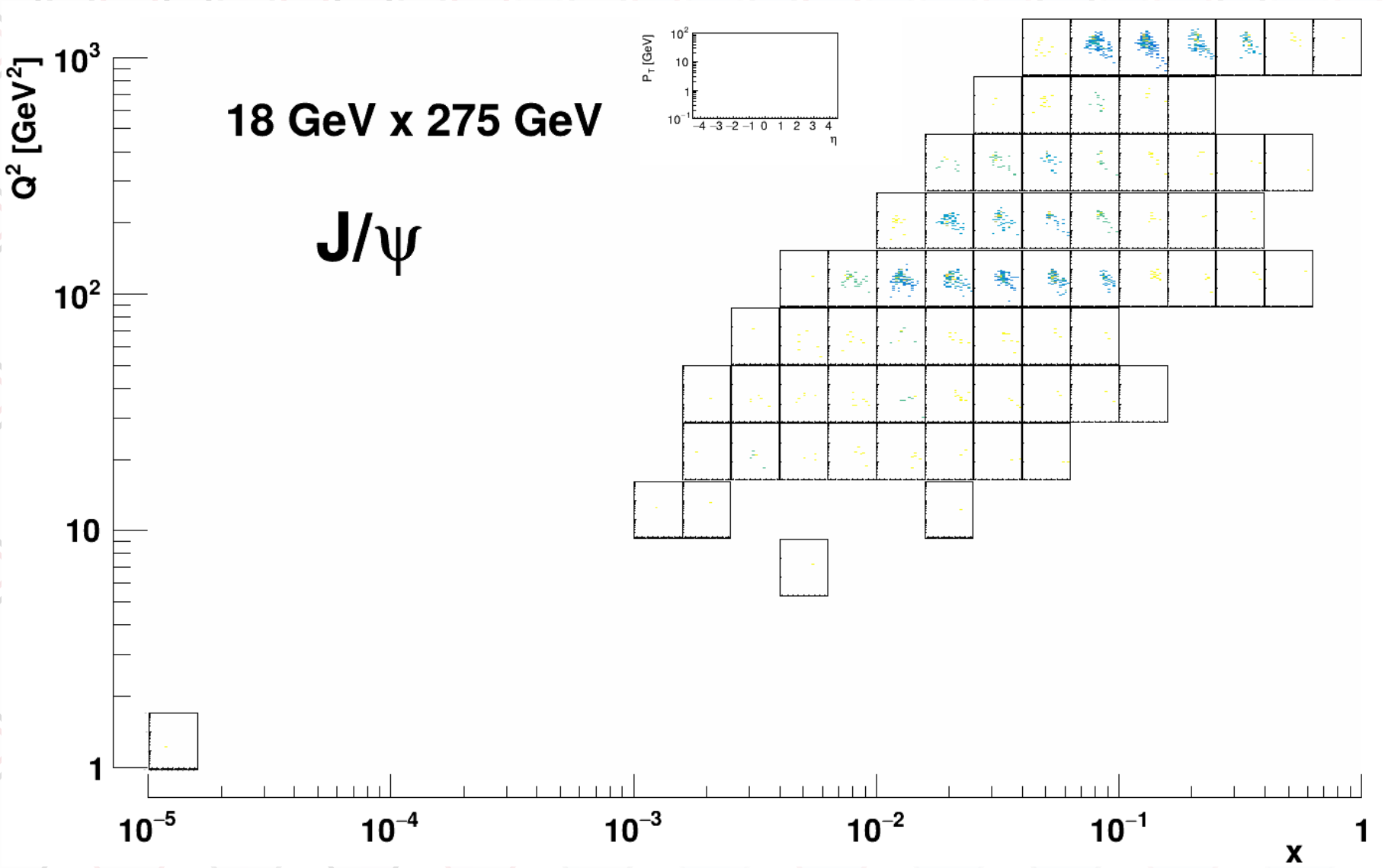


DIS/NC w/DIS cuts

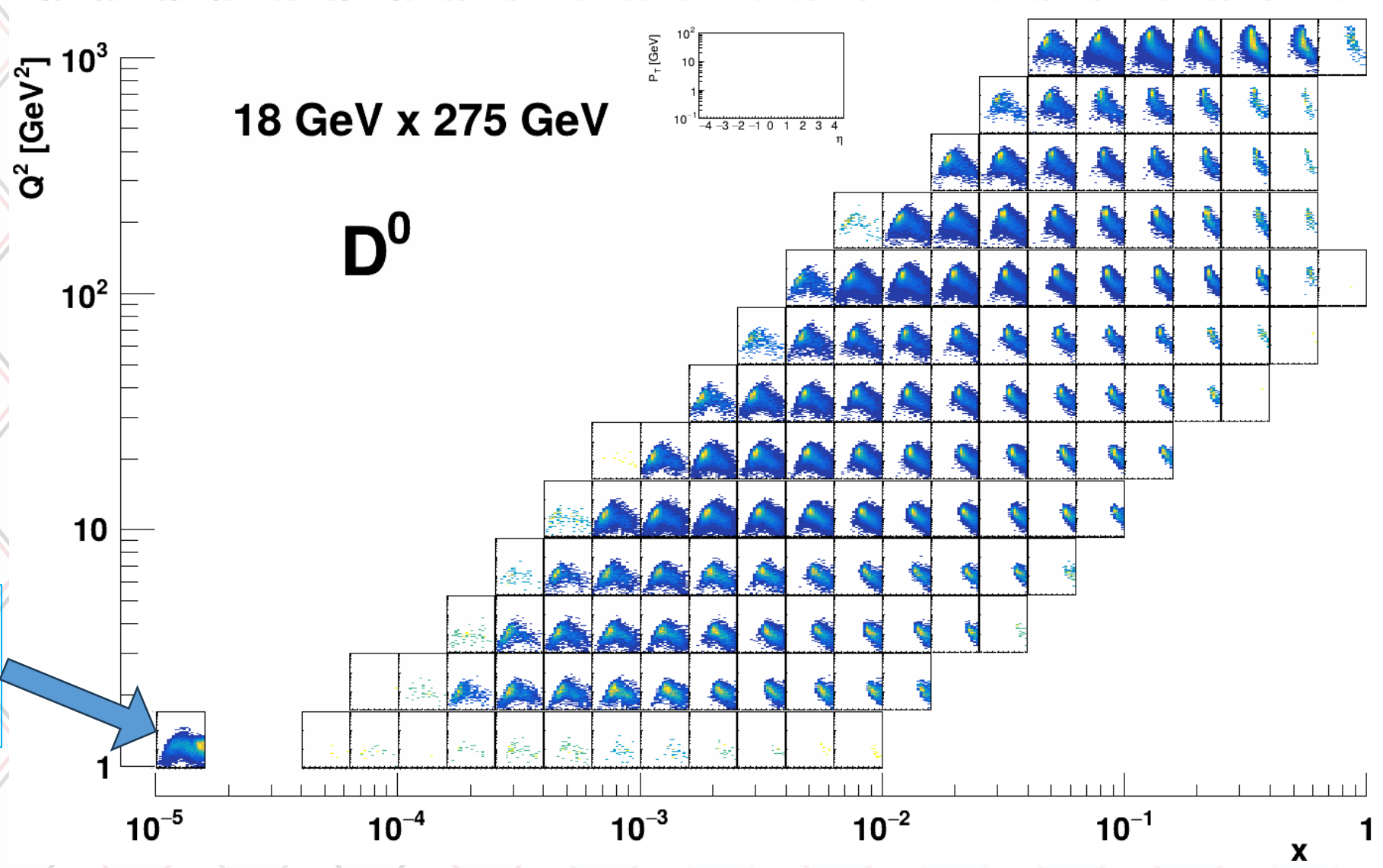


SIDIS/q2_0to1, w/o DIS (x,Q2,y, W cuts) cuts

DIS J/Psi events in x/Q^2 binning

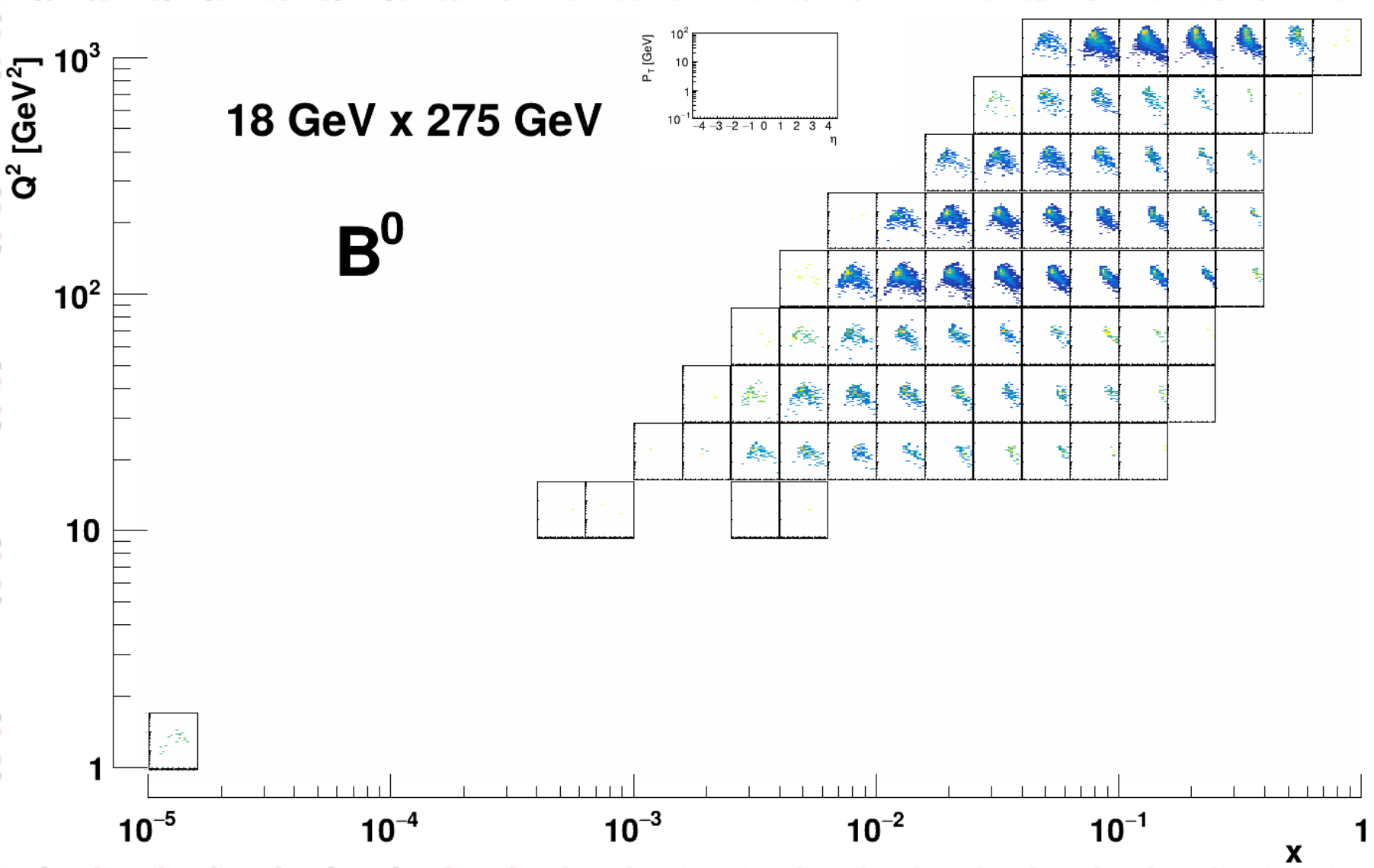


DIS D^0 events in x/Q^2 binning



Overflow for failed DIS cuts

DIS B^0 events in x/Q^2 binning



Conclusions

- Few J/Psi produced in actual DIS due to need for ccbar pair to form a J/Psi
- ManyJ/Psi from photoproduction, at lower pT and backward (and forward)
- Open heavy flavor abundantly produced, Q^2 ranges roughly follow HF masses (D mesons from Q^2 of a few GeV^2, B mesons for >10GeV^2), some below pair threshold of ~10, ~100
- High Q^2 for DIS J/Psi suggests some may come from B decays →actually, a large fraction from B decays