

Light Nucleus Production in p+p & d+Au



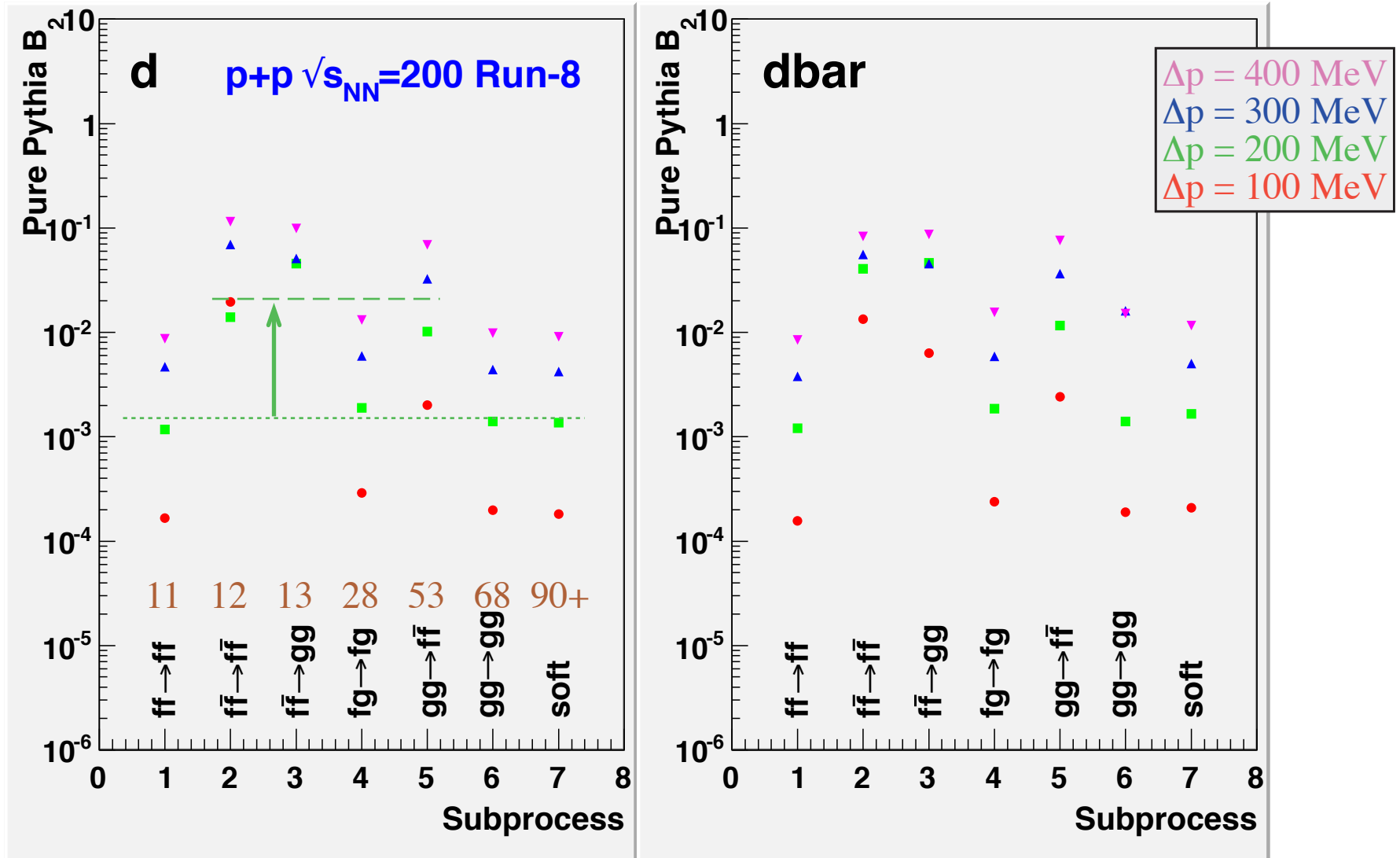
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Rice University
Light Flavor Spectra PWG Presentation
9/17/2009*

Coalescence Afterburner + pure Pythia events.....

define Δp - the relative momentum cutoff for p+n pair forming a deuteron ($k = \Delta p/2$)

$\Delta p \sim 120-140$ MeV implied by earliest Bevalac A+A results...

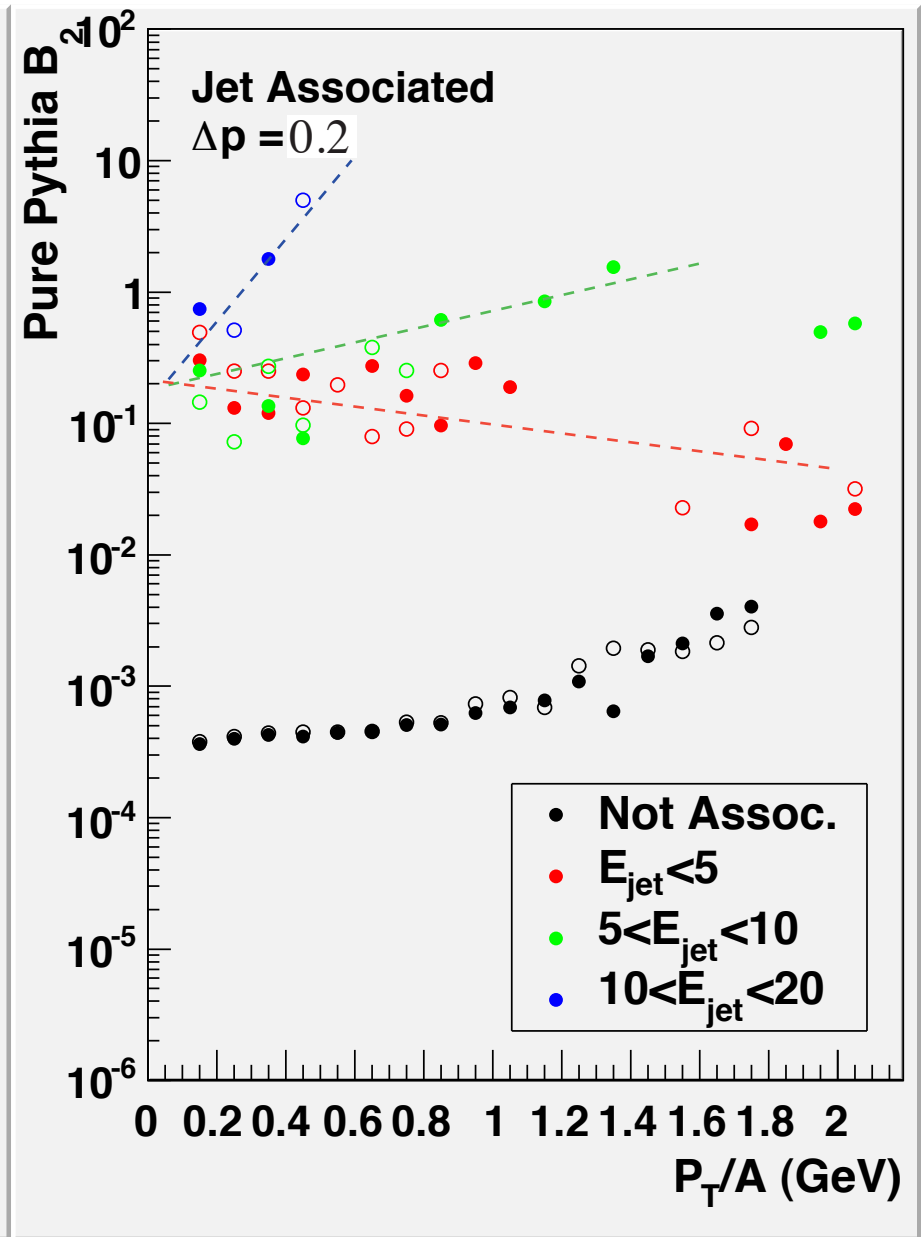
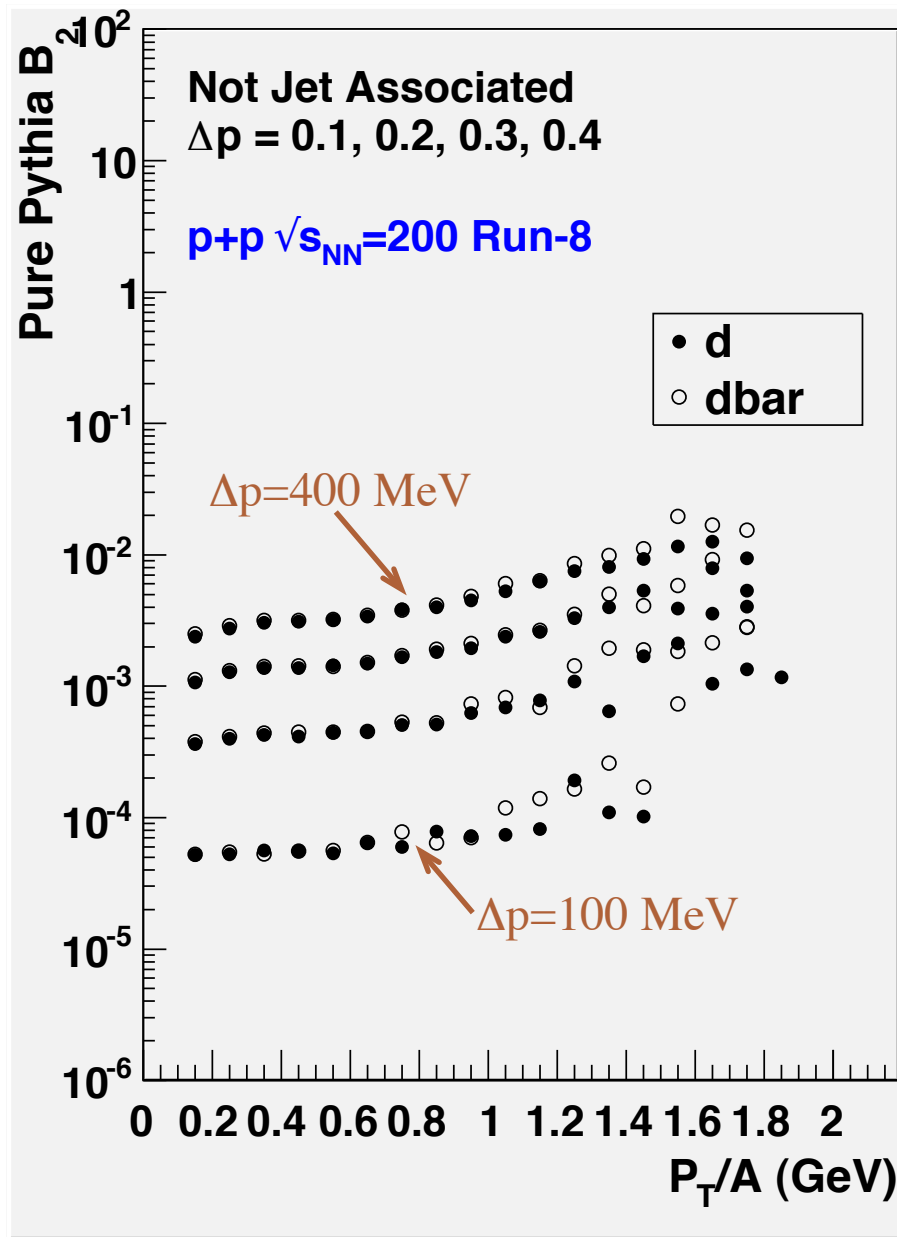
(somewhat larger value required to match existing p+p data - see previous pages)



Factor ~ 10 differences in d/p^2 depending on Pythia subprocess.....

Jets and deuteron production.....

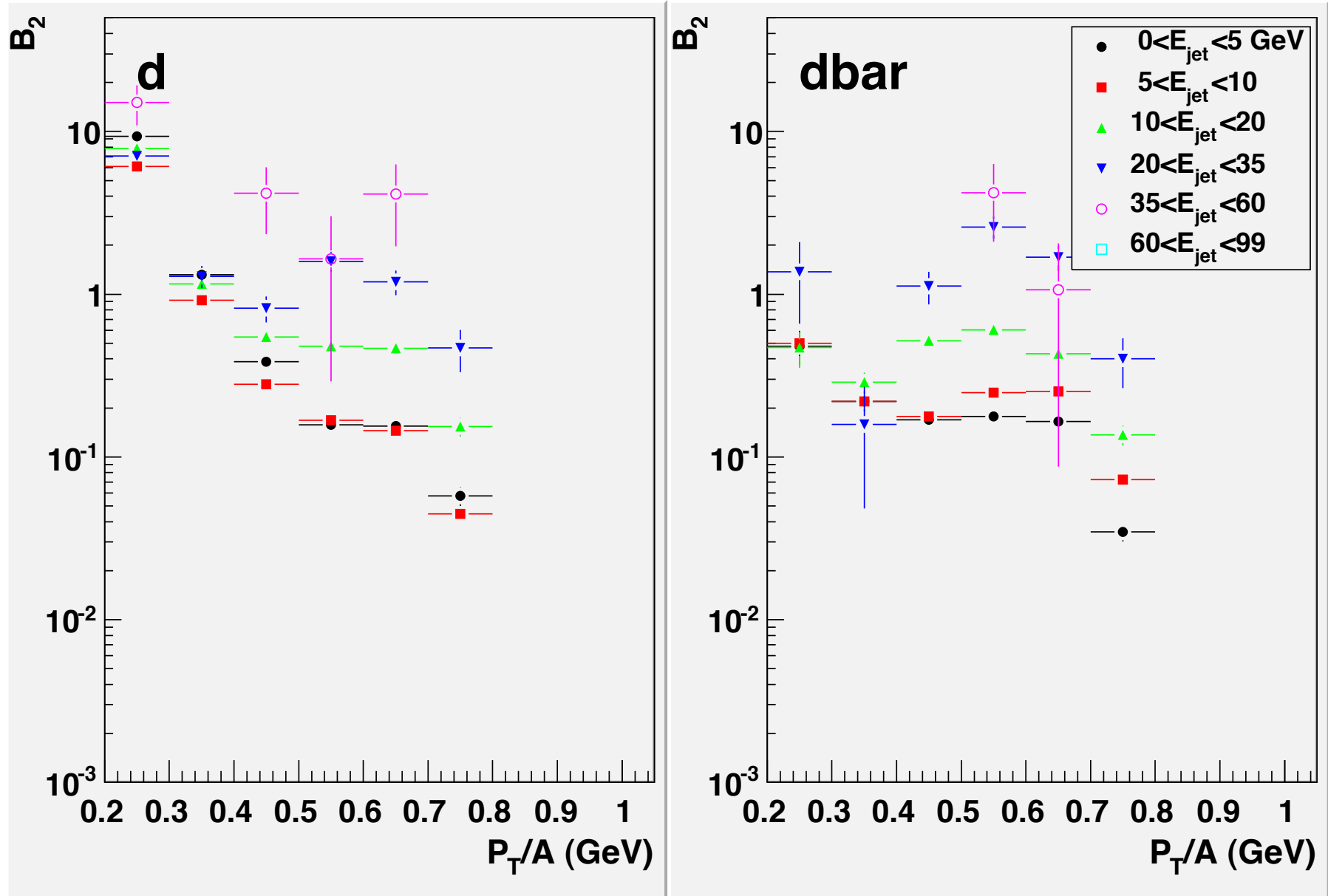
use Pythia's PYCELL (simple seeded cone) to find jets....



B2 values hugely increased in Jets... (and also increase with the jet energy?)

B2 for jet-associated particles gated on Jet Energy -- p+p 200 GeV

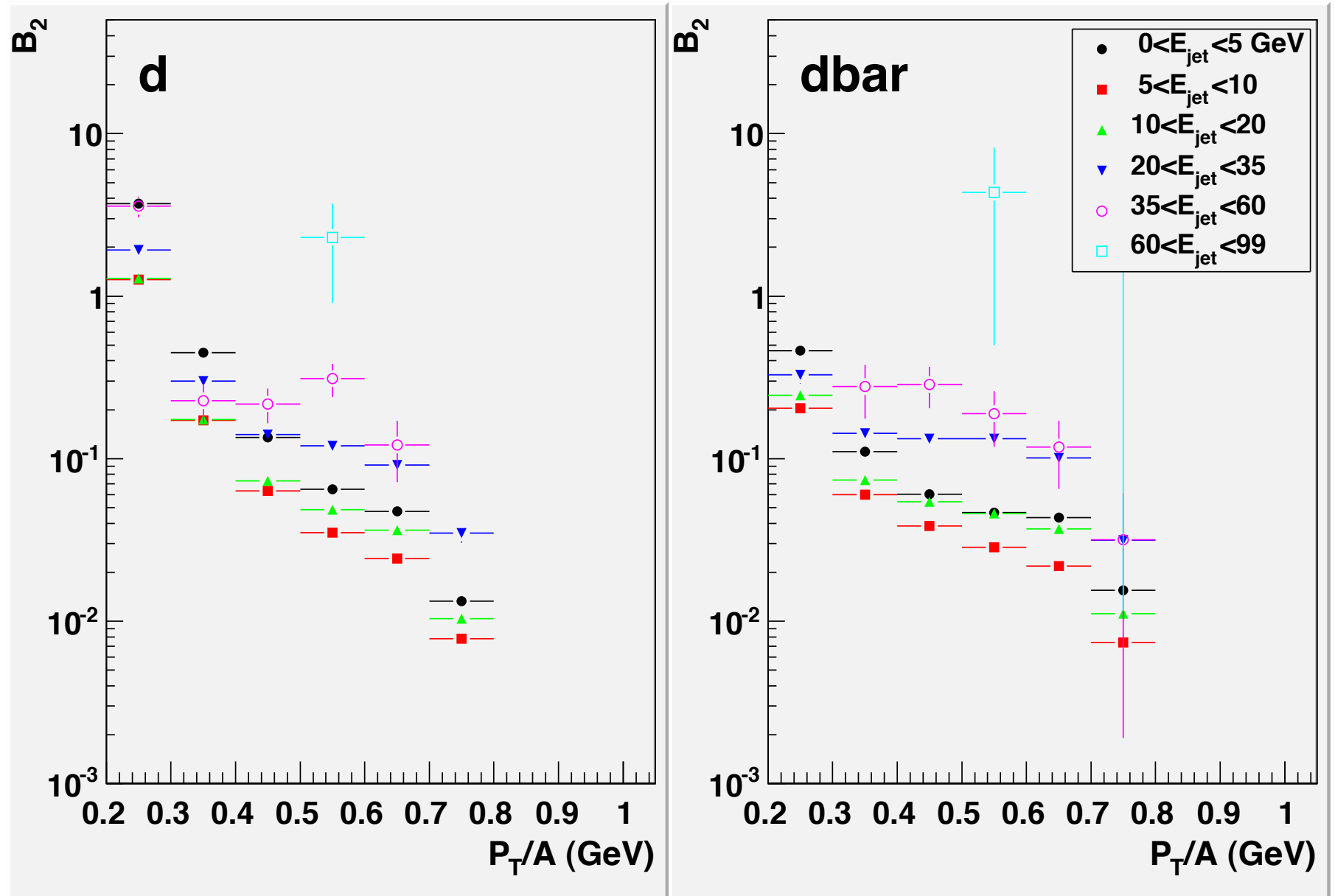
Here - "All Jets" and d/p^2 formed for $y=0$ & $\Delta y=1.0$



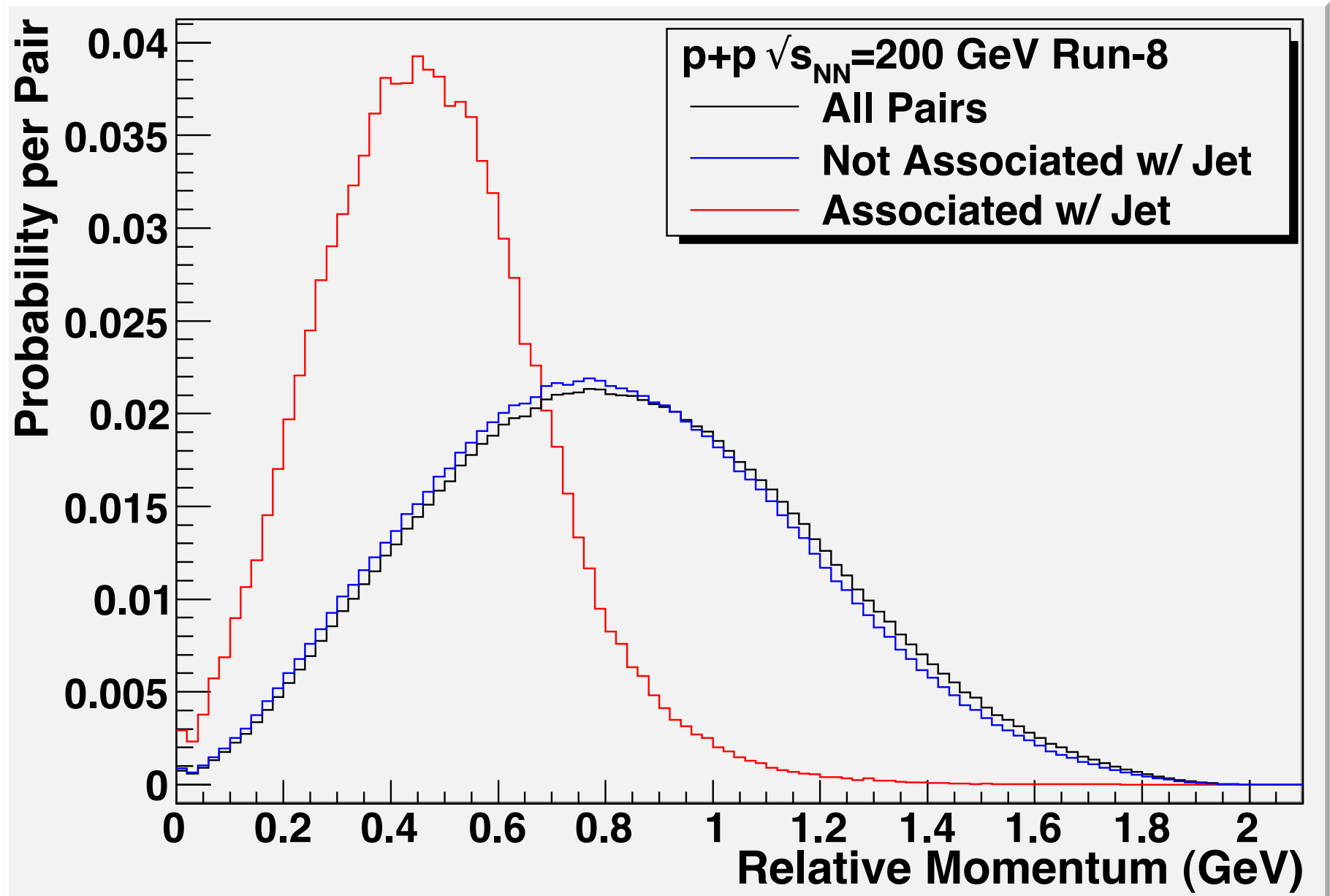
B2 increases with jet-energy (also suggested by Pythia)

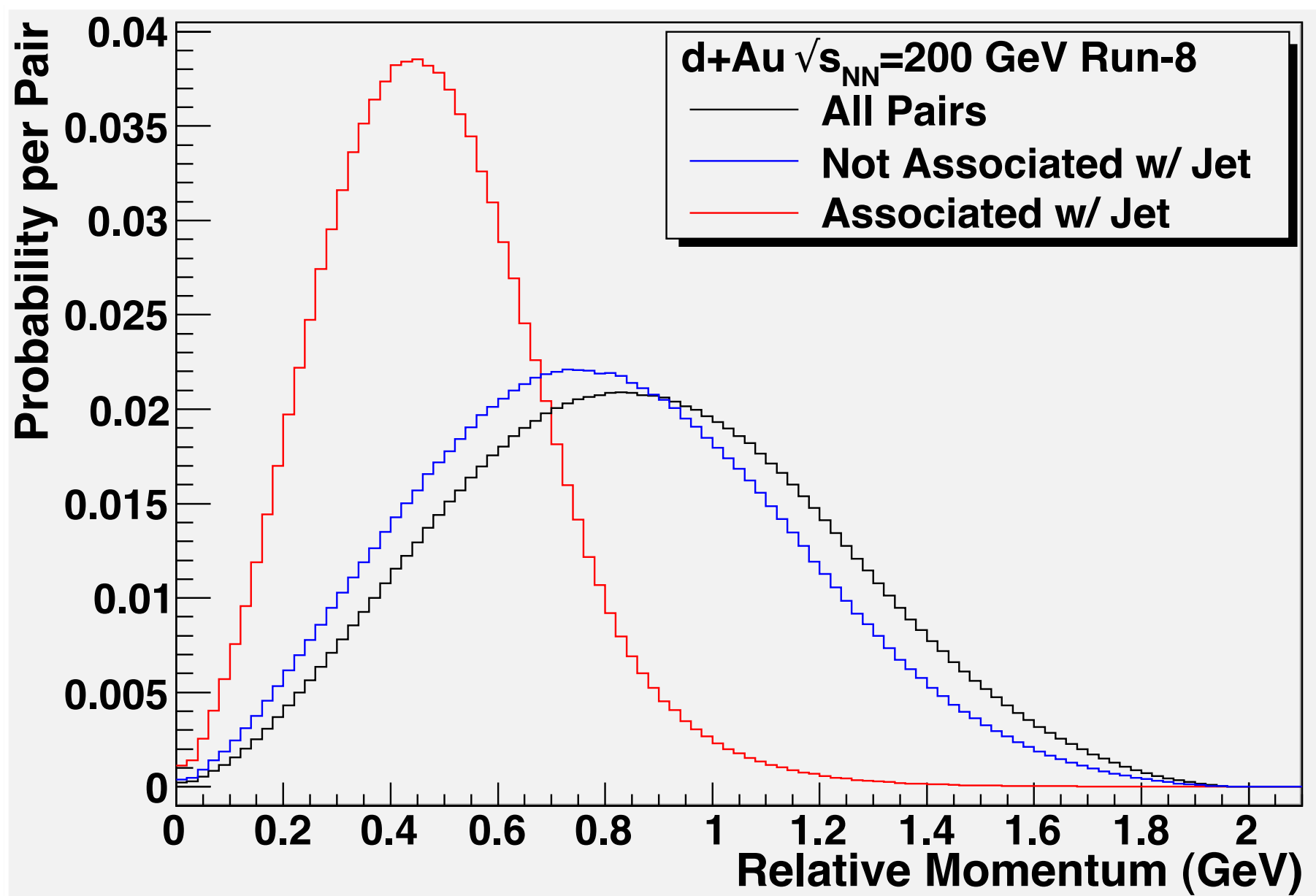
B2 for jet-associated particles gated on Jet Energy -- d+Au 200 GeV

Here - "All Jets" and d/p² formed for y=0 & Δy=1.0



Pair Normalized 2 “proton” relative momentum distributions
max Δp is 2.0 GeV due to dE/dx PID cut





Pair Normalized 2 “proton” relative momentum distributions, now gating on Jet Energy

