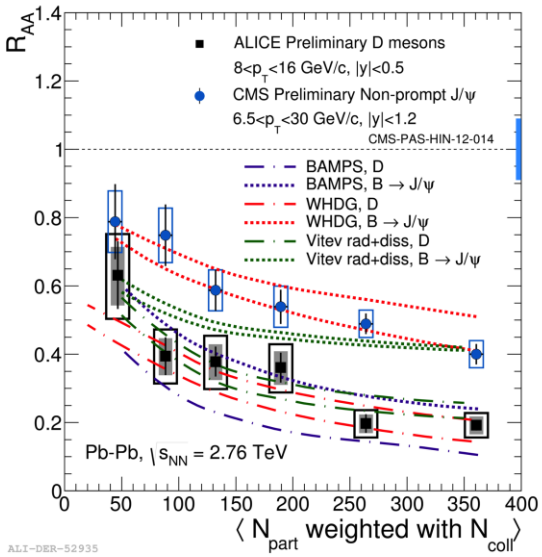
Heavy Flavor Discussion….

Amazing new data opens new critical questions…

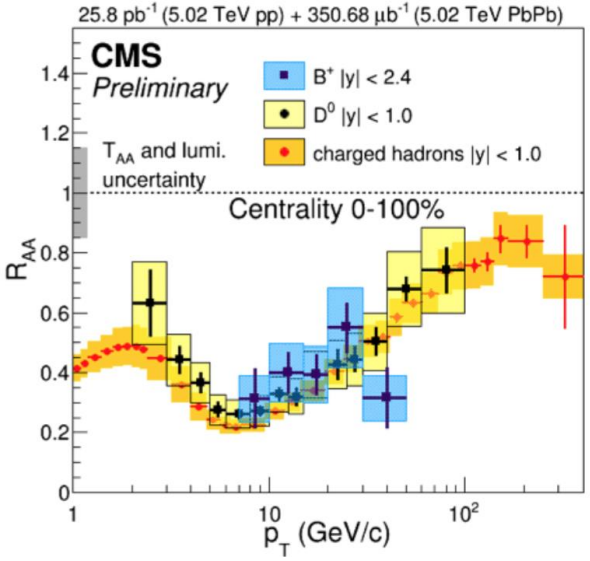
Jamie & Federico

Dead cone effect?

now you see me…

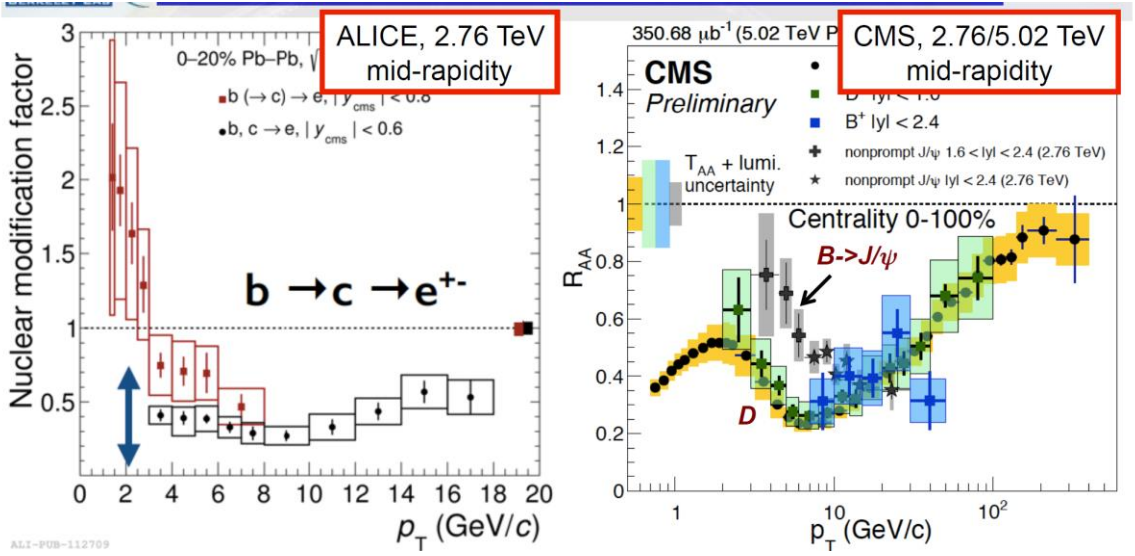


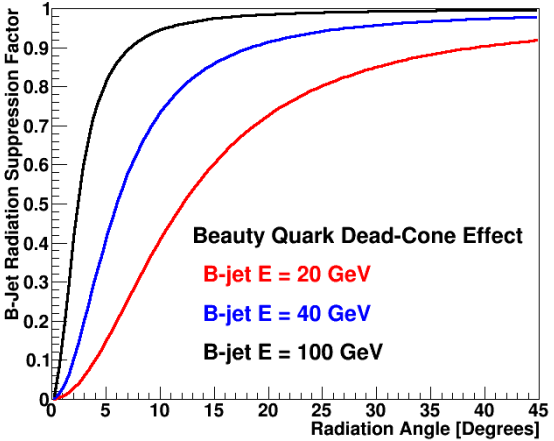
now you don't…



- expect difference at 10 GeV?

difference at low p_T
rapidity dependence?
uncertainties still large → more data needed

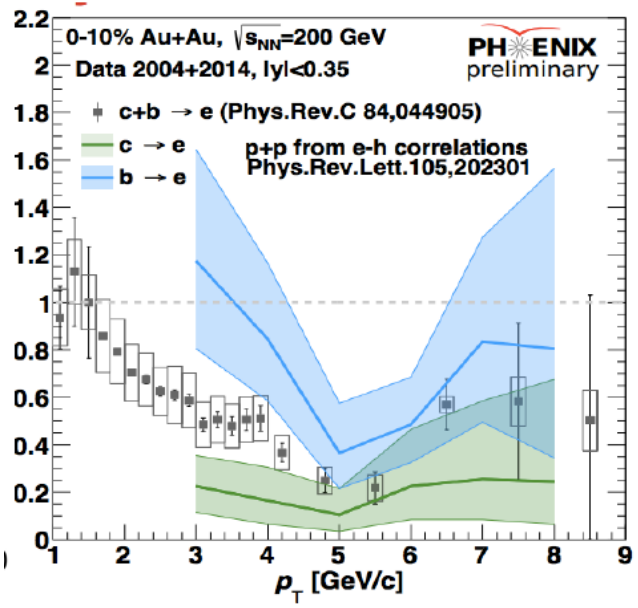


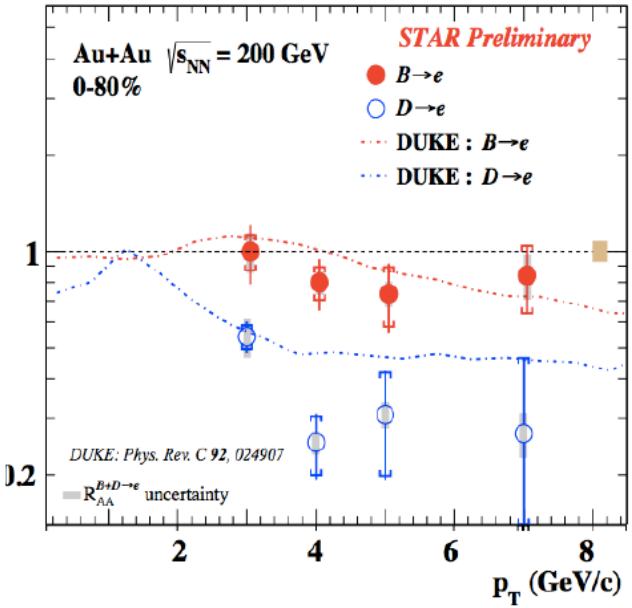


At p_T = 4 GeV, is that dominated by radiative energy loss or by Langevin type throttling?

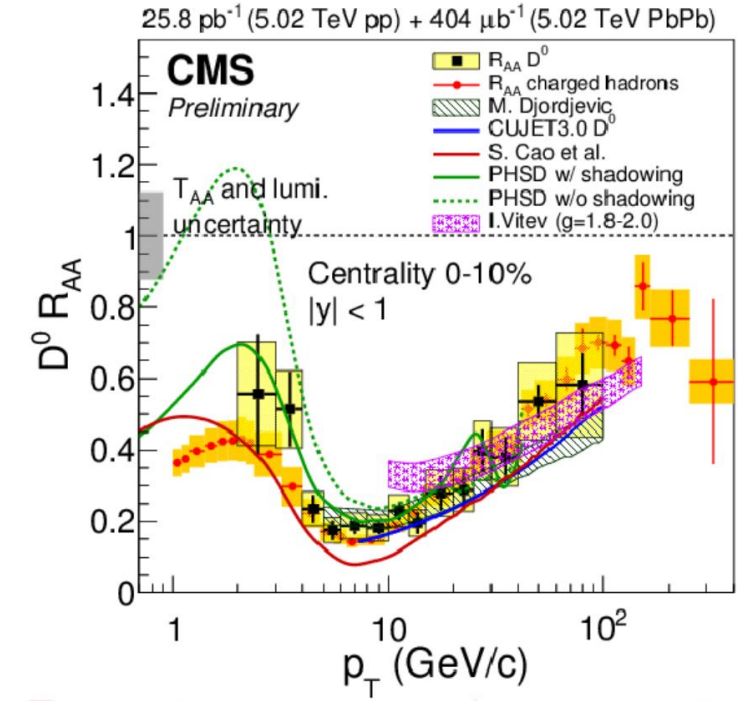
RHIC 200 GeV

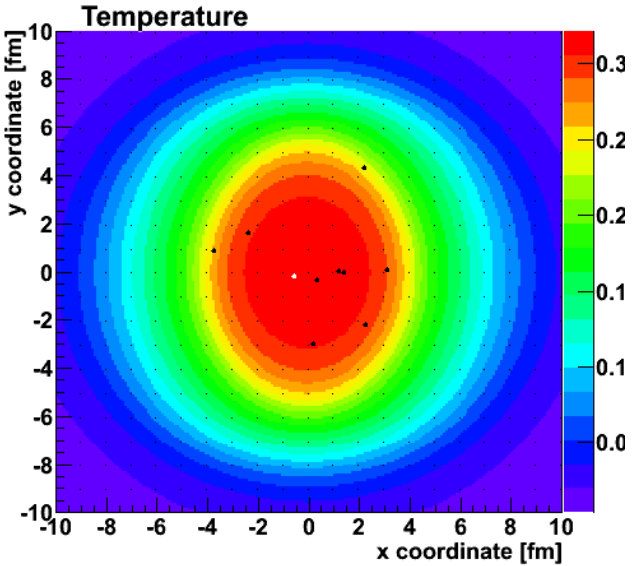
$R_{AA}(e_B) > R_{AA}(e_D)$





Geometry and Shadowing Question

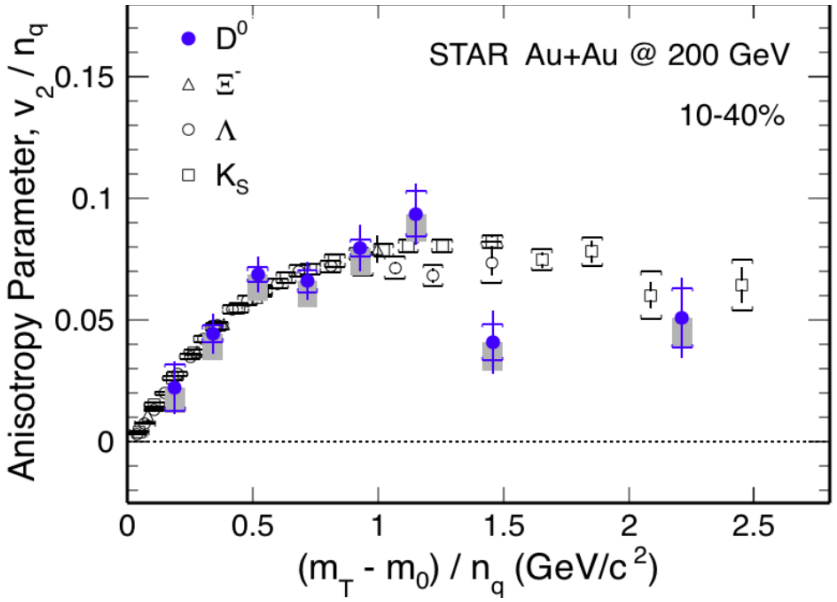


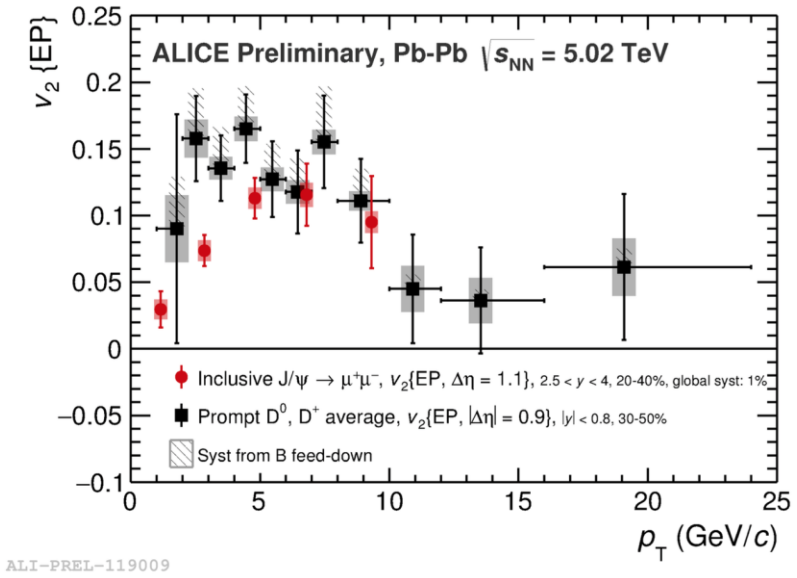


Shadowing suppressed charm x2 for pT < 3 GeV.

Key for description. What about the spatial correlation?

Charm Quark Flow versus Equilibration?





Strong coupling → charm quark flow (?) → Thermalization or Equilibration

- is it the right question to ask?
  - is equilibration necessary for hydro?
  - see Romatschke arXiv:1609.02820

Hydrodynamization
Isotropization
Equilibration

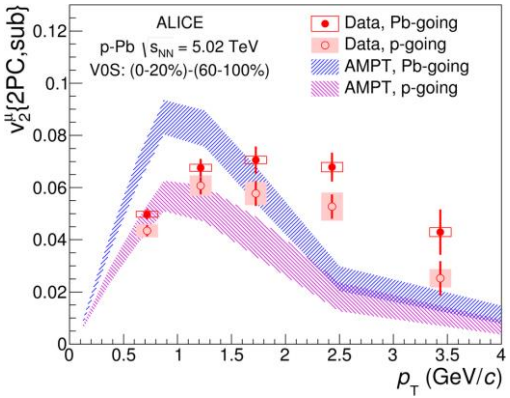
Can charm help understand small systems?

light-flavour sector:

- azimuthal asymmetries
- no evidence of medium effects
  - but system is small…

can charm help?

- wouldn't charm v_2 indicate interaction with medium?



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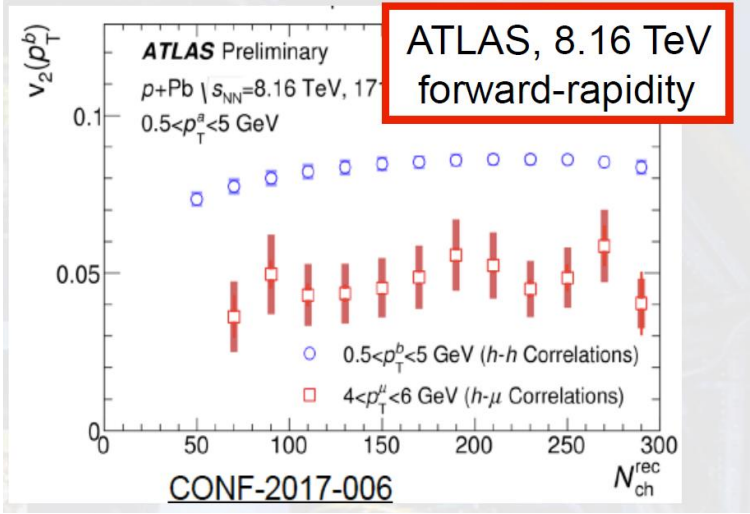
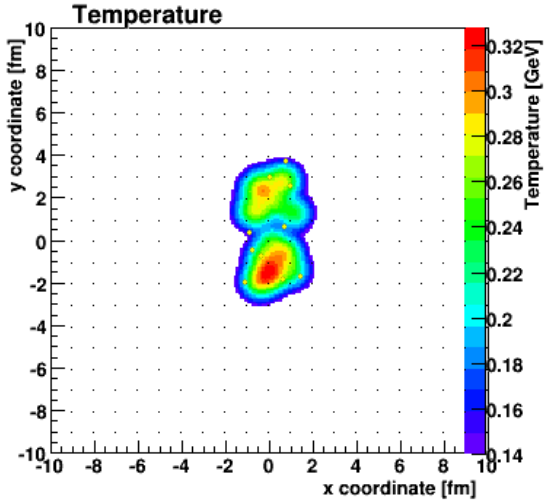
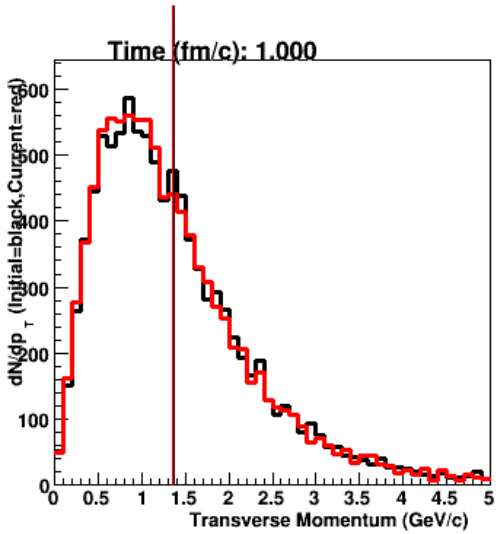
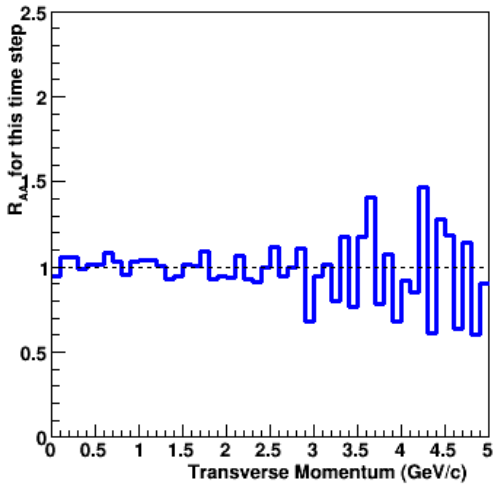


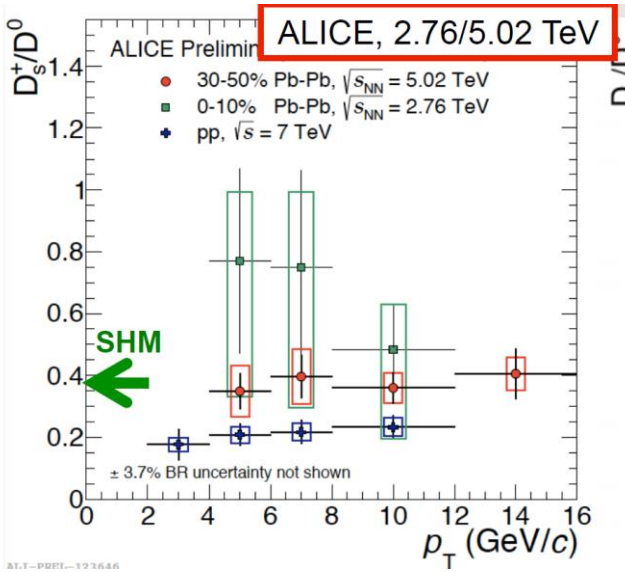
- modifications of p_T spectrum shape at high mult?

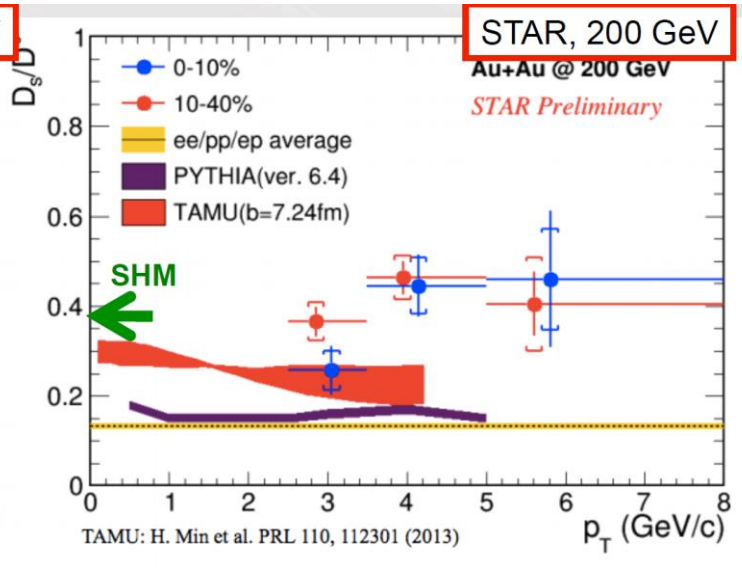

Temperature
y coordinate [fm]
x coordinate [fm]
Temperature [GeV]

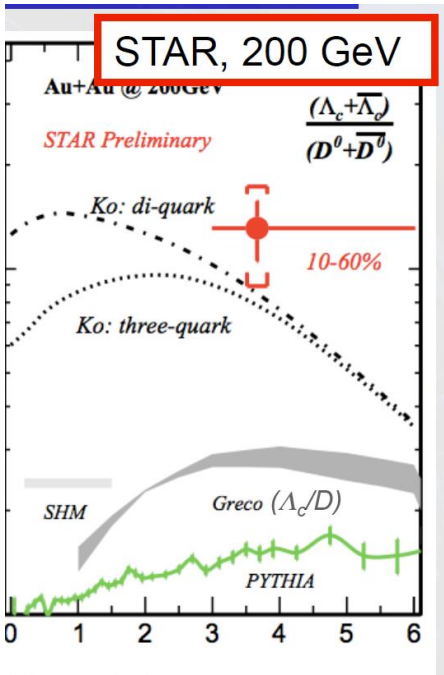

Time (fm/c): 1.000
dN/dp_T (Initial=black,Current=red)
Transverse Momentum (GeV/c)


R_AA for this time step
Transverse Momentum (GeV/c)

Charm Chemistry







Longer time – momentum dependence of these yields should prove very exciting.
When do we transition from Langevin + Coalescence into Energy Loss + Fragmentation regimes…