Heavy Flavors Working Group

- Normalization of J/ψ measurements
  - discussion with Carlos Lourenco
  - strategy/concerns for PHENIX
- muon trigger requirements and status
  - need to implement before use is required
- event generators
  - choose same signal distribution across PHENIX
  - admixed signal with MDC events
  - hit level merging

Normalization of J/ψ measurements

- Initially NA50 used J/ψ to Drell Yan ratio
  - many systematic effects cancel
  - normalize to number of NN collisions
  - Drell Yan statistics are limiting factor
- At RHIC, detected DY rates are lower
  - Drell Yan normalization impossible
- Now NA50 normalizes to min bias events
  - we will need to do something similar
  - better to use E_{zdc} or N_{ch} instead of E_T
    - theorists prefer E_{zdc}

NA50 normalization

- make E_t distribution for events with J/y
  likesign subtracted event sample
  think of this as 2D bins in E_t and M_{inv}

- make E_t distributions for min bias events

- plot ratio multiplied by f_{mb}/f_{DY}
  can get factors theoretically (i.e. Glauber)
  but Glauber calculation & DPM give
  same ratio but different f_{mb}

  NA50 uses “experimental” ratio
  smoothed E_t distributions from DY & mb
  events

For PHENIX

- $\sigma(J/\psi)$ vs. Ezdc
  - does not show suppression factor directly
- need to normalize out?
  - impact parameter distribution
    - min bias E_{zdc} distribution
  - increasing number of NN collisions
    - model dependent...
  - J/ψ cross section for pp collision
- must worry about B decays
  - 20% of J/ψ come from B
    - even more at high p_t

PHENIX analysis

- systematics between central and muon arms
  - cross check & y distribution of J/ψ
    - reconstruction efficiencies
    - acceptance
    - absolute σ measurement - L monitor

- identify reference process
  - best would be Drell Yan, but rates too low
  - min bias collisions? but signal may vary
  - pp collisions? is y distribution known?
  - open charm? yipes!!
  - use DY in pp collisions?
    - 40 K muon pairs m>4.5 GeV
      - in 2 muon arms
      - in 10 week spin run
    - ~7-8K electron pairs of same mass
      - in 2 arms