



# Muon Workshop Summary

**PHENIX Collaboration Meeting**

June 27, 1997

W. Wayne Kinnison for Ken Read

# Removal of Gap 6 of Muon ID

- **Physics**

- Eliminating plane 6 impacts the high- $p_t$  single muon ( $c \rightarrow \mu$ ,  $b \rightarrow \mu$ )
  - ⇒ May require the addition of equivalent of 20 cm of steel where absorbers used to be in front of Station 2 chambers

- **Schedule**

- Plane 6 would require a further month of mechanical design before the factory can start
  - ⇒ Unacceptable schedule risk

- **Financial Constraints**

- Save over \$700K by not buying, building, assembling, or installing one complete plane in each arm

## Conclusion I

- **Nearly unanimous affirmation of revised FDR baseline. Dropping plane 6 in each arm is required to maintain schedule contingency (and financial constraints). This will require insertion of special absorber behind nose cone for high  $p_t$  single  $\mu$  physics running**
- **"Every experiment before us (CDF, etc., ...) has had to add absorber. So this is normal." - GRY 6/24/97**

## Conclusion II

- **Will probably need concrete shielding in tunnel near DX to reduce neutron flux**
- **10K or 100K events are insufficient number to address level of systematic errors associated with measuring suppression of differential  $J/\Psi$  and  $\Psi'$  cross sections.**
- **Mixed event method allows reaching higher effective event statistics but has serious drawbacks.**
  - Biases for high  $p_t$  particles
  - Do not provide increased (required) single  $\mu$  statistics

## Conclusion III

- **Have identified a team within muon arms to create a non-GEANT parameterized "Fast Monte Carlo"**
- **Will use 10-100K events to develop/tune parameterizations**
- **Will use "Fast Monte Carlo" to update CDR figures.**

## Conclusions IV

- **Muon Arm group agrees with the list of physics topics except for omission of any spin topics. We will serve as "umbrella" for such directed studies. MuID and MuTr are already tightly integrated throughout our arm. Do need to identify a team (with e people) to do  $\mu e$  studies.**