

Run-10 Medium-Energy Running Update

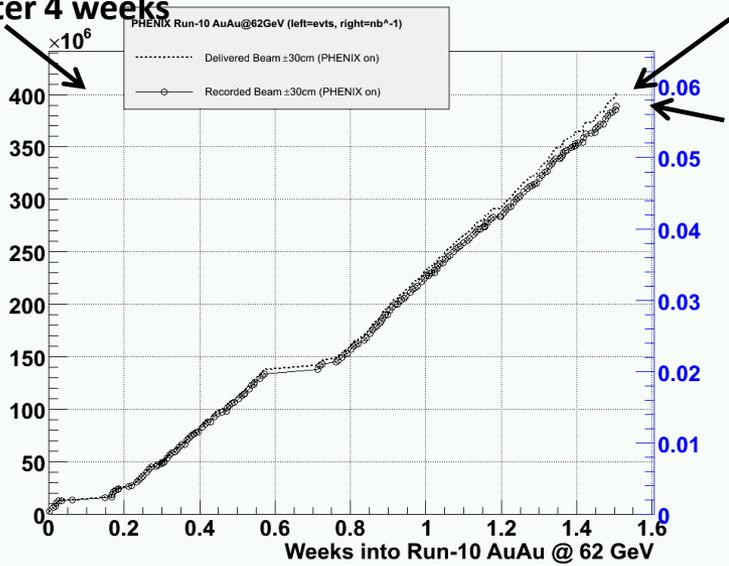
Stefan Bathe for PHENIX

RHIC Machine-Experiment Meeting

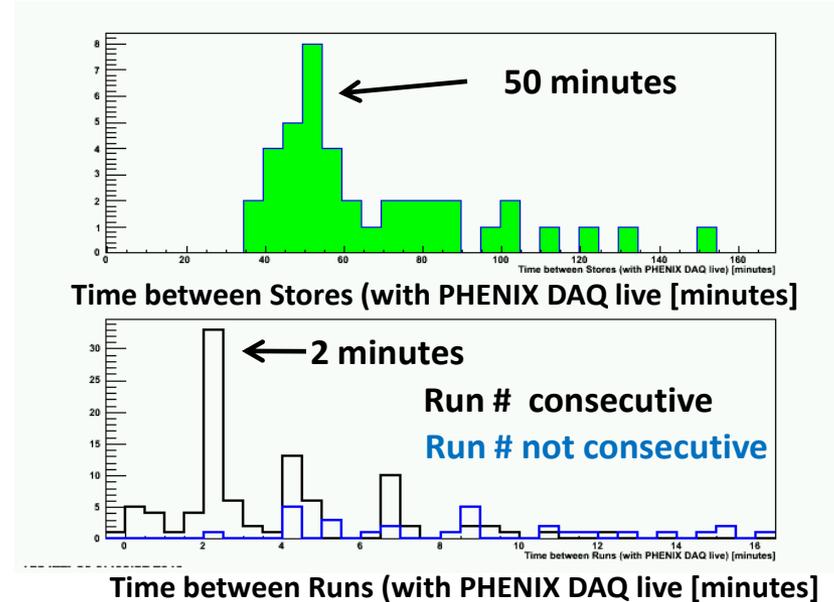
3/30/2010

Excellent Performance @ 62 GeV Both RHIC & PHENIX

Original goal
after 4 weeks



Delivered
(PHENIX on)
Recorded
(PHENIX on)

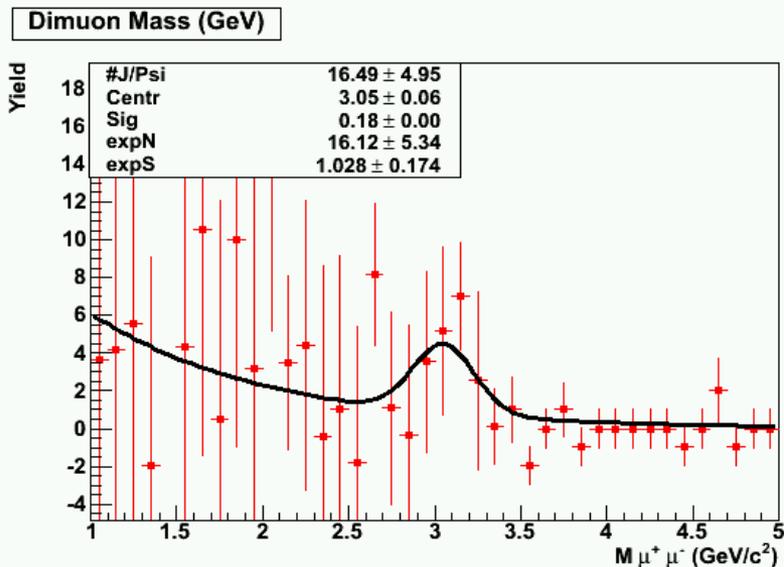
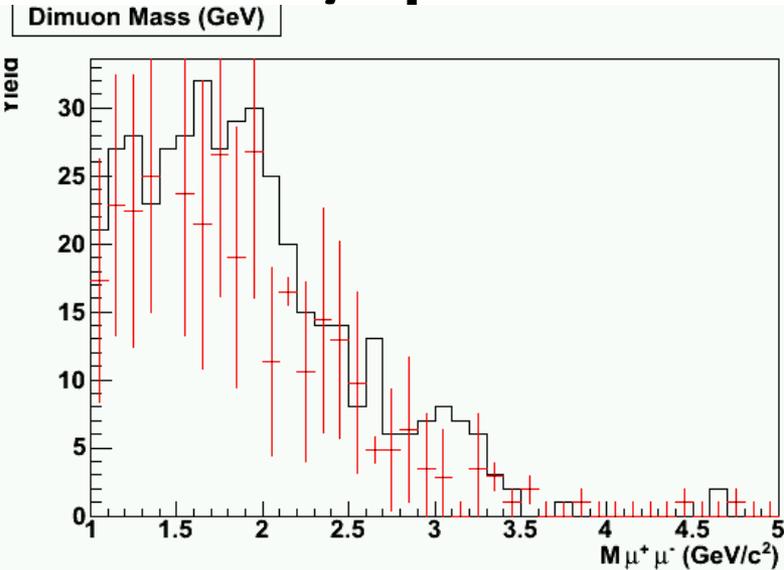


- Performance **twice** better than expected
 - 375 M / 400 M events after 12/28 days
- What to do with this?

Proposal—Part 1

- End 62.4 GeV run one week early (after 3 weeks)
- What do we get?
 - About **600 M minimum bias events**
 - Will assure good data set for HBD dilepton measurement
 - **Measurement of J/ψ suppression to test recombination models**
 - Saves one week of running time

J/ ψ Measurement at 62 GeV



- From 50 M min. bias events
- # of J/ ψ consistent w/ expectation (from 62 GeV Cu+Cu)

- Expect about 80 J/ ψ per 100 M min. bias events (both muon arms combined)
- In three weeks of running
 - 600 M min. bias events (recorded)
 - 500 J/ ψ
- Measure J/ ψ suppression at 62.4 GeV
- Recombination models (Rapp et al.)
 - J/ ψ yield at 200 GeV dominated by recombination
 - predict much larger suppression at 62 GeV than at 200 GeV
 - J/ ψ yield down 1/3 at 62 GeV
 - Recombination down 1/10
- **Extremely interesting test of recombination models**

Proposal—Part 2

- What to do with the saved week?
- Proposal to add it to 39 GeV part of run
- What will that gain us?
- HBD dilepton measurement that was not thought to be possible at time of PAC Meeting

Dilepton Measurement at 39 GeV

- Adding 1 week increases running time by 2/3 (1.5 weeks → 2.5 weeks)
- Previous estimate: record 50 M min. bias events
- **Updated estimate: record 200 M min. bias events**
 - excellent performance and increased running time
 - 30 M per day at 62 GeV; E^2 scaling: 12 M at 39 GeV
- **Will allow dilepton measurement with HBD at 39 GeV** (not thought possible at time of PAC meeting)

How do dilepton excess and p modification at SPS evolve into the large low-mass excess at RHIC?

Summary of Proposal

- End 62 GeV run one week early
 - Measurement of J/ψ suppression at 62 GeV to **test recombination models**
 - 500 J/ψ from 600 M minimum bias events in 3 weeks
- Use available week for 39 GeV run
 - Dilepton measurement at 39 GeV with HBD
 - 200 M events in 2.5 weeks
 - **How do dilepton excess and modification at SPS evolve into large low-mass excess at RHIC?**