Executive Summary

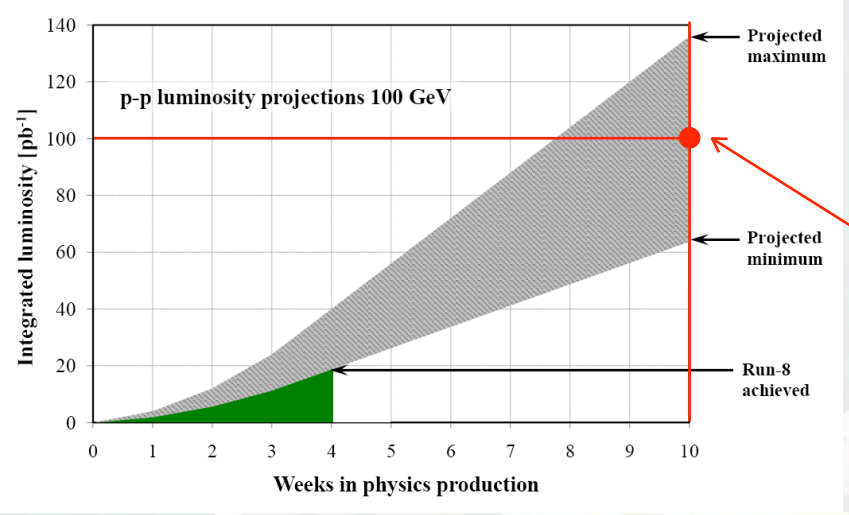
- STAR Run 9 plans
  - Commissioning of major detector upgrades : DONE
  - STAR Run 9 program consistent with BUR
  - 200GeV program: Highest priority
    - Physics: Precision inclusive measurements / Di-jet measurements : Δg
      - Assumptions: P ~ 0.6 / $L_{delivered}$ ~ 100pb^{-1} $L_{recorded}$ ~ 50pb^{-1} FOM ~ 6.5pb^{-1}
      - Need: ~ 10 weeks (April 11, 2009 - June 20, 2009)
    - pp2pp program needs ~ 1 week including setup (June 21, 2009 - June 27, 2009)

Highest PAC recommendation!

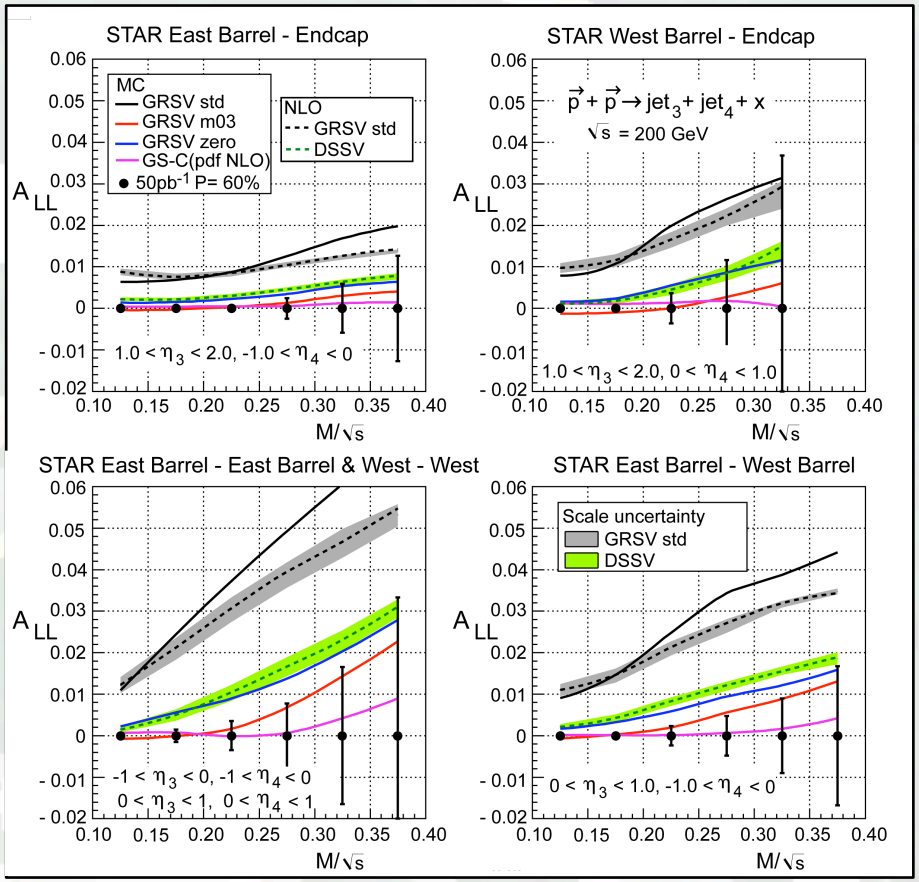
  - 500GeV program:
    - Commissioning of major detector upgrades in the beginning : DONE
    - Preparation of future 500GeV program - Establish local polarimetry with transverse polarization : DONE
    - Physics: First mid-rapidity W measurements (1) W cross-section (2) W A_L (W^+)
    - Assumptions: P ~ 0.5 / $L_{delivered}$ ~ 30pb^{-1} $L_{recorded}$ ~ 10pb^{-1} FOM ~ 2.5pb^{-1}
    - 500GeV Running time: ~ 5 weeks (Until April 10, 2009)

STAR Run 9 200GeV program (Gluon polarization)

- Projected performance / assumptions - STAR 200GeV program



Reach BUR goal in 10 weeks!



- Precision inclusive measurements, in particular inclusive jet production
- Di-Jet production - Probe x dependence of $\Delta g(x)$
- Substantial improvement of gluon polarization reflected in highest PAC recommendation!

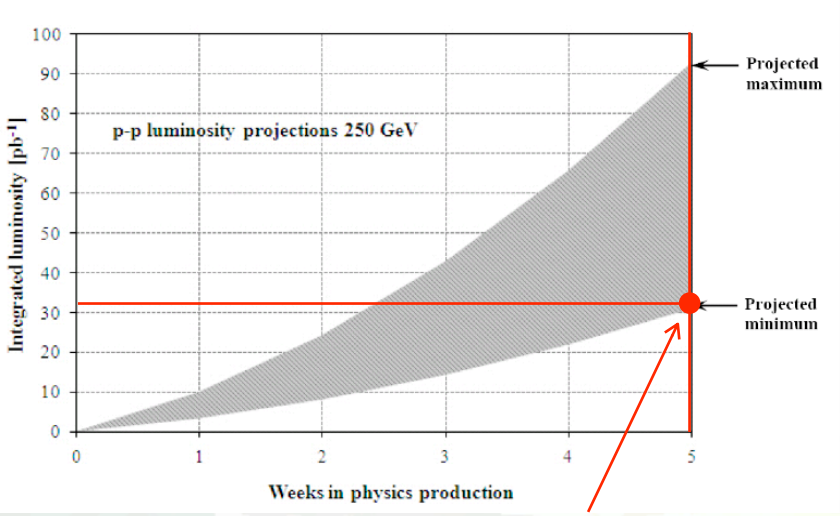
Assumption: FOM = $P^4 \cdot L \sim 6.5 pb^{-1}$

$P \sim 0.6$ / $L_{delivered} \sim 100 pb^{-1}$ $L_{recorded} \sim 50 pb^{-1}$

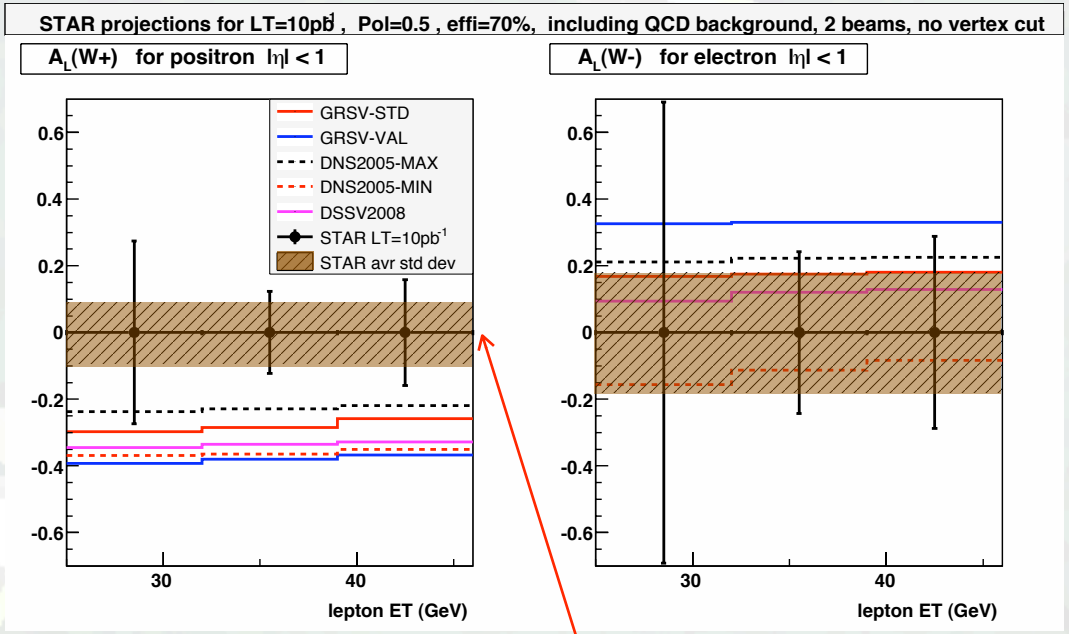
Need: 10 weeks

STAR Run 9 500GeV program (W production)

- Projected performance / assumptions - STAR 500GeV program



Assumed only minimum projection / Time needed in STAR for commissioning work: ~10 pb^{-1} (recorded)



- Primary goal: Develop local polarimetry in STAR at 500GeV (⇒ ZDC) : DONE
- Physics Goal 1: First W measurement in STAR at mid-rapidity : Establish signal (Extensive full GEANT simulations completed of W signal and QCD background events - Feasibility demonstrated!)
- Physics Goal 2: First A_L W measurement (W^+)
- Other opportunities: Jets / Di-Jets at low x

Assumption:

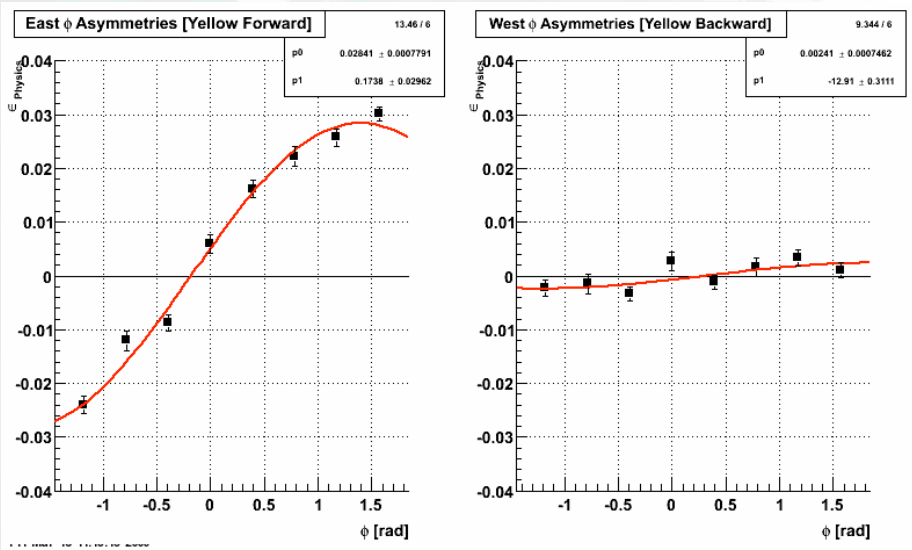
$FOM = P^2 \cdot L \sim 2.5 pb^{-1}$

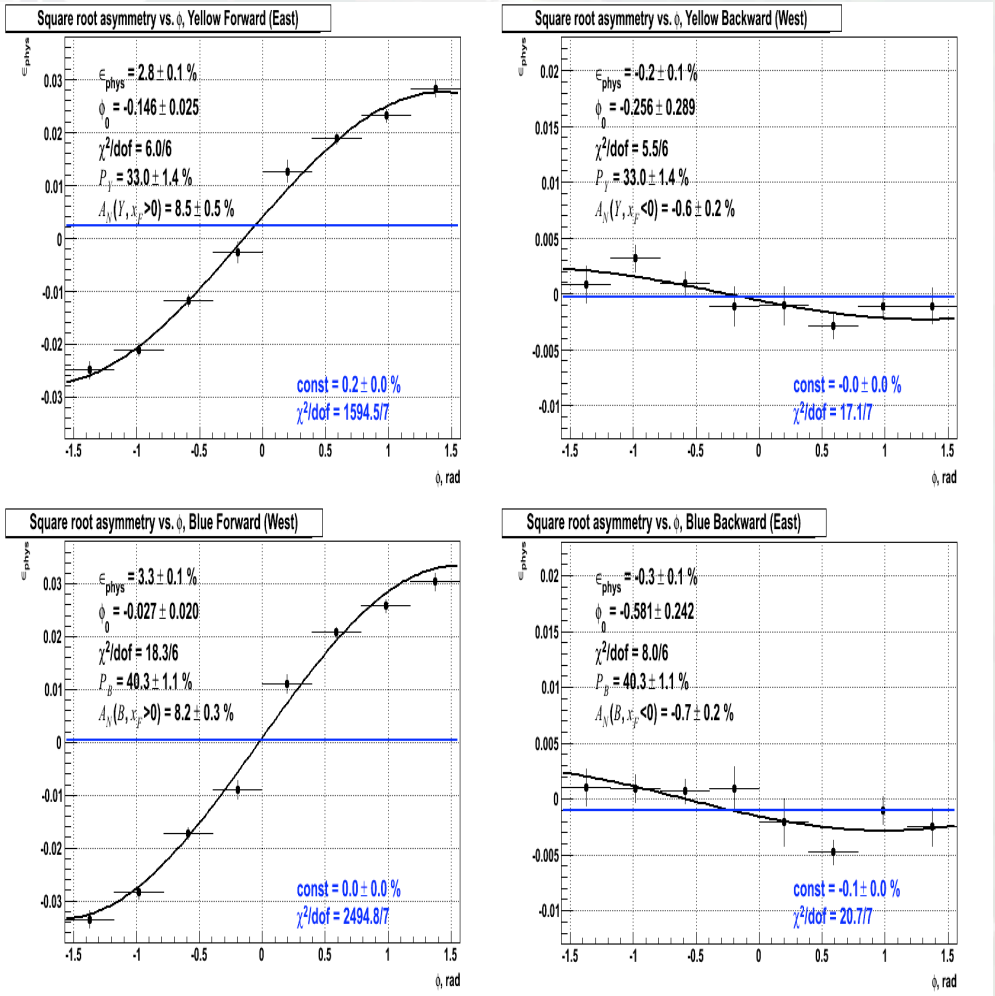
$P \sim 0.5$ / $L_{delivered} \sim 30 pb^{-1}$

$L_{recorded} \sim 10 pb^{-1}$

STAR Run 9 500GeV program

- STAR ZDC SMD Local Polarimetry
  - ZDC-SMD: Scintillator strip shower max. detectors
  - Two independent analyses to cross check results (UCLA/LBNL and ANL/Valpo)
  - Large asymmetry seen during transverse running period (A_N ~ 0.075)



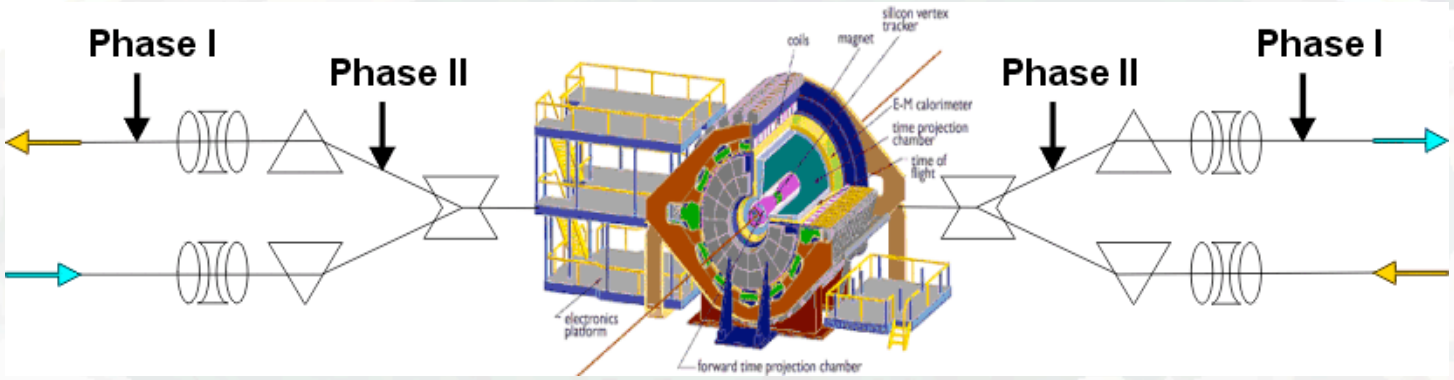


Single spin asymmetry measured with ZDC SMD at STAR (fill 10348, 10M events)

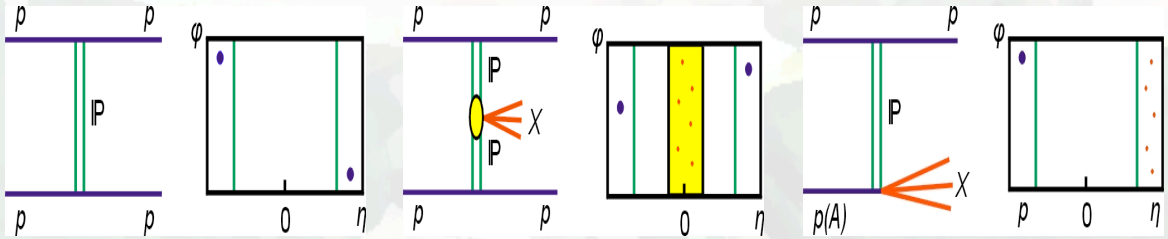
Fri Mar 13 04:04:26 2009

STAR Run 9 200GeV program (pp2pp)

- Unique opportunity of diffractive physics in STAR : pp2pp



- Physics: Elastic scattering / Central production / Single diffraction dissociation



Vertical Roman Pots

- Need to reach small t values to measure small masses of interest ⇒ large β^* = 20m required, special optics and beam scraping needed
- pp2pp setup moved to STAR and integrated (Run 8) / Commissioning of trigger and Si detectors ongoing / Need: Dedicated run of 4-5 days (incl. 2 days setup)