Status on AGS cold snake

- Cold mass is now in the cryostat. It is in the phase of wiring, and because of the design of the cryostat is too tight, it takes much longer time than expected.
- Cold snake testing
  - George's realistic estimate: March 7 (original March1)
  - The testing takes 2 weeks
- Cold snake installation
  - If George's estimate holds, quite part of the installation can be done during the 2 days shutdown time between Cu and pp.
  - If testing fails, this means another couple of month of fixing, which will prevent us from commissioning the cold snake during the FY05 run and lower the polarization project for the FY06/07 run.

Status of RHIC

- A ramp for Physics at 100GeV is prepared(pp21)
  - Fine tuning of dispersion at STAR and PHENIX is in process
- Verified with Cu beam, we are able to correct the orbit down to 0.5mm rms along the ramp
- Polarimeter
  - CNI:
    - hardware on schedule
    - application developed and had its first dryrun
  - Jet
    - on schedule

Machine Configuration for pp physics

- Energy
  - Injection: 46.5
  - Store: 191.5
- Working point
  - Ramp: 28.72, 29.73
  - Store: 28.68, 29.69
- Lattice: IP 6 8 10 12 2 4
  - Injection: 10 10 10 10 10 10
  - Store: 1 1 10 5 3 10
- Collision Pt: IP 6 8 2
- RF:
  - No rebucketing at store

Timeline

- March 1: AGS pp setup
- March 24, 0800:
  - end of Cu run and beginning of pp run
- March 24 - March 25
  - Jet installation
  - CNI pol target&detector installation
  - AGS cold snake installation (?)
- March 25 – April 1
  - Machine setup
- April 1 – April 15
  - Ramp up
- April 16 – June 19
  - Physics run

Machine Configuration for pp to 205 GeV

- Energy
  - Injection: 46.5
  - Store: 391.5
- Working point
  - Ramp: 28.72, 29.73
  - Store: 28.68, 29.69
- Lattice: IP 6 8 10 12 2 4
  - Injection: 10 10 10 10 10 10
  - Store: 2.0 2.0 10 5 3 10
- Collision Pt: 6 8 10
- RF:
  - No rebucketing at store

Machine Configuration for pp to 170 GeV

- Energy
  - Injection: 46.5
  - Store: 324.5
- Working point
  - Ramp: 28.72, 29.73
  - Store: 28.68, 29.69
- Lattice: IP 6 8 10 12 2 4
  - Injection: 10 10 10 10 10 10
  - Store: 2 2 10 5 3 10
- Collision pt: 6 8
- RF:
  - No rebucketing at store

Acceleration beyond 100 GeV

- Goal
  - To evaluate the spin dynamics beyond 100 GeV
    - What's the impact of 1mm rms orbit distortion(achieved) on the polarization transmission efficiency?
    - How much can we correct the orbit with the existing RHIC orbit correction system at higher energy?
  - To provide a guidance/justification for the full ring re-alignment of RHIC during summer of 2005
- Expection
  - Little or no polarization is expected at energy of 217 GeV with 1mm orbit distortion
  - Polarization ramp measurement will be the key technique in exploring the depolarization mechanisms and locations.

Acceleration beyond 100 GeV

- Plan
  - Simulation
    - Spin tracking with ~1mm rms orbit distortion
    - Spin tracking with different orbit distortions to evaluate the tolerance of orbit distortions.
  - With beam
    - Develop the ramp to 170 GeV(10m – 2m from inj to 100GeV

      And remain 2m upto the top)
      - Measure the polarization/orbit distortion along the ramp
      - Vary the orbit distortion around 135 GeV where the strong intrinsic resonance is located
    - Develop the ramp to 205 GeV
      - Measure the polarization/orbit distortion along the ramp

Challenge of going beyond 100 GeV

Intrinsic spin resonance
Qx=28.73, Qy=29.72, emit= 10