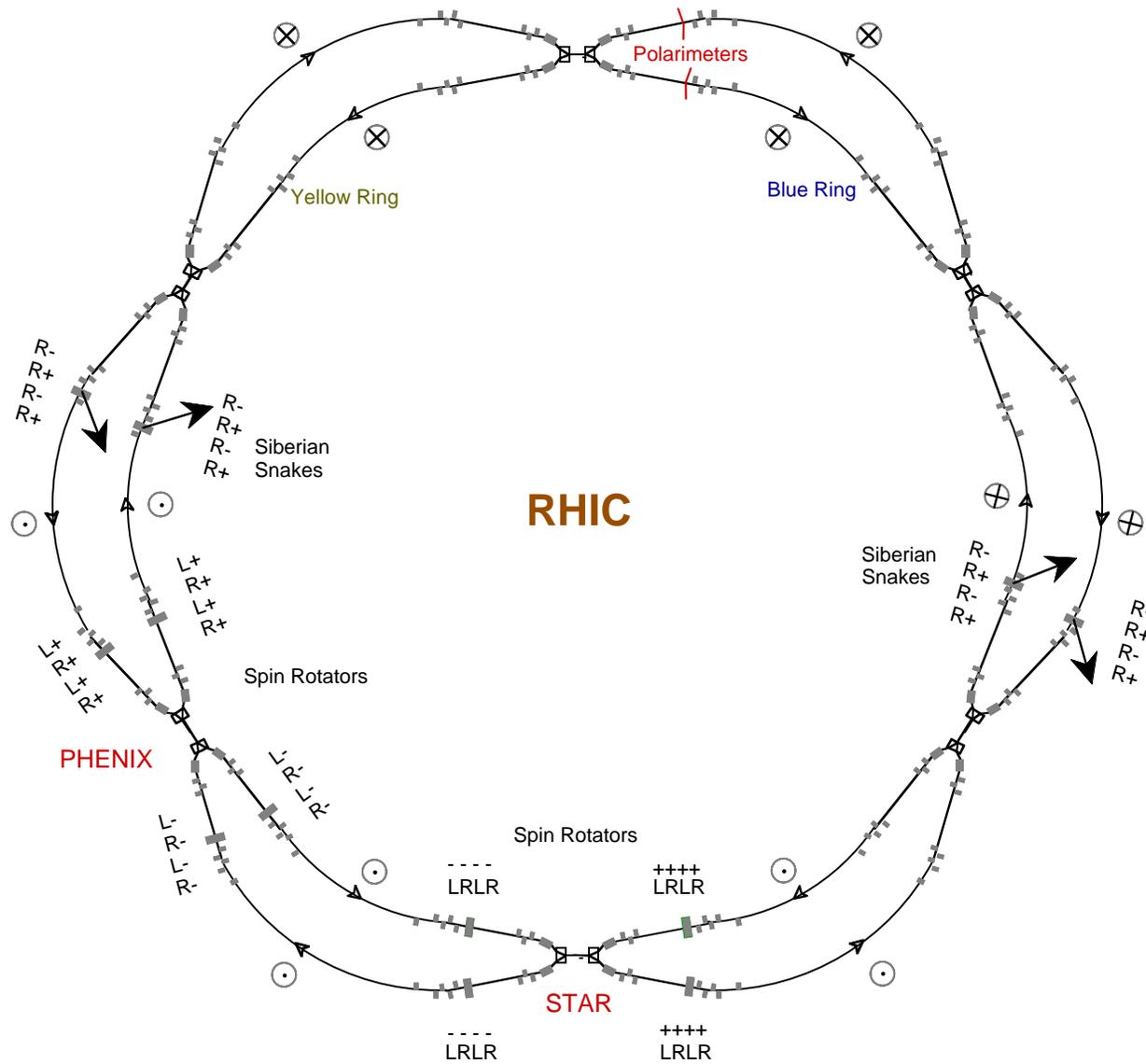


# § Status of Spin Rotators §

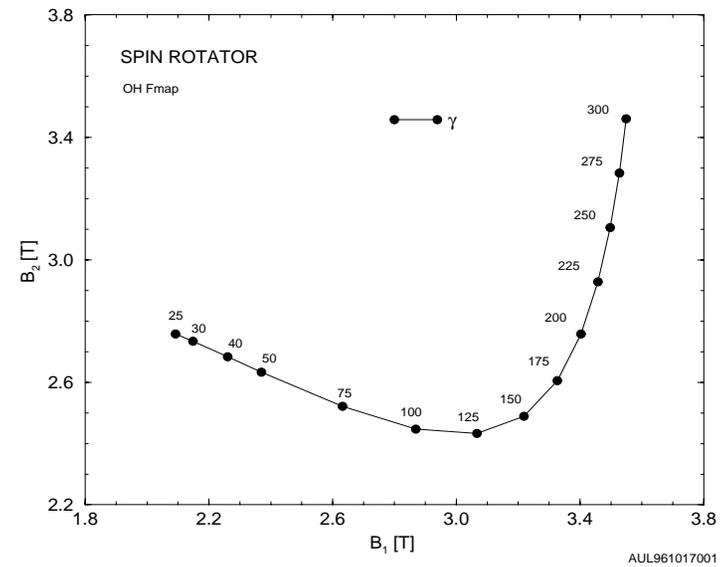
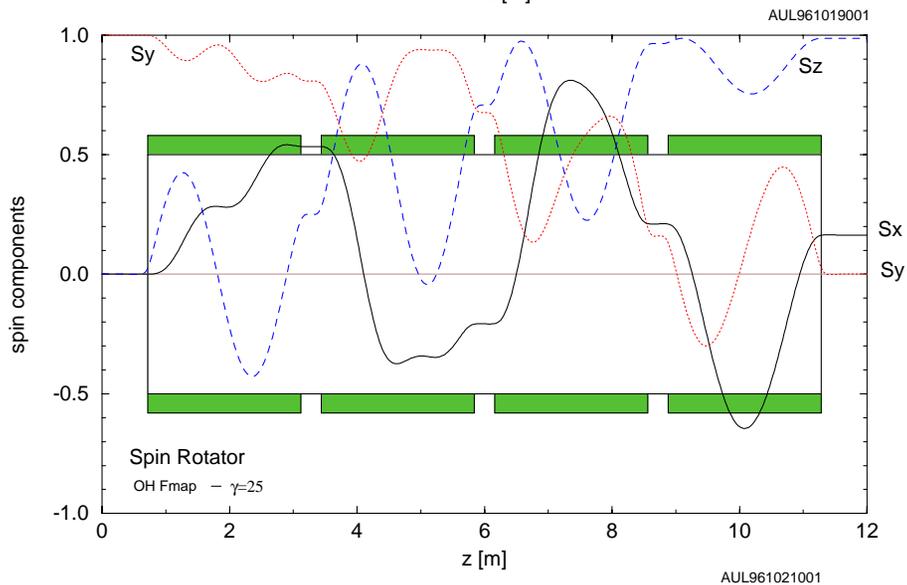
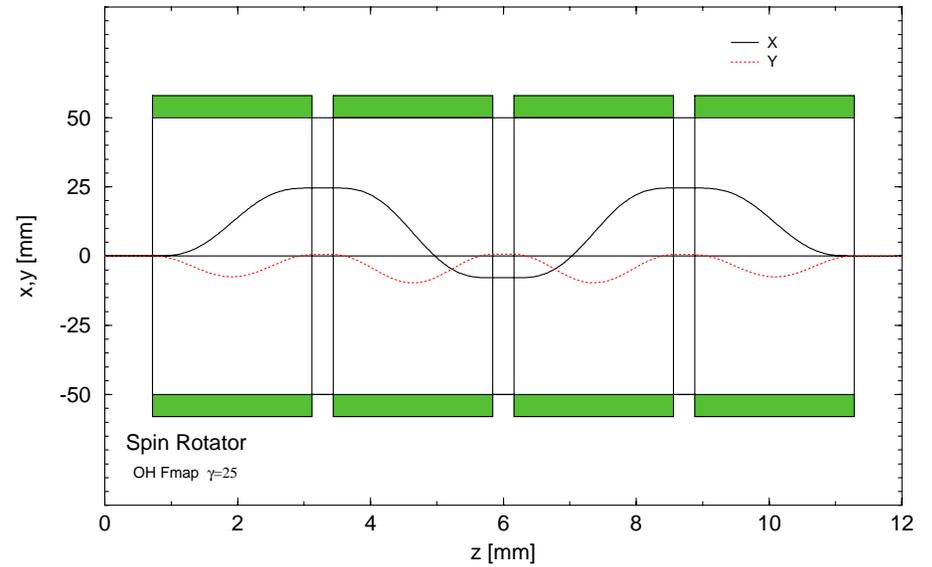
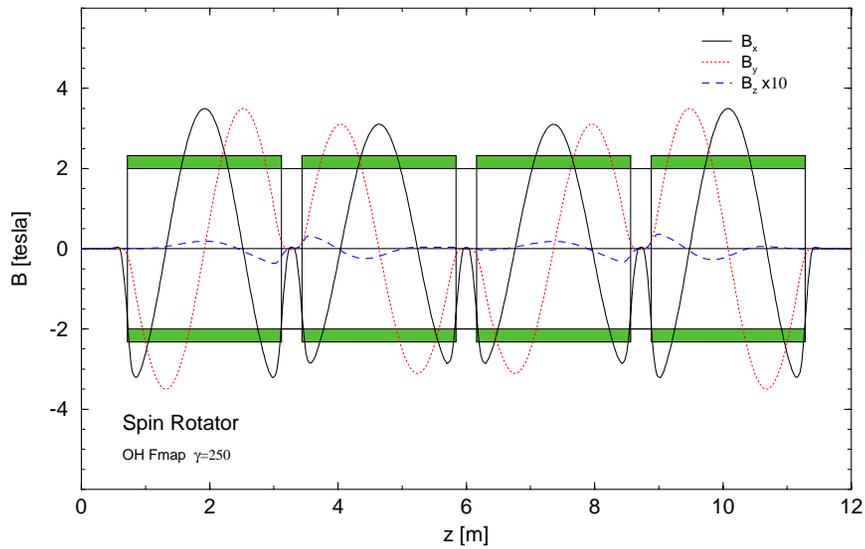
---

- Rotators:
  - All eight rotators installed in tunnel.
  - Six (WTC) warm-to-cold transitions completed.
    - Two WTC's on 7 o'clock side of PHENIX are not yet closed.
  - 4 of eight remain to be leak checked.
  - No high pressure check has been done yet.
  - Cables not yet connected
  - Loss monitors yet to be installed.
  - WTC's and interconnects need to be painted.
- Power supplies:
  - All rotator supplies installed and tested into shorted loads in alcoves.
  - Installation of quench circuits to start in about a week.
  - Tests with quench circuits and shorted loads at magnets will follow.
  - Final tests require cold magnets.

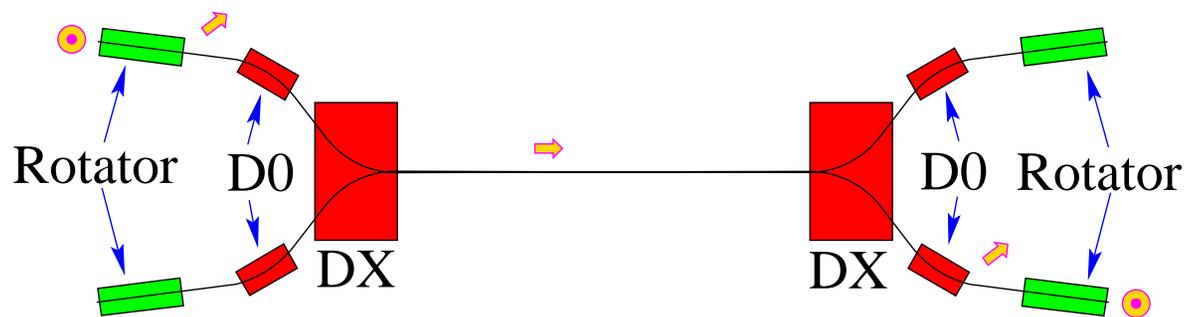
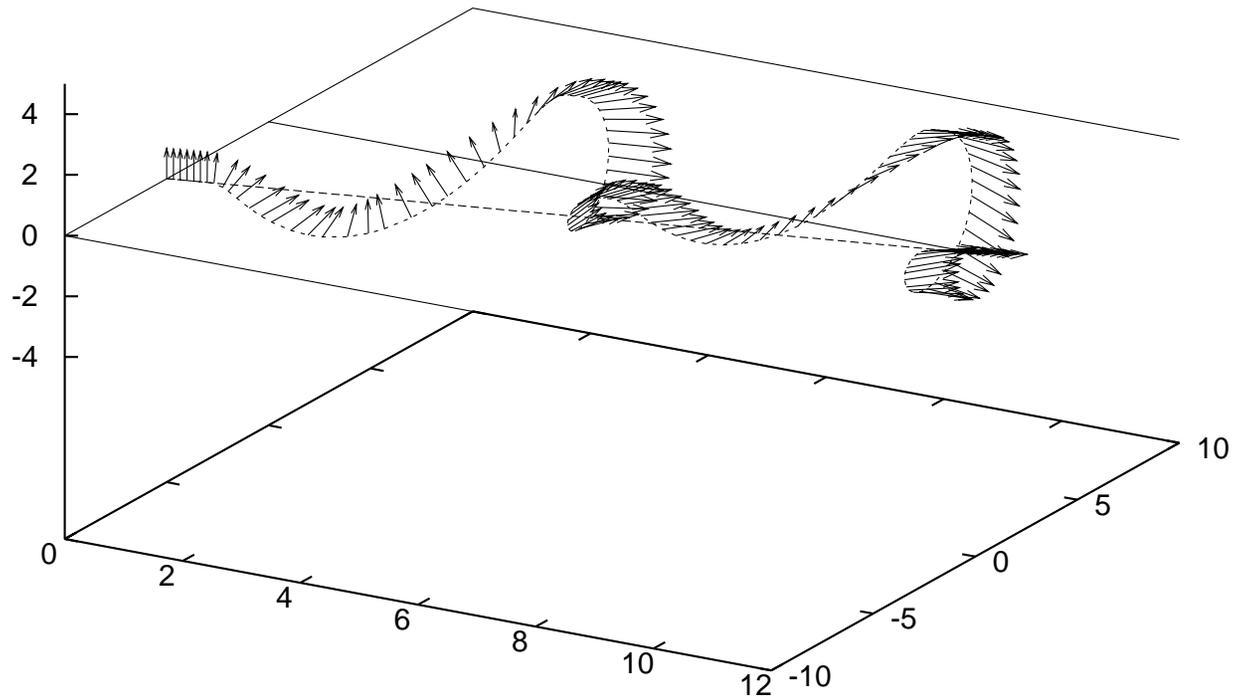


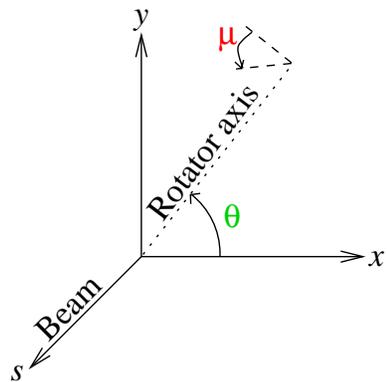
Rotators = Hor field (at ends), + = radially out, - = radially in  
 Snakes = Ver field (at ends), + = up, - = down

# Operation of Rotator



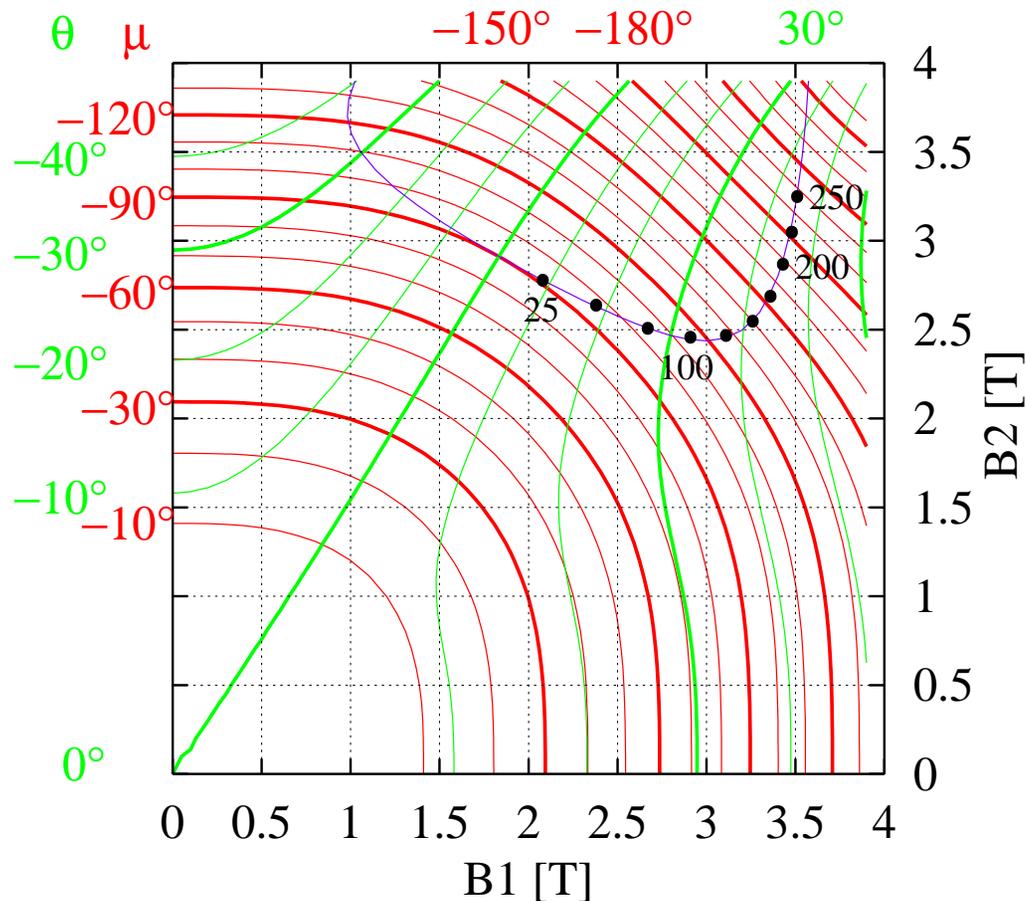
# Helical Spin Rotators





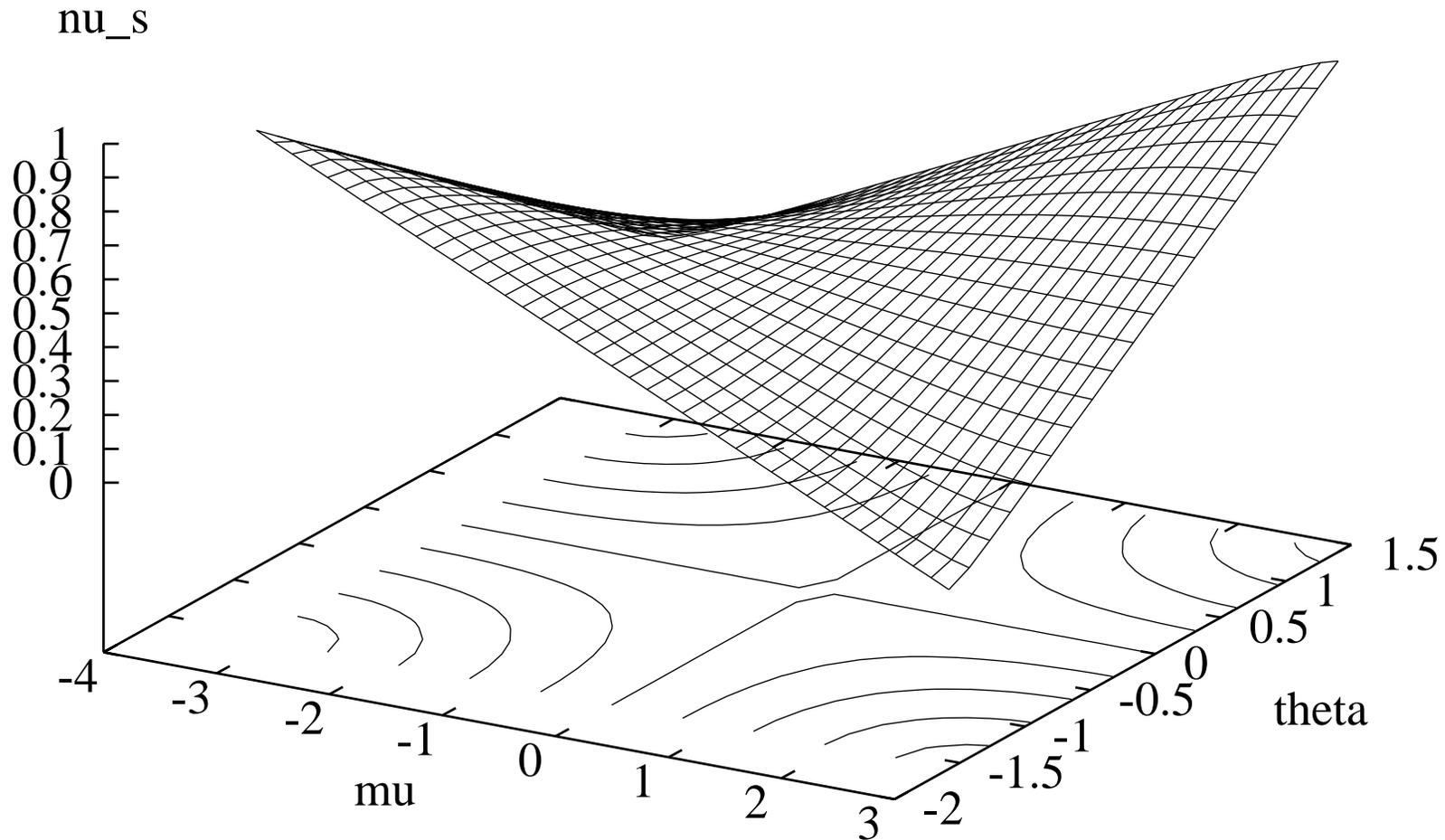
The rotation axis of the spin rotator is in the  $x$ - $y$  plane at an angle  $\theta$  from the vertical. The spin is rotated by the angle  $\mu$  around the rotation axis.

### Rotation Angles for a Helical Spin Rotator



Note: Purple contour for rotation into horizontal plane. Black dots show settings for RHIC energies in increments of 25 GeV from 25 to 250 GeV.

# Spin tune: 2 full snakes, 1 rotator



Note: Contours are in steps of  $\Delta\nu_s = 0.1$ .

$$\cos(\pi\nu_s) = -\sin\theta \sin\frac{\mu}{2}$$