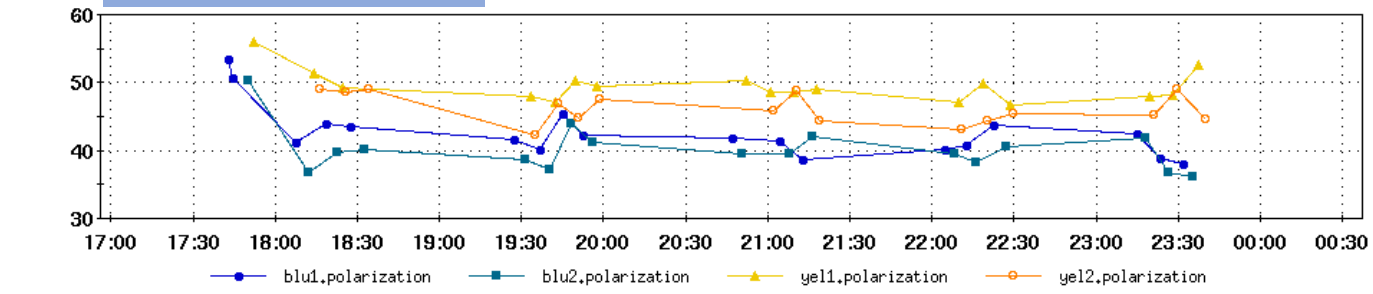
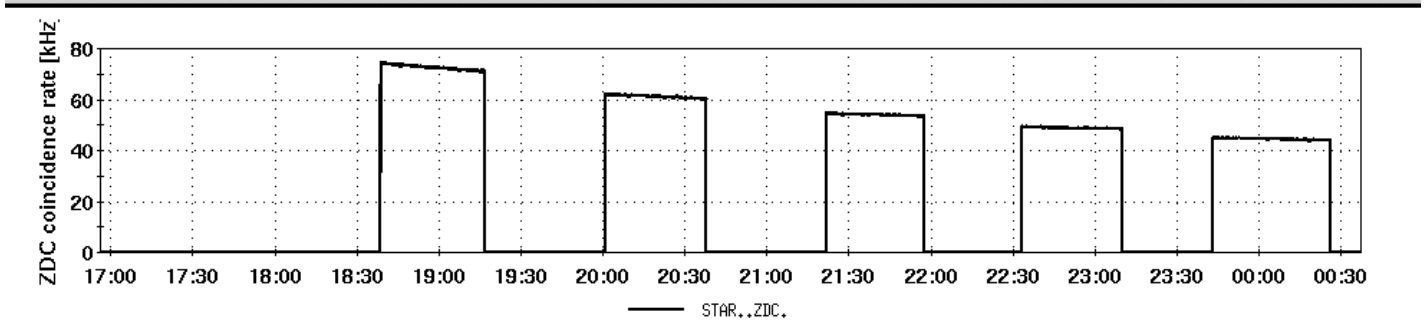
# RHIC Run 22 Run Status

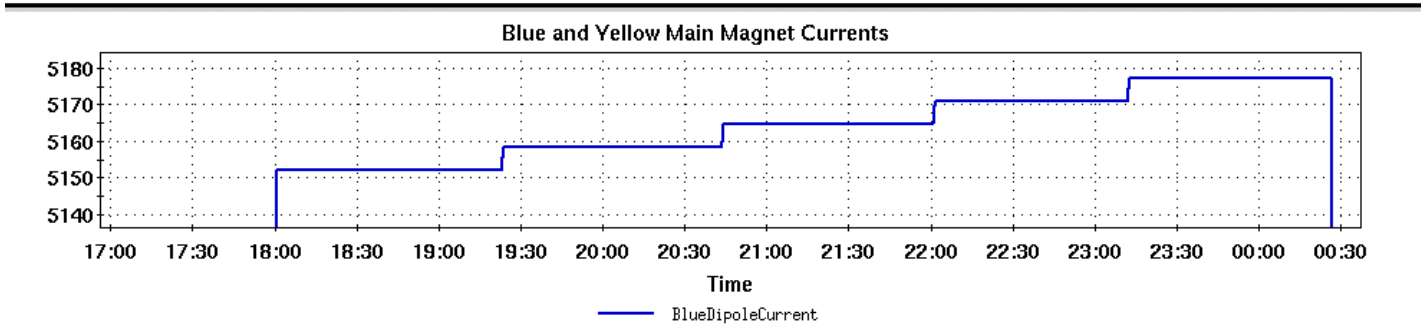
1/4/2022

- Operation continue with partial blue snake at bi9
- Energy scan for stable spin direction
  - Change to 254.21 GeV
- General RHIC performance
- Plans

RHIC Energy Scan



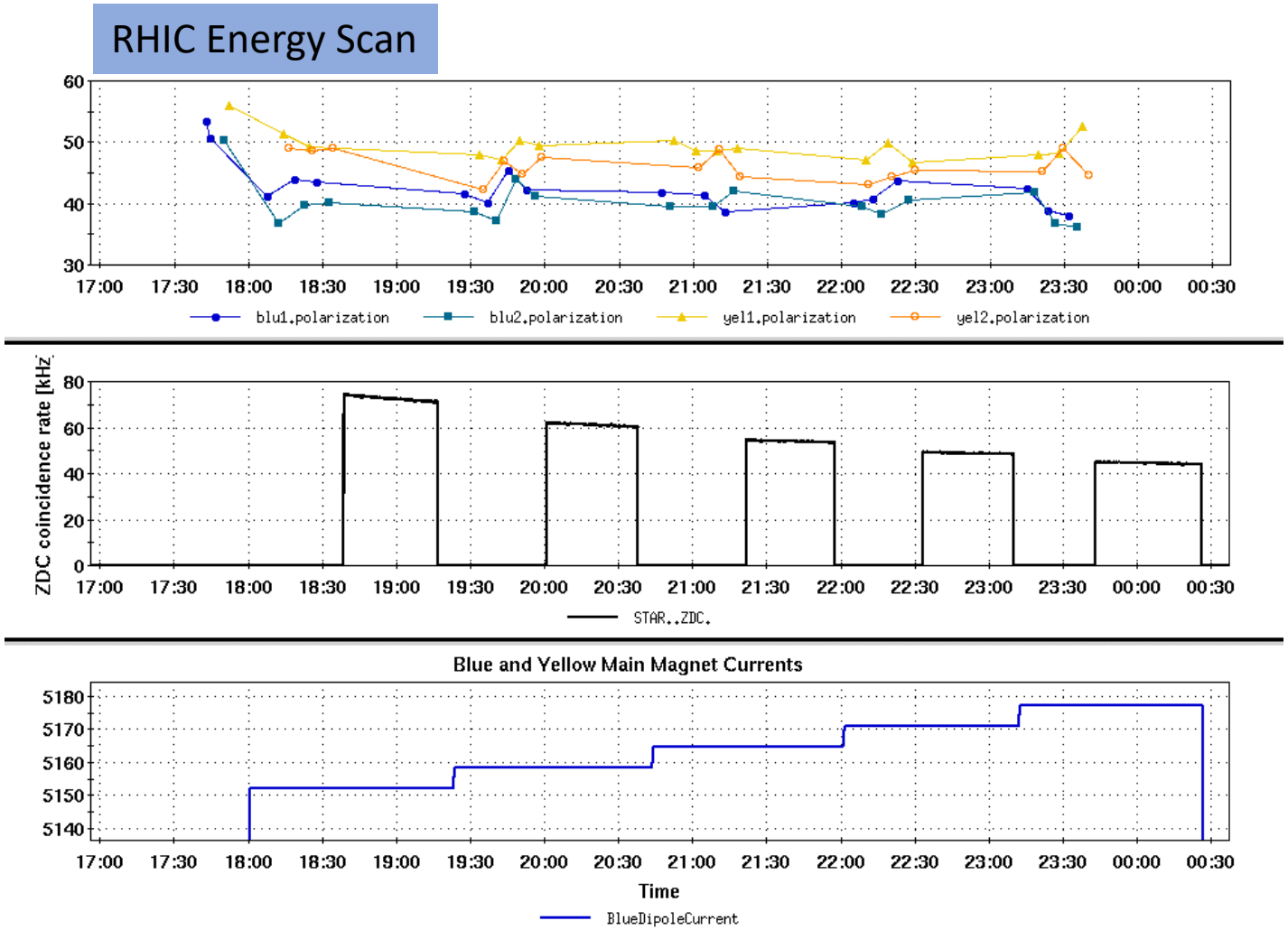



# RHIC Store energy scan : Fill 32920

- Energy scan fill 32920:
  - Gg=485 to 487 (nominal flattop is Gg=487)
  - Goal was to measure rotation of stable spin direction at STAR and the pC polarimeters to minimize longitudinal component

  - Address both the intrinsic non-vertical spin direction resulting from a partial snake in blue and residual spin tilt from orbit imperfections (present in blue and yellow)

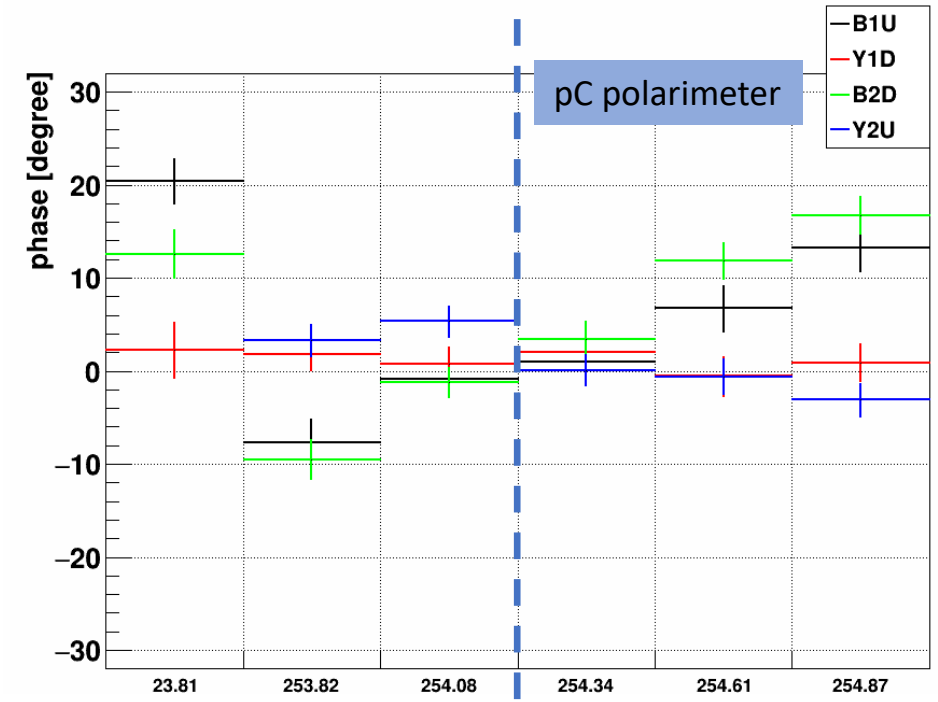


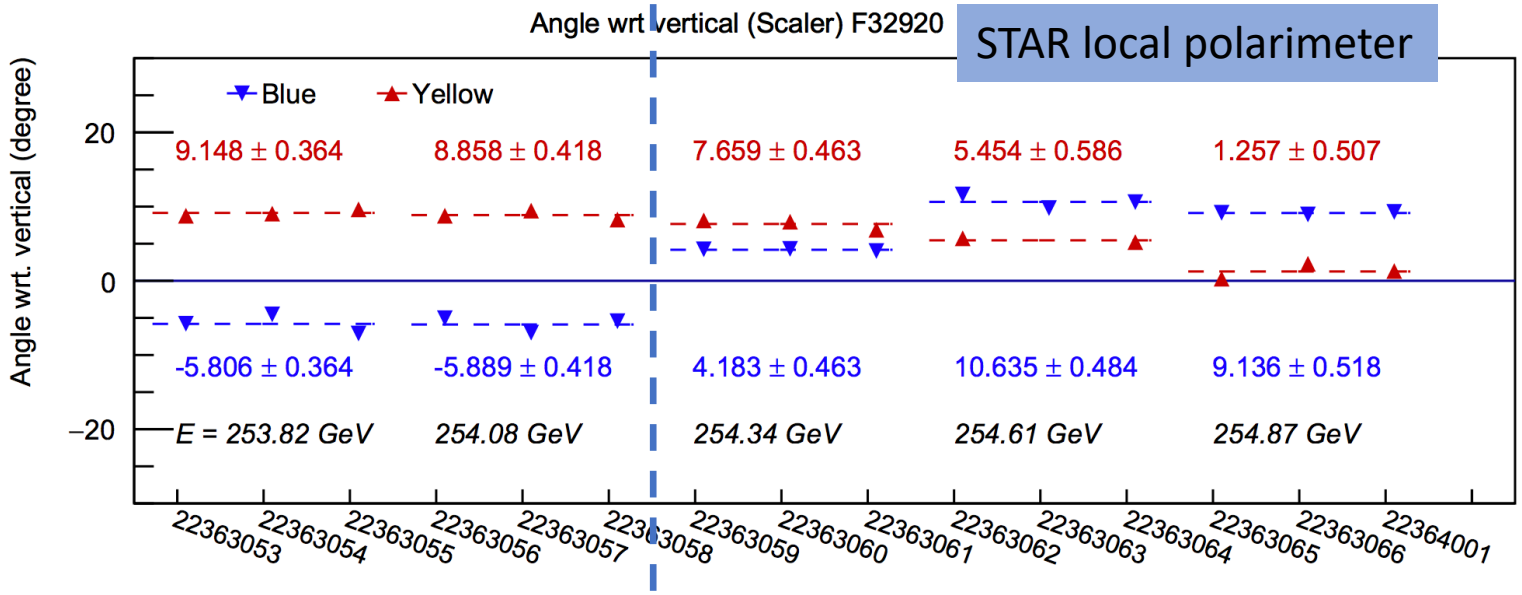
# RHIC Store energy scan : Fill 32920

- Transverse tilt angle measured as a function of energy at both pC and STAR

- Minimum transverse component at both pC and for blue beam at STAR near *254.2* GeV.
  - Remaining residual in yellow, particularly at STAR
- Running with this energy since fill 32934

- Constant asymmetry implies that the rotation is not between radial and longitudinal (to within uncertainties)
  - Not what the accelerator model would predict
  - Small longitudinal component needs to be verified. Rotator power supplies being prepared tomorrow in prep for a test measurement of spin direction



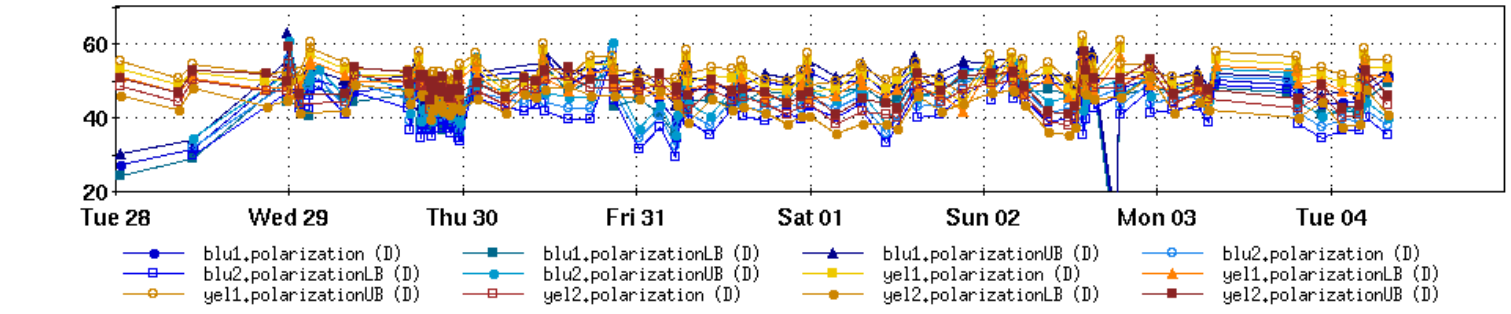
# RHIC Store energy scan : Fill 32920

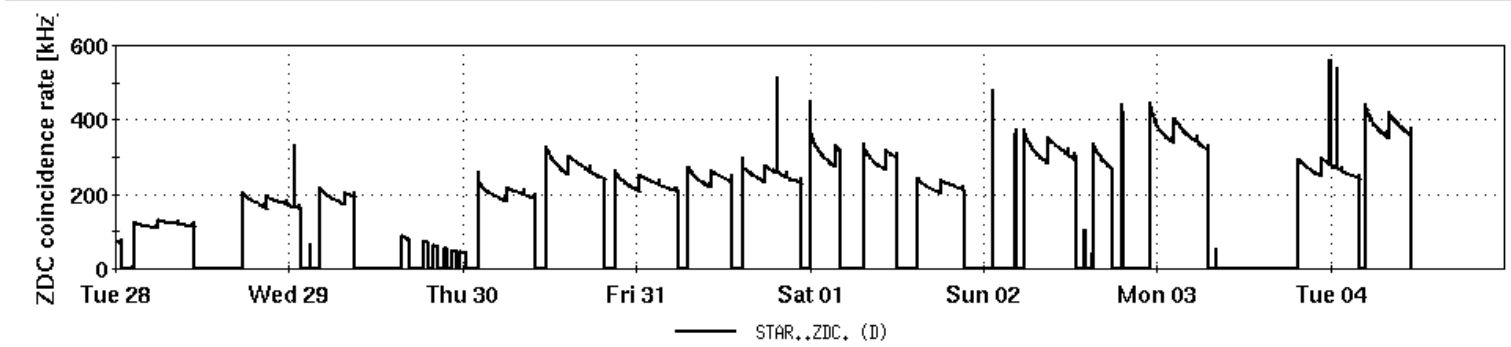
Transverse spin tilts

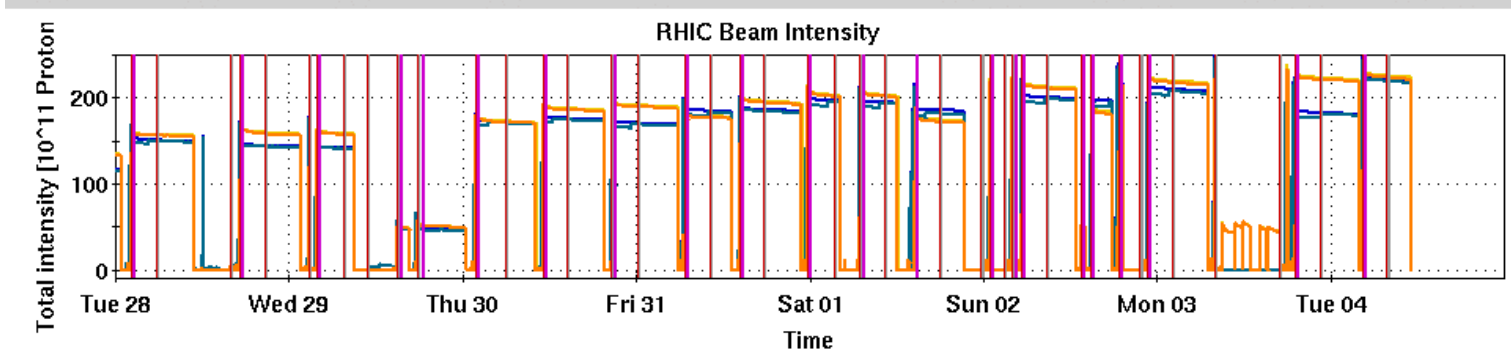
| | | | | |
|---|---|---|---|---|
| **Blue** | | | | |
| | pC | | STAR | |
| *Energy GeV:* | *255* | *254* | *255* | *254* |
| *Angle (deg)*: | 18 | 0 | 5 | 0 |
| | | | | |
| **Yellow** | | | | |
| | pC | | STAR | |
| *Energy,GeV :* | *255* | *254* | *255* | *254* |
| *Angle(*deg) | -1 | 5 | 5 | 7 |

# RHIC Performance

- Luminosity increasing to required levels
- Emittance control
  - AGS to RHIC transfer improvements
  - Ramp chrom adjustments
- Polarizations 45-50%
  - Similar in blue and yellow (!)
  - Still polarization loss in injectors, low P0 (inferred polarization at zero emittance)



# Plans

- Rotator power supply preparation tomorrow
  - Likely to have Blue STAR rotators ready after maintenance tomorrow
  - Preparing a ramp:
    - Rotators take vertical polarization to longitudinal
    - An ‘invisible’ longitudinal component rotates into a visible radial component

- Complete CeC BBA work this week