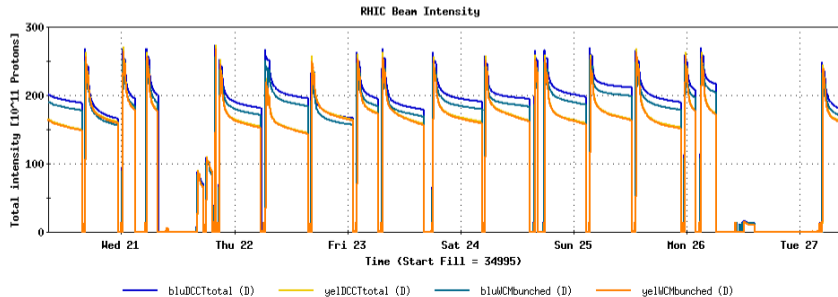
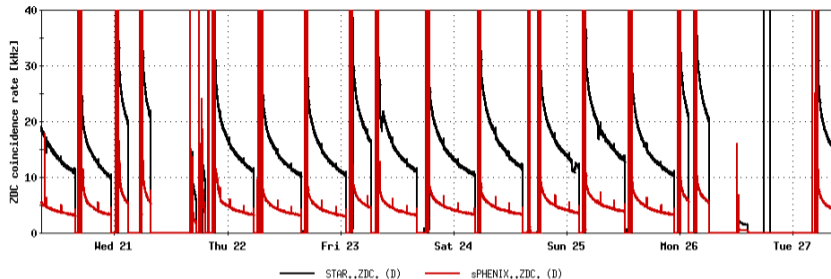


# RHIC Status

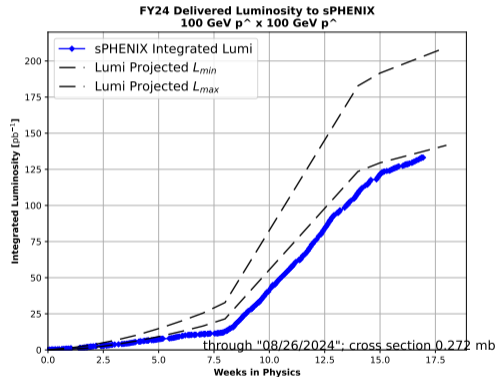
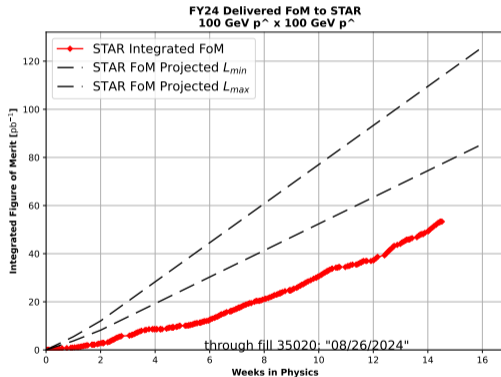
Kiel Hock

# Last Week at RHIC



# RHIC status and Lumi Projections

111x111 physics running since 4/30. Preliminary luminosity accounting

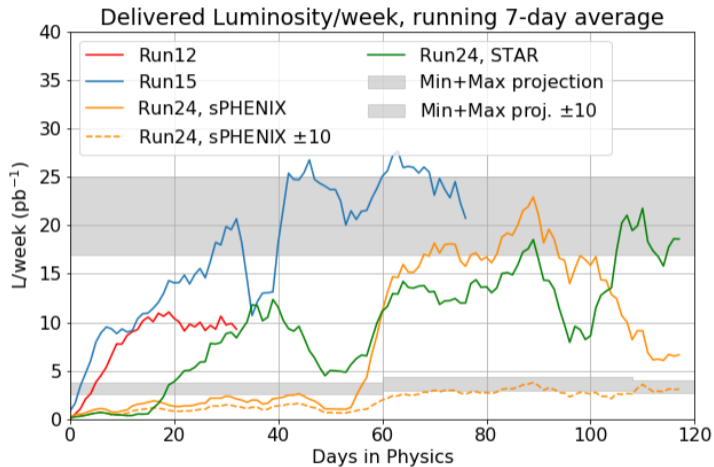


Inflection for sPHENIX projections coincides with change in crossing angle.

# RHIC Status

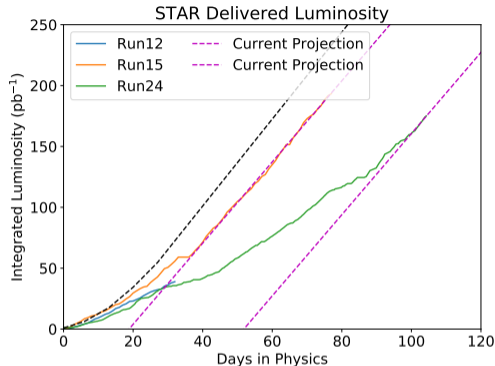
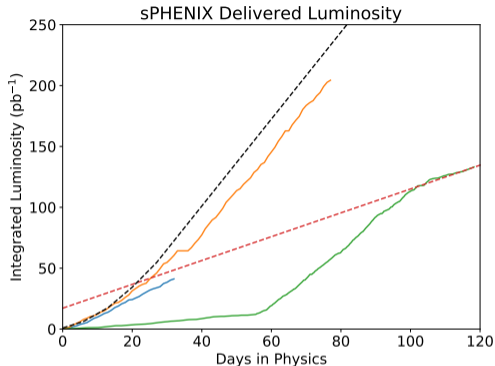
- Physics running with up to  $2.3e11$ /bunc at physics and 55% polarization.
- AGS tunemeter back in service.
- Updated logic for RHIC RF permit for Landau cavities to pull the permit in case the high level trips has been implemented and tested.
- Saturating BPMs at IR8 DXs resulted in incorrect reporting of crossing angle. Resolved.
- Sector 11 lead flows caused a beam abort at 0300. Thermistor board replaced.
- Steam leak at LINAC resulted in only one APEX experiment being completed
- B9-1 trips the result of being at the intensity limit. Need to develop a slower ramp or remain at current intensity
- Smooth running through the weekend.
- STAR magnet tripped several times
- 1c-ps1 CPCBPS permit failing.
  - ▶ Node card replaced x2
- Severe weather and power dip 8/26. Recovered 8/27 @0500

# RHIC Performance



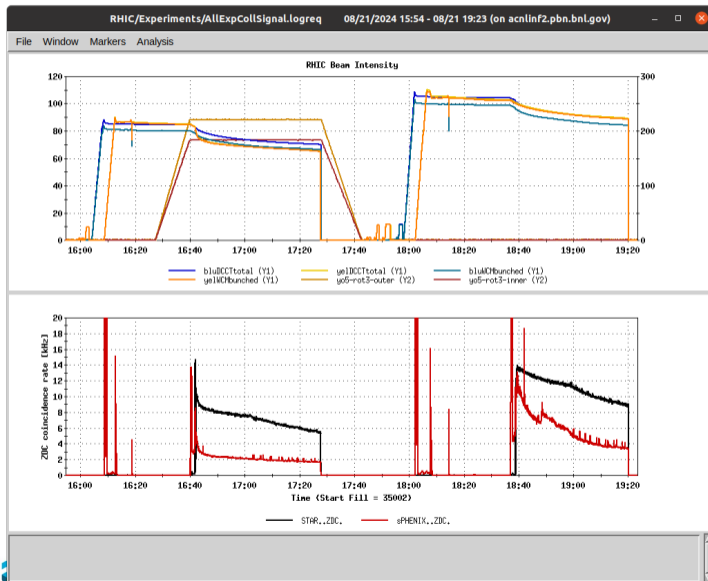
- Both STAR and sPHENIX are within the minimum and maximum projected window.

# RHIC Performance II



- STAR projections currently on trend with Run15,  $23.3 pb^{-1}/week$
- sPHENIX projections are currently at  $6.9 pb^{-1}/week$  which is  $\sim 3.5 pb^{-1}/week$  within  $\pm 10$  cm
- STAR  $L_{max,initial} = 113.8 \times 10^{30} cm^2/s$  from fill 34999,  $L_{max,initial,run15} = 113.9 \times 10^{30} cm^2/s$
- Calculations of stores at the time of the previous meeting found  $L_{max}$  to be within 10% of the best run15 stores, not 35% (when accounting for cross section differences and singles corrections).

# RHIC Performance III



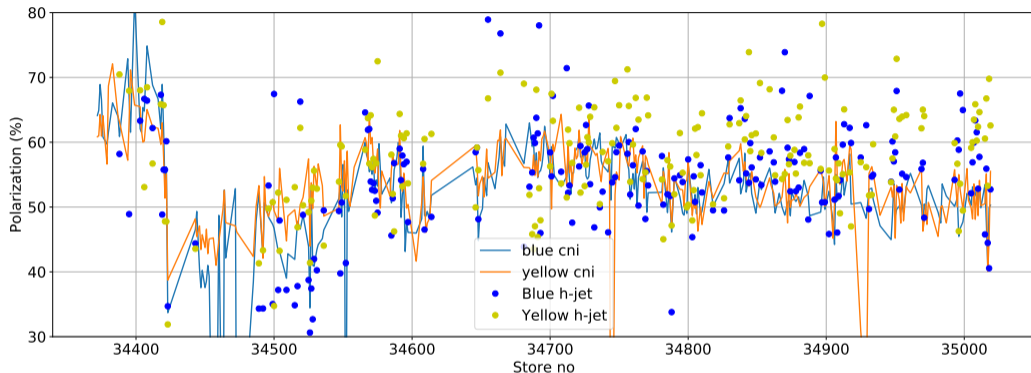
- APEX on Wednesday revealed significant performance differences when the rotators are on and off.
- Large background induced ZDCs are sPHENIX as a result of different orbits.
- This would likely need further investigation and an MD to resolve. More on this later.

# RHIC Performance, current limitations

1. Currently at the intensity limit for B9-1, need slower ramp (MD time 1/2 shift to resolve)
2. Currently at loss limit for NM236
  - ▶ has been an issue all run although has recently become much more persistent.
  - ▶ MCR and specialists are working to resolve this.
  - ▶ Instructions for MCR per procedure is to reduce intensity.
3. Currently at maximum intensity of  $2.7\text{-}2.8 \times 10^{11}$ /bunch from the injectors with current setup
  - ▶ Due to aperture constraints and our current transverse emittances, reducing scraping in Booster does not lead to higher RHIC intensity.
  - ▶ Switching to a different user may provide improvements that translate to intensity and polarization.
  - ▶ So far there has been insufficient development time on these alternate users.
  - ▶ Recent development delayed due to AGS tunemeter issues.
4. RHIC performance at store reduced by the rotator ramp.
  - ▶ Could be worked into a longer MD, such as #1.

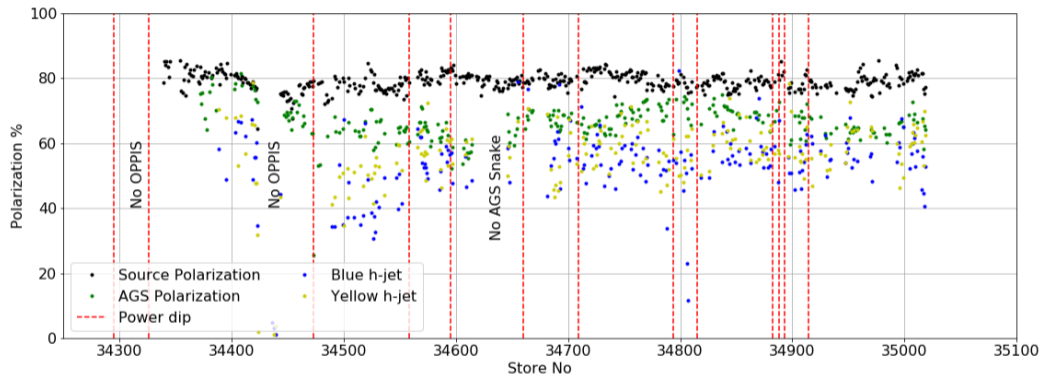


# Polarization Performance



- General down trend in polarization reported by CNI
- Haixin investigated and found the CNI has not been calibrated since the start of run (historically has been done once every two weeks). It will be recalibrated during Wednesday's maintenance.
- These calibrations are needed as the detectors degrade from radiation damage.

# Polarization Performance II



CNI	Full Run	Last 150	Last 14	h-jet	Full Run	Last 150	Last 14
blue	53.2	52.3	50.6	-	52.3	55.7	55.5
yellow	55.8	52.2	50.2	-	56.8	58.8	60.8

h-jet values from: <https://www.cnipol.bnl.gov/hjet/run24.html>

cni values from: <https://www.cnipol.bnl.gov/fills/?rp=24&fn=&ft=&be=100&mode=11&sb>Select>

# Au Startup Schedule, tentative

Day(s)	Objective
1	Maintenance followed by DX training + RF conditioning
2	RF conditioning overnight, injection setup during the day
3	ramp and store development, possibly more RF conditioning if we cannot hand
4	finish setup and hand store over for experimenter setup
5-8	ramp up and start setting up stochastic cooling 1 plane/store
7+	week of, look to setup 56 MHz

Start date tentatively 9/16.