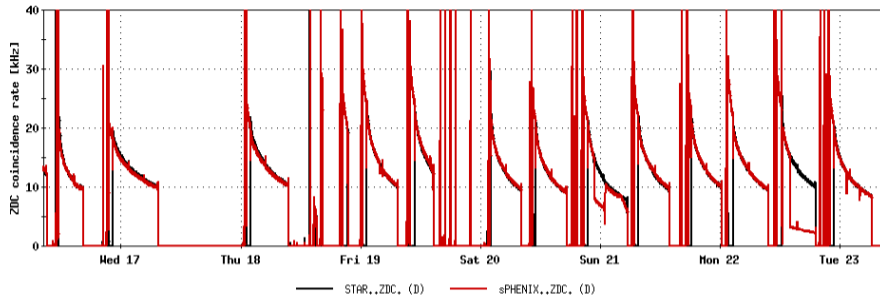


RHIC Status

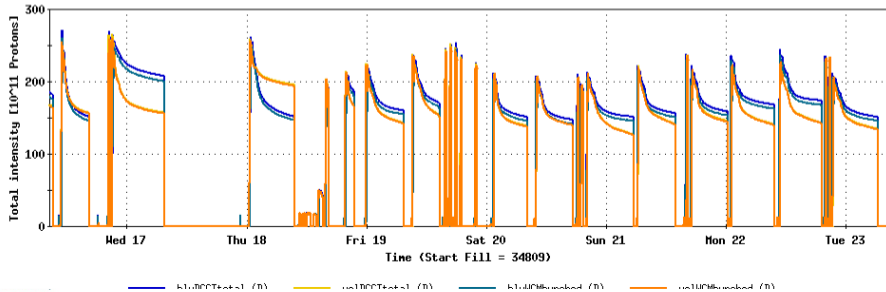
Kiel Hock

July 9, 2024

Last Week at RHIC

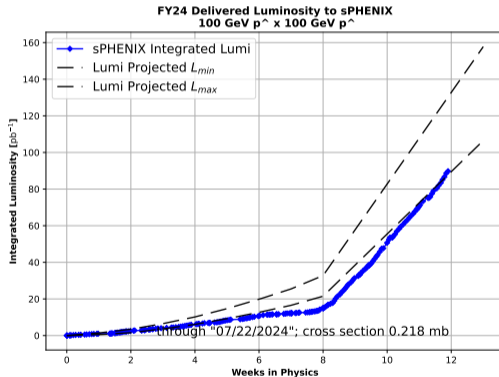
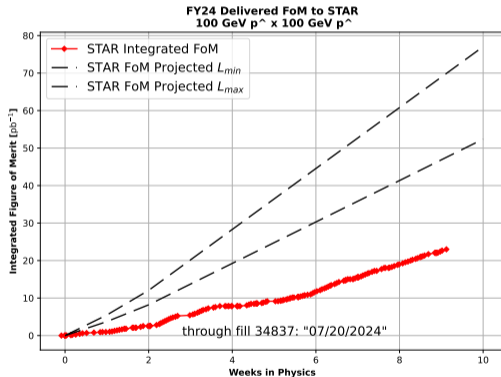


RHIC Bean Intensity



RHIC status and Lumi Projections

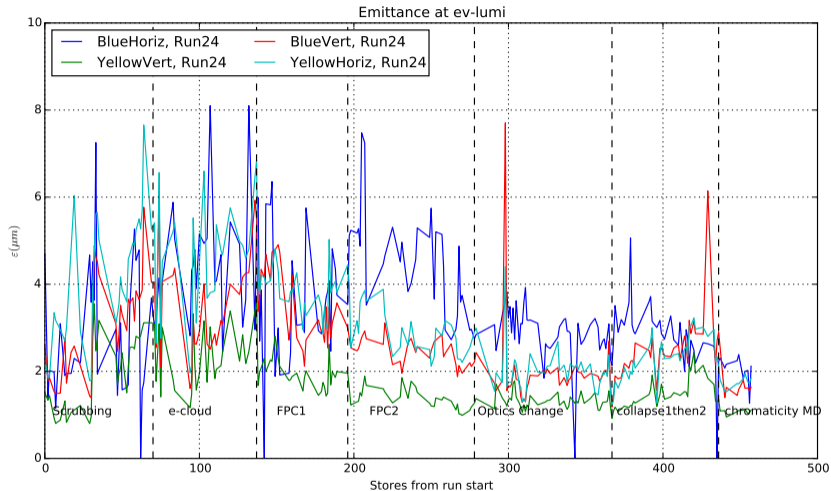
111x111 physics running since 4/30. Preliminary luminosity accounting



RHIC Status

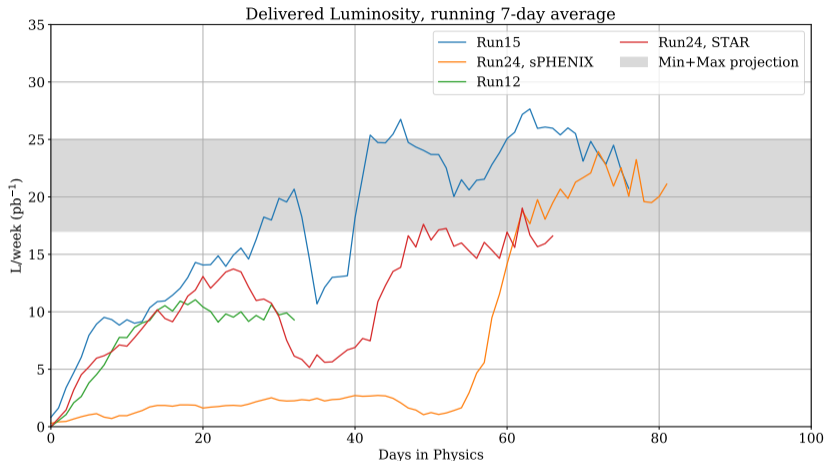
- STAR and sPHENIX operating with 0 mrad crossing angles
- sPHENIX did a brief test with 1.5 mrad
- Delivered intensity up to $2.4e11$ at physics, lower on recent stores.
 - ▶ Currently limited by losses at rebucketing
- Delivered polarization is up to 50-65%
- STAR and sPHENIX being collapsed at separate times since July 5th
- STAR being collapsed when beam-beam parameter is at or below $10e-3$ with a minimum wait time of 40 minutes if the beam beam parameter is above that threshold at the beginning of store.
- Instabilities early last week coming into collisions prompted machine development on Thursday which found negative chromaticity at collisions.
- Several severe weather standowns recovering from Maintenance day delayed returning to Physics.

RHIC Performance



- a small uptick in our emittances at ev-lumi
- this coupled with hitting some intensity limits, have reduced recently delivered rates

RHIC Performance



- $L_{max}, L_{min} = 25, 17.0 \text{ pb}^{-1}/\text{week}$ with $\theta = 0 \text{ mrad}$
- Trajectories from this meeting: $L_{STAR,proj} = 18.2 \text{ pb}^{-1}/\text{week}$, $L_{sPHENIX,proj} = 23.2 \text{ pb}^{-1}/\text{week}$
- STAR's run is truncated to remove their 2 weeks of low luminosity running

RHIC Performance Outlook

1. Resolve beam loss at rebucketing to advance the intensity
2. MD Thursday to test the squeeze ramp at IP8
3. STAR background investigations ongoing
4. Update store BTFs to take a measurement immediately after the STAR bump collapse to determine if there is more room in beam-beam parameter to collapse STAR earlier.