

RHIC Run24 Preparations

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Table of Contents

PAC Recommendations

Run24 Schedule

RHIC Run Preparations

Injector Preparations to Support RHIC

Overview of Major Works

PAC Recommendations

The PAC Recommendations are available here. In summary:

- The PAC considers at least 28 weeks (+6 in 2024) of cryo operation each for Runs 24 and 25 as a minimal run scenario that can provide sPHENIX the opportunity to achieve insights into the microscopic structure of the quark-gluon plasma created at RHIC and completion of the RHIC science mission.
- The PAC recommends that the top priority for Run 24 is to complete the commissioning of sPHENIX and to collect the high statistics pp dataset necessary as a reference for all the sPHENIX hard probes Au+Au measurements in Run 25, and simultaneously allow STAR to make landmark polarized proton measurements using its new forward instrumentation.
- We recommend p+Au running in Run 24 if, and only if, the top priority above has been completed and a p+Au run of at least 5 weeks can be accomplished.

Run24 Schedule

Questions determining the schedule:

- PP or AuAu first?
 - ▶ pp first would allow full commissioning of the 56 MHz system in preparation for Run25.
 - ▶ Au first would allow more time for commissioning of AGS skew quads.
- Valve box repair

Overview of Major Works

- Valve box repair (Michiko's talk)
- Blue snake reinstall
 - ▶ Rewiring this week
 - ▶ Plumbing in cryo 2 weeks
 - ▶ PS testing sequence being worked on to optimize work sharing with Valve Box
 - ▶ On schedule to be reinstalled and warm tested.
- Diode removal and testing. New diode installed and being sealed (pressure test in several weeks, on schedule).
- Upgrade of IR8 D0 PS to support 2 mrad crossing angle at sPHENIX if pAu occurs (1 mrad currently supported).

RHIC Run Preparations

- Lattice development is underway with zero DX shifts (GRD).
- Beam-beam effects with crossing angle simulations (X. Gu and Y. Luo).
 - ▶ Preliminary results show significant tune shift suppression from crossing angles.
- Dynamic aperture simulations with crossing angle simulations (X. Gu and Y. Luo).
- OPPIS being run this week to check for any system failures ahead of LINAC shutdown.

Injector Preparations to Support RHIC

How to get 3×10^{11} protons/bunch at store?

- Two possible scenarios for achieving this
 - ▶ Take two pulses from OPPIS with a nominal injector configuration, merging at AGS flattop (long merge, bunch will be 40% longer, excess intensity can afford longitudinal scraping), polarization should be approximately the same as the current configuration.
 - ▶ Take a longer pulse from OPPIS, perform a bunch split in Booster, merge at AGS flattop.
 - ▶ Either scenario will have the goal of $\sim 3.5 \times 10^{11}$ protons/bunch at AGS extraction.
- Skew quads provide an absolute correction of resonances which will improved polarization
 - ▶ 10 magnets installed, 3 magnets measured and waiting for install, final two magnets to be delivered this week
 - ▶ PS testing is ongoing, delivery TBD.

How long will it take to reach?

- 2 weeks of setup, from first injections to $\sim 1.1 \times 10^{11}$ physics
- 4 weeks of intensity ramp up to $\sim 2.1 \times 10^{11}$
 - ▶ 2-4 weeks (expected) of intensity ramp up to 3.0×10^{11}