

# Schedule

- 4/2/24 : Shift (2 person) start, flammable gas flow
- 4/4-: Cosmic Data taking with magnet on (Forward, Reverse Field)
- 4/15 : RHIC 4k Cooldown start (25 weeks)
- 4/16 : Full Shift (4 person) start + period coordinator
- 4/17-4/25 : Machine setup for p+p
- 4/22-25 : First collisions (overnight) for timing/trigger setup
- 1-2 days for STAR timing and trigger setup
- 4/25 : Start physics
- 4/25-? : sPHENIX commissioning, STAR low-luminosity run (~2 weeks), sPHENIX commissioning
- 8/26 : 19 weeks cooldown mark. STAR's request: switching to Au+Au for 6 weeks
- 10/7 : End of run

# p+p: low-luminosity running

- Physics: Study **collectivity in pp** with high-multiplicity and **minimal event pile-up**
- Goal: 1.5B min-bias and 1.5B high-mult events / 2 weeks of running
- Opportunistic running during sPHENIX's commissioning at the beginning of the run
- **Low luminosity:  $\sim \times 100$  down from the "nominal" luminosity of  $\sim 1 \times 10^{32} \text{cm}^{-2} \text{s}^{-1}$  (BBC 3M, ZDC 40k)**
  - BBC 20-40 kHz
  - Full crossing-angle of 1 mrad
  - Luminosity leveling by mis-steering/vertical bump
  - No spin rotators to be used
- Critical detectors for the physics will be ready from Day 1

# p+p for Run24

- Goal: FoM  $\mathcal{P}^2 \mathcal{L}_{\text{sampled}} = (0.6)^2 * 142 \text{ pb}^{-1} = 51 \text{ pb}^{-1}$  (for 12 physics weeks)
- RHIC luminosity projection for Run24:  
 $\langle \mathcal{L} \rangle = 63 \times 10^{30} \text{ cm}^{-2} \text{ s}^{-1}$ ,  $\int \mathcal{L}_{\text{delivered}} / \text{week} = 17 - 25 \text{ pb}^{-1}$
- Run15: 127 pb<sup>-1</sup>/10.8 weeks, sampled/delivered luminosity~70%
- plan for luminosity increase of 15-40% from intensity (to 2.5-3x10<sup>11</sup>/bunch) as per sPHENIX's physics goal. **Impact on polarization?**
- Polarization: Radial (horizontal) polarization only
- To maximize FoM and minimize systematics for the physics measurements with Forward detectors
- No crossing-angle, Nominal  $\beta^*$  (0.85m)
- For maximum/optimal polarization and luminosity
- No plan for luminosity leveling