Run 19 RHIC Machine/Experiments Meeting

January 14, 2020

Agenda:

- General discussion of Run 20 - W. Christie
- Collider Update - C. Liu
- LEReC Update - A. Fedotov
- STAR Status/update - J.H. Lee
- All Other Business (AOB)

BLUEJEANS CONNECTION INFO:
To join the meeting on a computer or mobile phone: https://bluejeans.com/273705843/1875?src=calendarLink

Phone Dial-in +1.408.740.7256 (US (San Jose))
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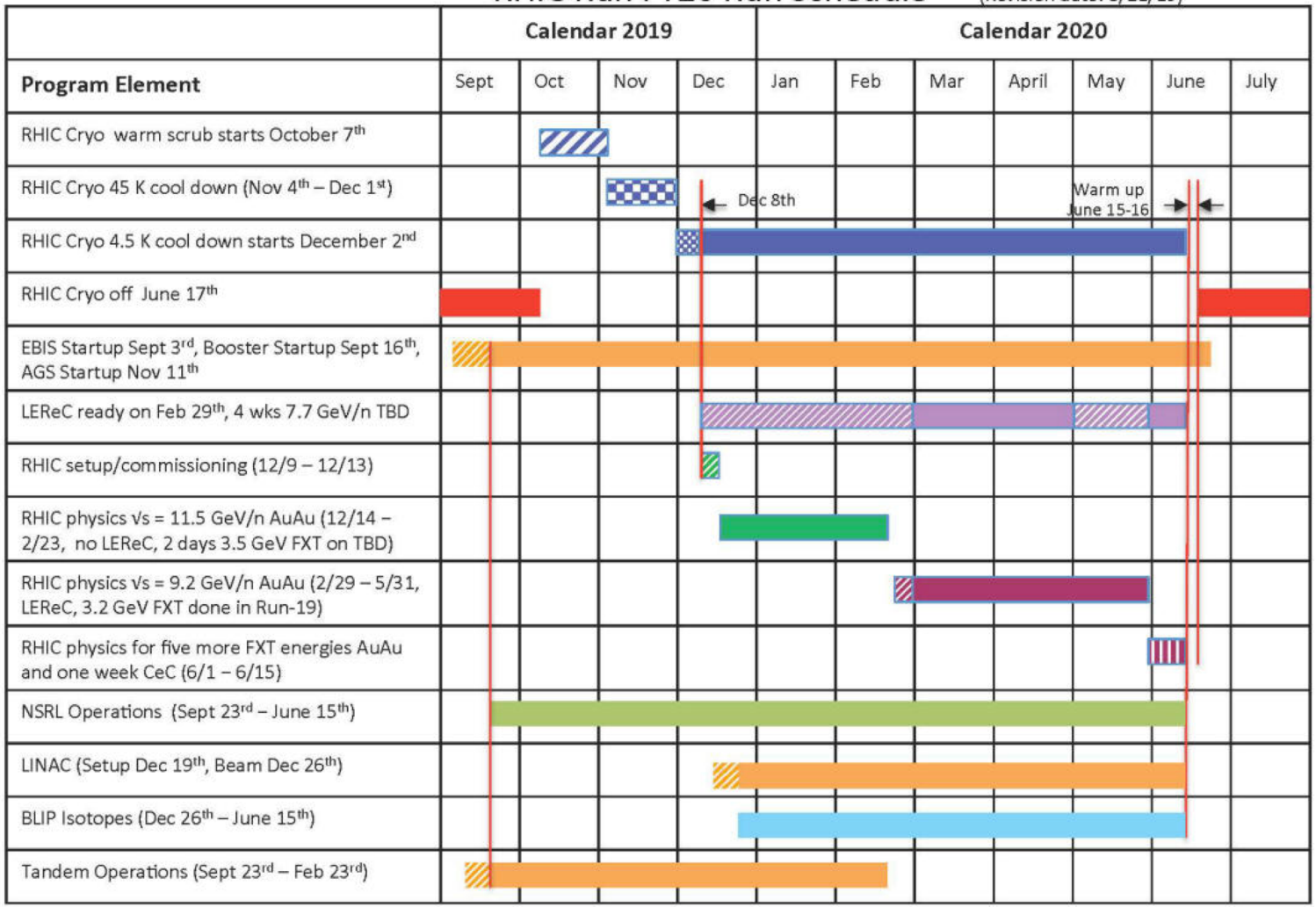
+1.408.317.9253 (US (Primary, San Jose))

Global Numbers: http://bluejeans.com/numbers
Meeting ID: 273 705 843

RHIC Run FY20 Run Schedule (Revision date: 8/21/19)



N.B. This schedule assumes that we end up with a budget that allows for a 28 Cryo week run.

The actual transition date between 11.5 and 9.2 GeV Physics running will be a matter of discussion as the run progresses.

It is likely that STAR will request to start/run the Fixed target sometime in mid to late January.

Summary of interleaving LEReC Commissioning with the STAR Physics running

Meeting held on December 17, 2018 to discuss Strategy/plan:

- Once collisions available, Spend the first about week getting STAR tuned up and the Physics running going.
- After this first week of running, start interleaving LEReC commissioning
  - Idea discussed to schedule for 12 hours every other day (e.g. M, W, F)
  - Keep schedule "flexible" so that if for any reason LEReC can't effective use the time it switched back to Physics running.
  - Also so that if LEReC is making good progress, and more time is desirable, the allotted time can be extended.

This is a Strategy/plan to get started on this sharing of the Collider time. Expectation is that once we see how this works we'll discuss if we need any modifications.

Rough accounting of LEReC hours per week and planned for this week:

12/10 - 12/16:	~20 hrs LEReC
12/17 - 12/23:	28 hrs LEReC
12/24 - 12/30:	0 hrs LEReC
12/31 – 1/6:	~24 hrs LEReC
1/7 - 1/13:	~ 31 hrs LEReC
1/14 – 1/20:	*~ 33 hrs LEReC*

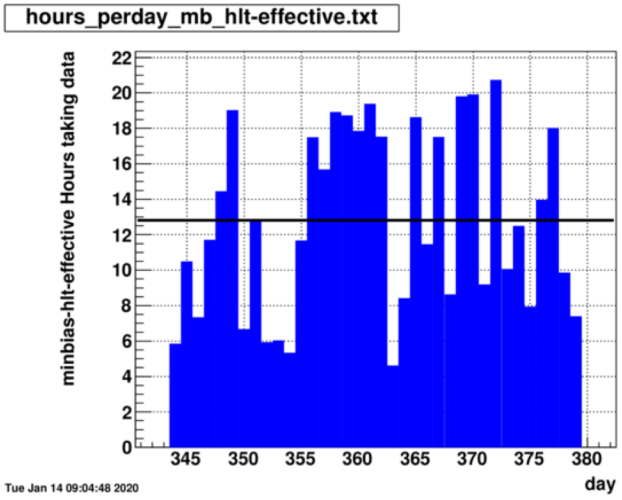
Total LEReC ~ 136 hrs (~ 5.7 days)

Key:

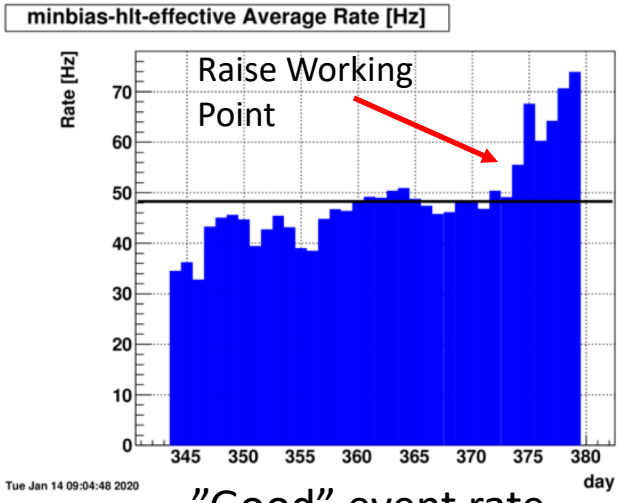
Blue = as run

Red = planned

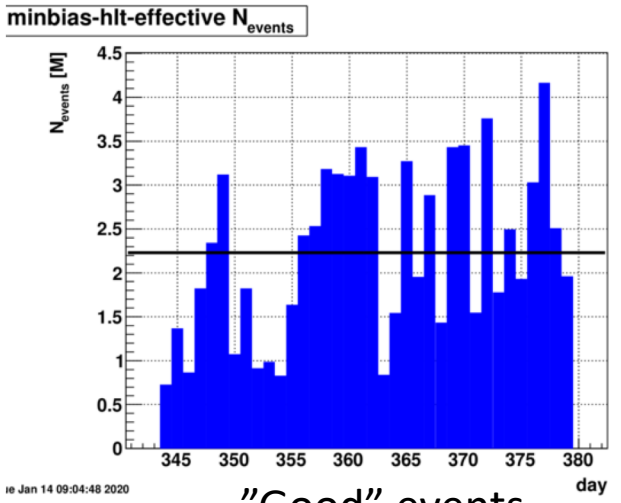
Some STAR Plots that illustrate the components involved in Event Accumulation



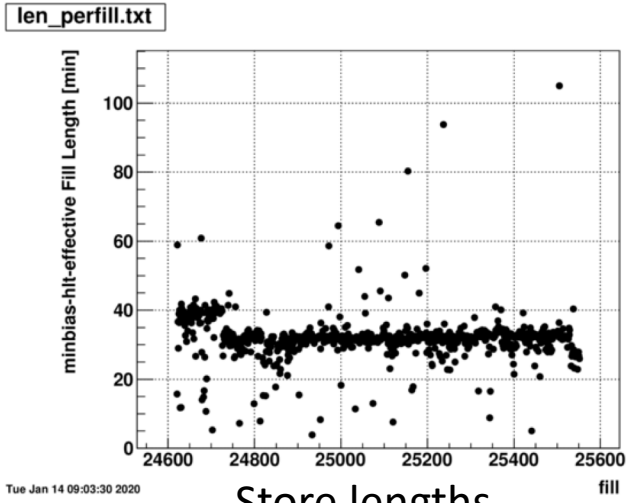
Hours/day STAR DAQ is running



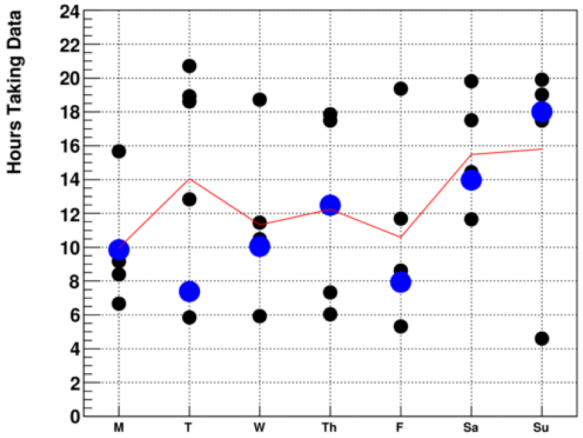
”Good” event rate averaged over a Store



”Good” events accumulated per day



Store lengths (40 -> 30 -> 25 minutes)



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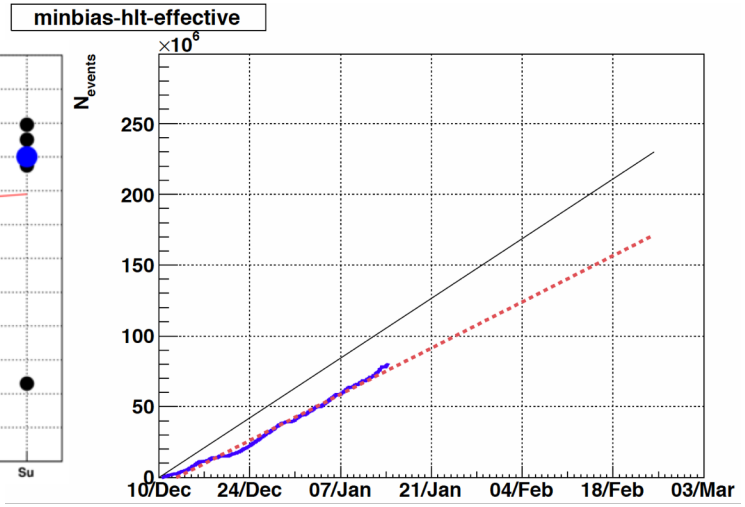

Accumulated “Good” events to date and Projection

Some anticipated Issues that we'll be discussing through out RHIC Run 20

- The length of the run (24 vs 26 or 28 Cryo weeks, awaits final FY20 budget)
- Going into the run, it looks like a significant challenge, that we may not be able to overcome, to fully meet the stated STAR data set (statistics) goals.
- A key decision will be deciding when to switch from the 11.5 to the 9.2 GeV Physics running. The timescale for this decision is likely sometime in February.
- When to run the STAR Fixed target program, as well as whether to run it all in the same time period. Likely timescale for this decision is mid January or so.
- We need to accommodate collider time for the 9.2 and 7.7 LEReC commissioning, as well as the CeC program.
- What is clear now is that we have to be very careful and deliberate in scheduling and efficiently utilizing every day of RHIC Run 2020.

These are what I anticipate as being the key issues we'll be dealing with during the run. Any additional issues that people would like to add to the list?

All Other Business (AOB)

STAR Beam Use Request for Run20

	Beam Energy (GeV/nucleon)	$\sqrt{s_{NN}}$ (GeV)	μ_B (MeV)	Run Time	Number Events "Good" requested / collected	
	9.8	19.6	205	4.5 weeks	400M	582M
	7.3	14.5	260	5.5 weeks	300M	324M
Run20	5.75	11.5	315	9.5 weeks	230M	
Run20	4.55	9.1	370	9.5 weeks	160M	
	3.85	7.7	420	12 weeks	100M	
	31.2	7.7 (FXT)	420	2 days	100M	51M
	19.5	6.2 (FXT)	487	2 days	100M	
	13.5	5.2 (FXT)	541	2 days	100M	
	9.8	4.5 (FXT)	589	2 days	100M	
	7.3	3.9 (FXT)	633	2 days	100M	53M
	5.75	3.5 (FXT)	666	2 days	100M	
	4.55	3.2 (FXT)	699	2 days	100M	201M
	3.85	3.0 (FXT)	721	2 days	100M	3.7M+300M (run18)

- Top priority for Run20 is measuring next two energies in BES-II at **$\sqrt{s_{NN}}$= 11.5 GeV and 9.2 GeV**
- Finishing **fixed target** measurements at $\sqrt{s_{NN}}$ = 3.5, 3.9, 4.5, 5.2, 6.2, 7.7 GeV

STAR's plan is to accumulate 100 Mevts this year for each of the 6 FXT energies.
Rough estimate of STAR running time needed per Energy is ~ 16.5 hrs.

- assumes average HLT good rate of 1700 Hz

Slide from the 12/3/19 STAR Time mtg presentation