Run 20 RHIC Machine/Experiments Meeting

March 3, 2020

Agenda:

- General discussion of Run 20 & 9.2 GeV running - 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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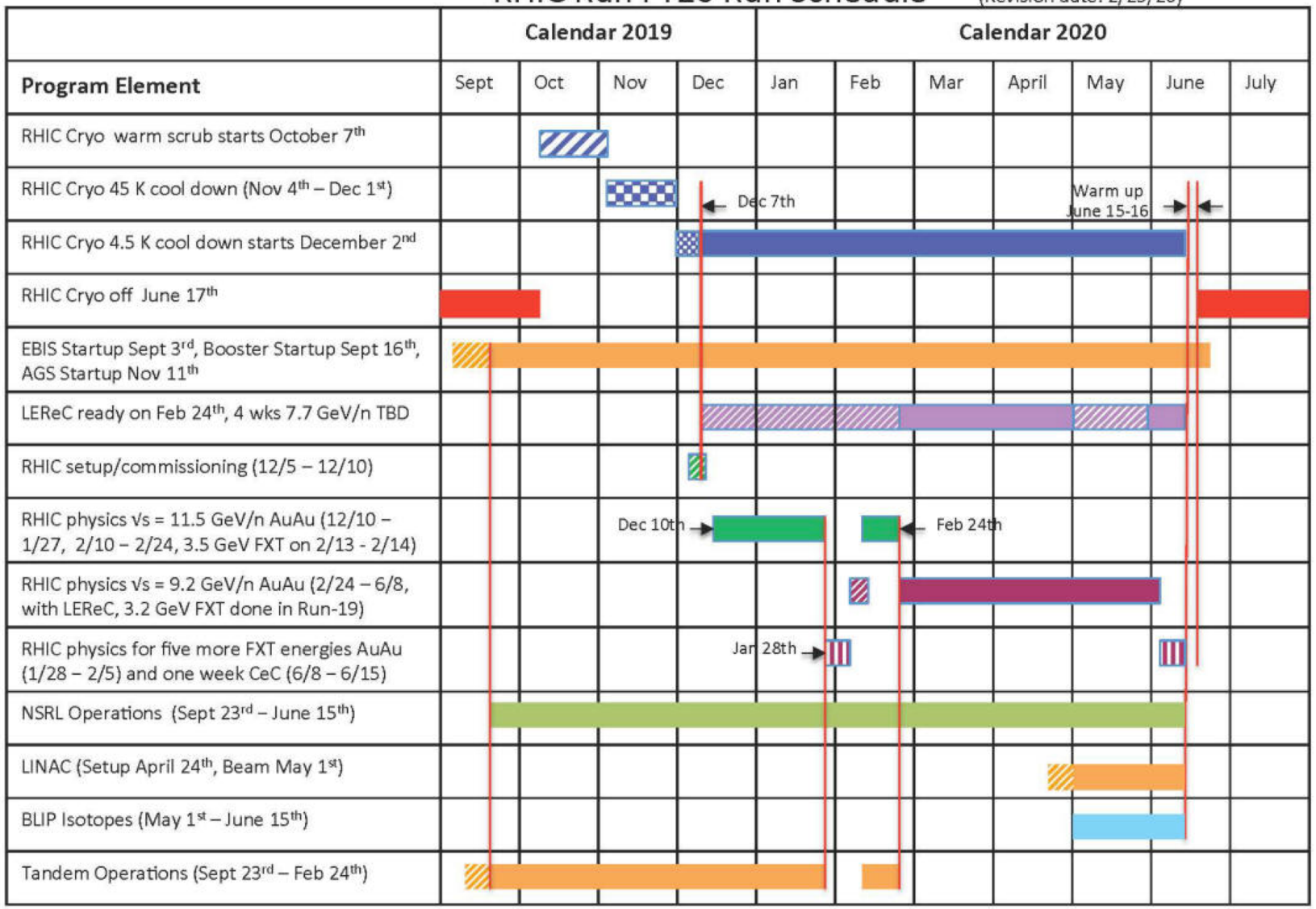
Global Numbers: http://bluejeans.com/numbers
Meeting ID: 273 705 843

RHIC Run FY20 Run Schedule

(Revision date: 2/25/20)



Note: FXT program is completed and transition date from 11.5 GeV/n AuAu to 9.2 GeV/n AuAu was Feb. 24th

N.B. The Schedule above assumes that RHIC Run 2020 will be 28 Cryo weeks long.

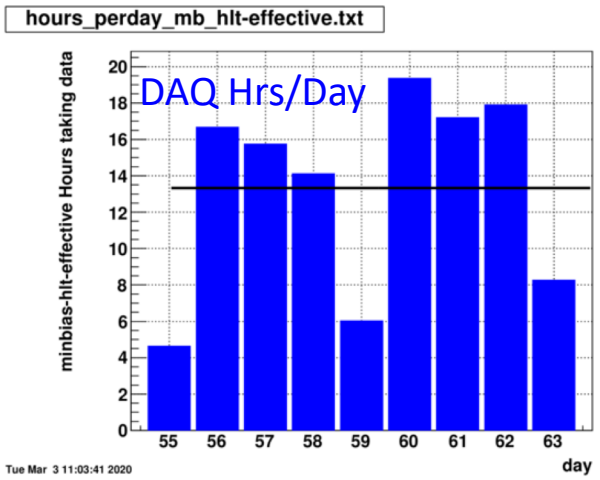
STAR Beam Use Request for Run20

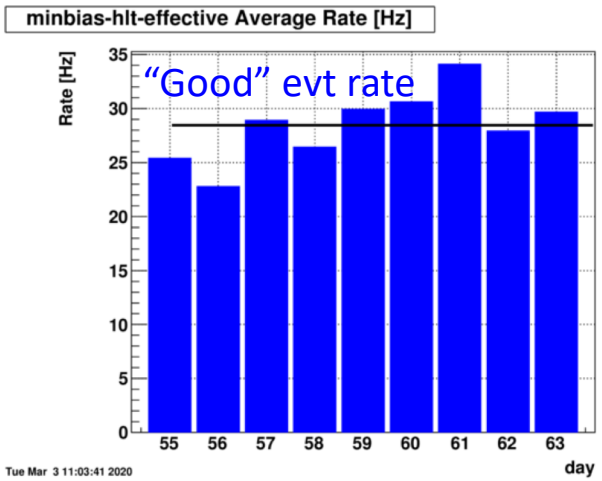
	Beam Energy (GeV/nucleon)	$\sqrt{s_{NN}}$ (GeV)	μ_B (MeV)	Run Time	Number Events "Good" requested / collected	
	9.8	19.6	205	4.5 weeks	400M	**582M** Done
	7.3	14.5	260	5.5 weeks	300M	**324M** Done
Run20	5.75	11.5	315	9.5 weeks	230M	~ 235 Done
Run20	4.55	9.1	370	9.5 weeks	160M	~ 12.4 Mevts at present
	3.85	7.7	420	12 weeks	100M	
	31.2	7.7 (FXT)	420	2 days	100M	Done
	19.5	6.2 (FXT)	487	2 days	100M	Done
Run20	13.5	5.2 (FXT)	541	2 days	100M	Done
Run20	9.8	4.5 (FXT)	589	2 days	100M	Done
	7.3	3.9 (FXT)	633	2 days	100M	Done
	5.75	3.5 (FXT)	666	2 days	100M	Done
	4.55	3.2 (FXT)	699	2 days	100M	**201M** Done
	3.85	3.0 (FXT)	721	2 days	100M	**3.7M+300M (run18)** Done

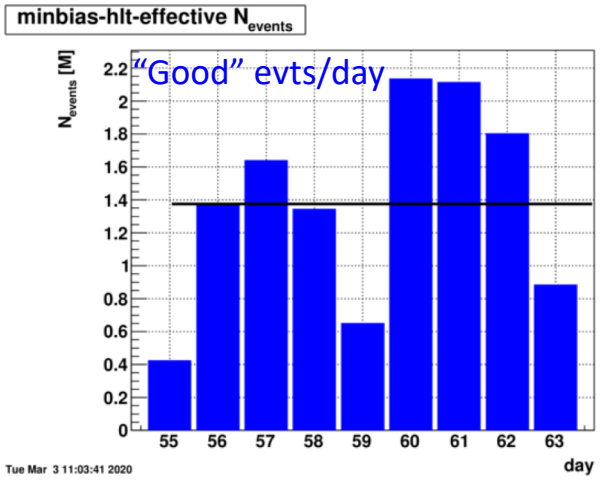
- Top priority for Run20 is measuring next two energies in BES-II at **$\sqrt{s_{NN}}$= 11.5 GeV and 9.2 GeV**
- Finishing **fixed target** measurements at $\sqrt{s_{NN}}$ = 3.5, 3.9, 4.5, 5.2, 6.2, 7.7 GeV

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

Some Summary Plots for the ongoing 9.2 GeV Au-Au Data Set run







Some Estimates based on *observed* (2/29- 3/2) performance:

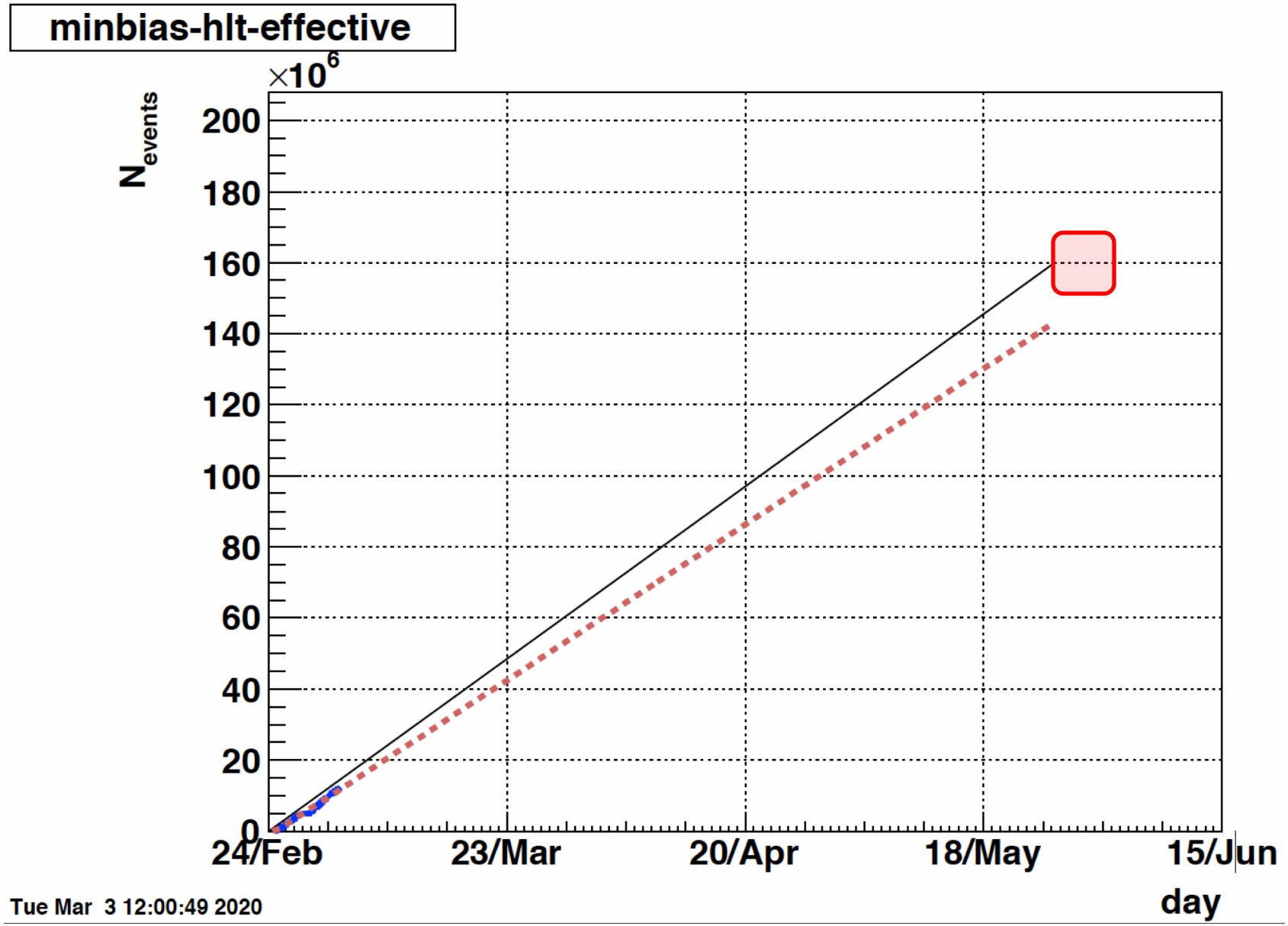
If one assumes 16 Hrs/day of DAQ running, at an average rate of 31 Hz:

- 16 hrs/day x 3600 sec/hr x 31 evts/sec = 1.78 M ~ **1.8 Mevts/day**
- Data set goal is 160 M "good" evts (Currently have 12.4 Mevts)
- 147.6 Mevts/1.8 Mevts/day = 82 days = 11.7 wks
- Add 6 maintenance half/days makes estimate ~ **12.2 wks**

If one can get the store averaged "good" evt rate up to 35 Hz, and uses 16 hrs/day:

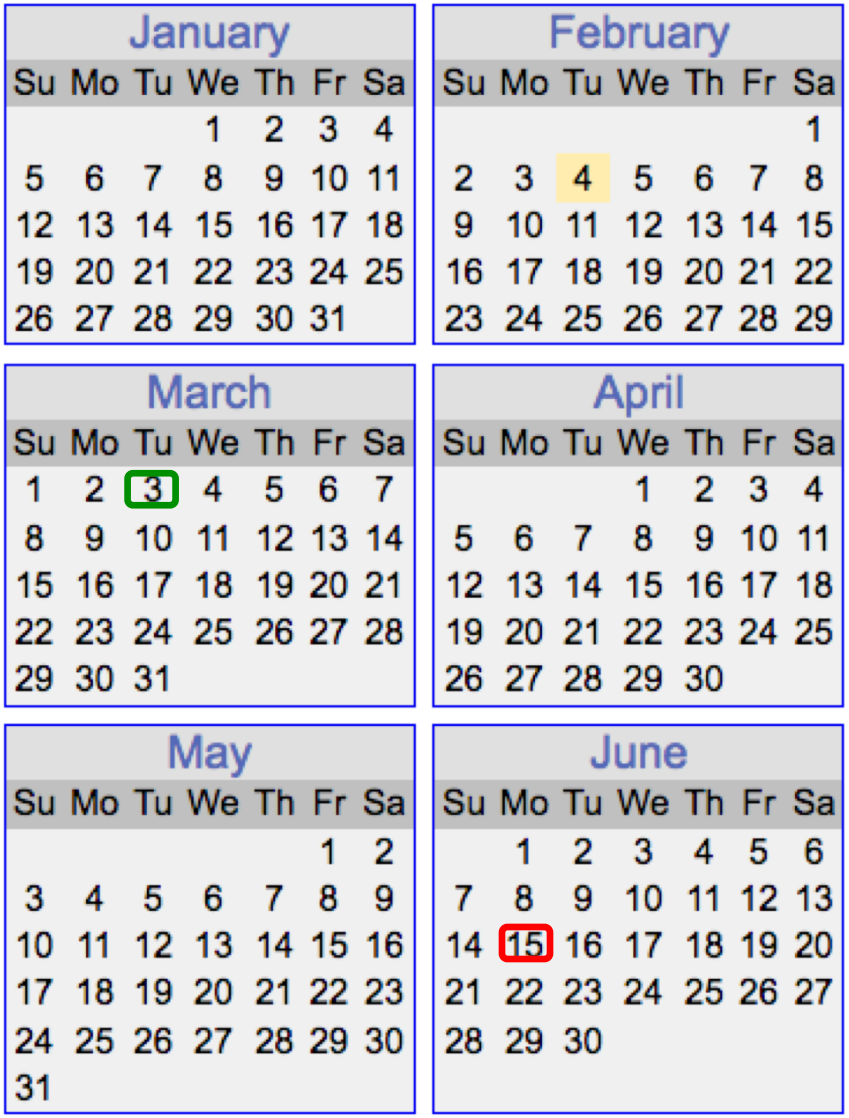
- 16 hrs/day x 3600 sec/hr x 35 evts/sec = **2.0 Mevts/day**
- 147.6 Mevts/2.0 Mevts/day = 74 days = 10.6 wks
- Add 6 maintenance half/days makes estimate ~ **11.1 wks**

We averaged 2 Mevts/day over Saturday through Monday. Accounting for unplanned downtimes, 12 to 13 weeks from today (May 26th to June 2nd) seems like a realistic estimate for the end of the 9.2 GeV run.



The placement and horizontal width of the red box represent estimate of May 25th to June 2nd for reaching 9.2 GeV data set goal.

A possible Scenario for how the rest of Run 2020 might proceed



Start 9.2 GeV Physics running Monday evening, February 25th.

With ***observed*** rates for 9.2 GeV collisions, we should be able to achieve the full 160 Mevts goal after ~ 12 to 13 weeks of "straight" (uninterrupted) running. This gets one to ~ May 26th - June 2nd.

12 days of 7.7 GeV LEReC commissioning (from May 26th) gets one to June 8th.

8 days of CeC then gets one to June 15th, the end of a 28 Cryo week run (N.B. assumption of 28 Cryo week run.

N.B. The 9.2 Gev Physics running, 7.7 GeV LEReC commissioning, and CEC time may well be run in an interleaved mode from now to the end of the run.

All Other Business (AOB)