

# STAR status for Run 20 – Jan. 28<sup>th</sup>, 2020

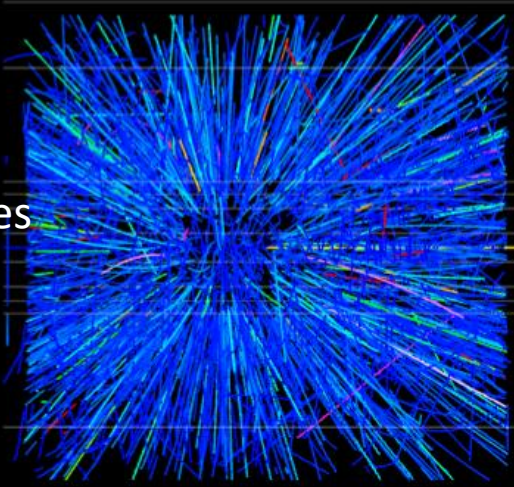
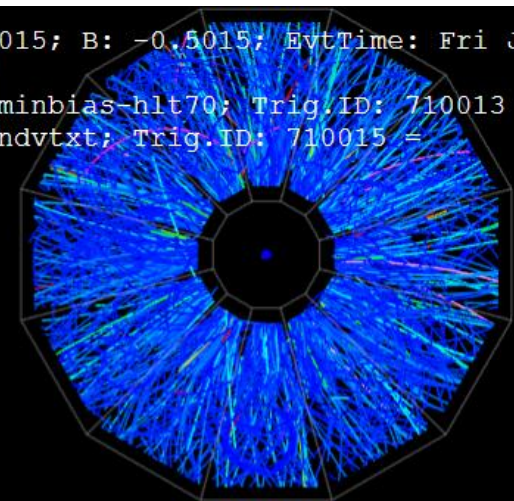
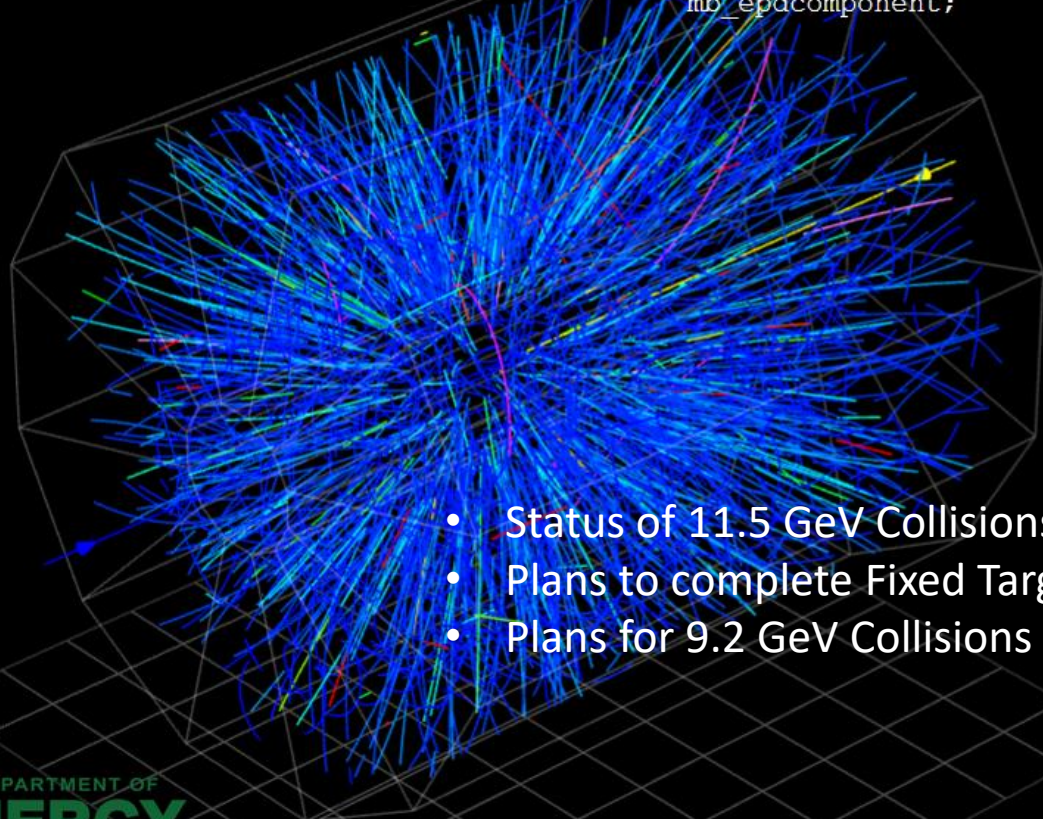
*Daniel Cebra*

*University of California, Davis*

*For the STAR Collaboration*

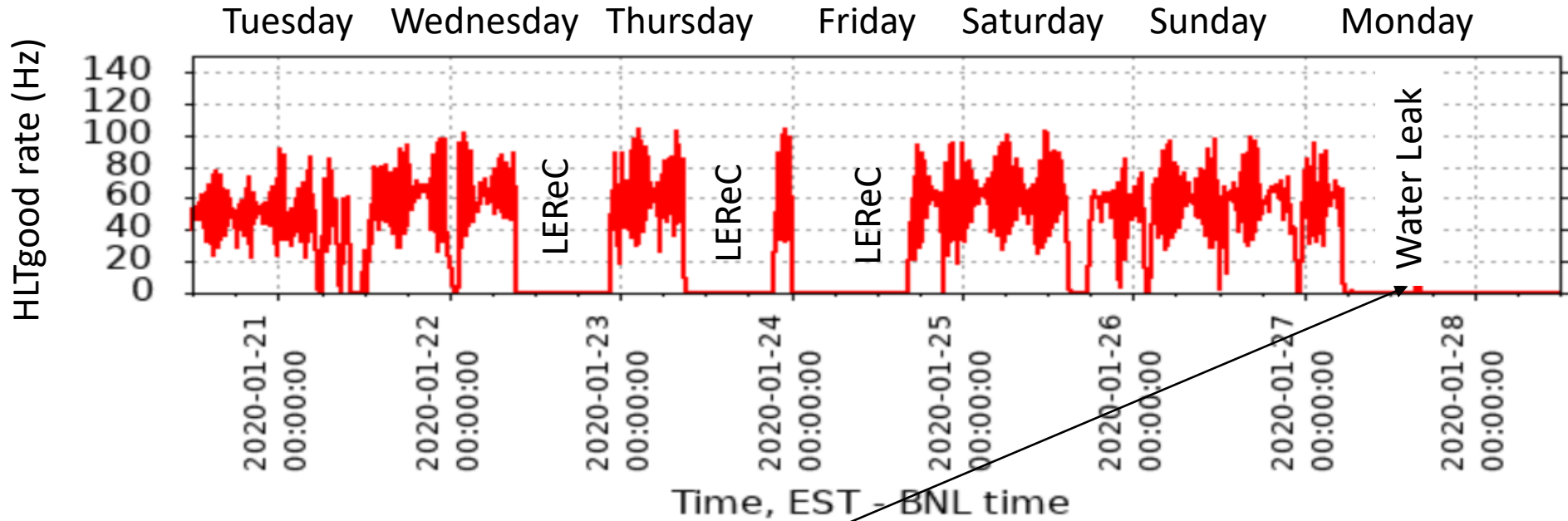
Run: 21017044; Event: 4712; OFL.Trig.IDs: 710010,710018,710012,710013,710014,16,710015; B: -0.5015; EvtTime: Fri Jan 17 2020 19:17:16 GMT-0500 (Eastern Standard Time)

Trig.ID: 710010 = minbias; Trig.ID: 710018 = minbias\_withetof; Trig.ID: 710012 = minbias-hlt70; Trig.ID: 710013 = minbias-hlt150; Trig.ID: 710014 = minbias-allvtx; Trig.ID: 16 = minbias-sendvtx; Trig.ID: 710015 = mb\_epdcomponent;

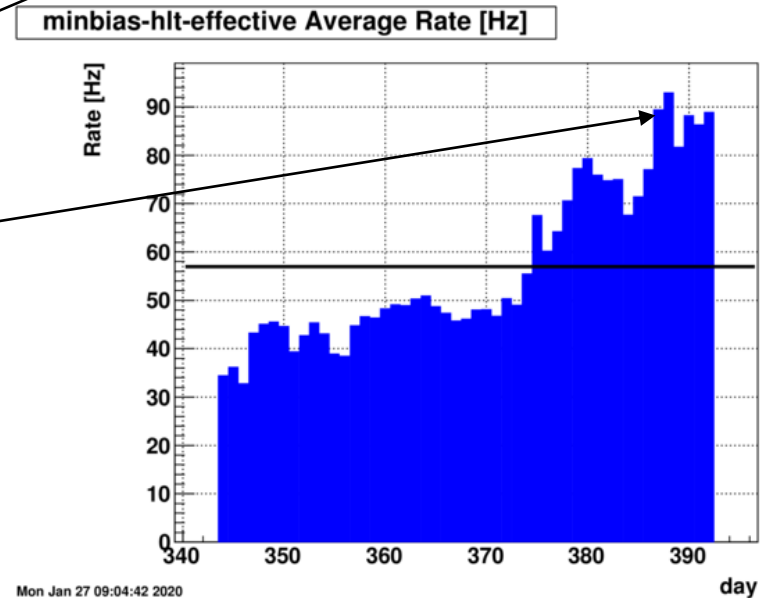


- Status of 11.5 GeV Collisions
- Plans to complete Fixed Target Energies
- Plans for 9.2 GeV Collisions

# 11.5 GeV -- Performance for the Past Week



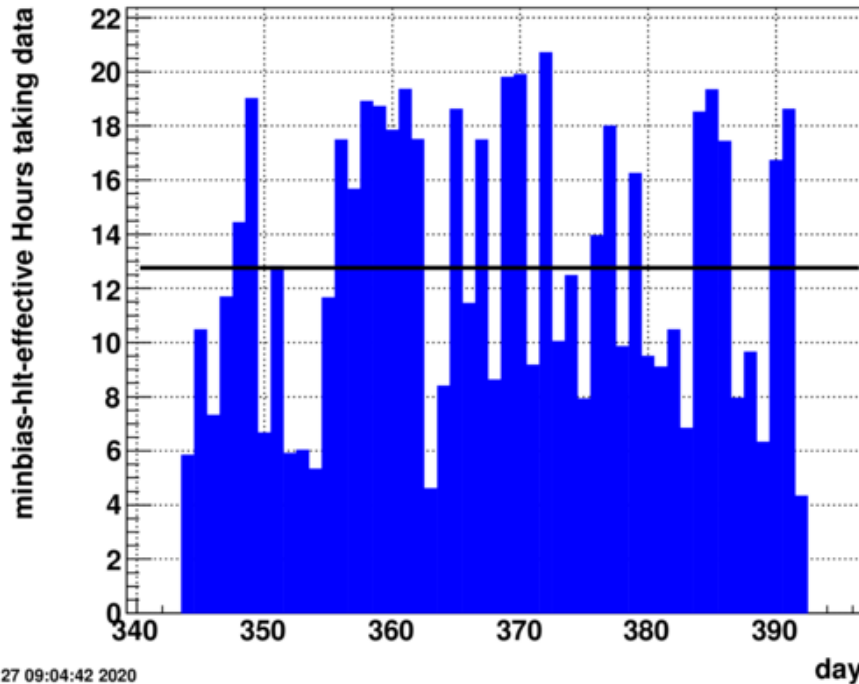
- STAR – There was a water leak which required pulling the pole tip.
- Now taking data at an average of 85-90 Hz (HLTgood\_effective)
- Now hitting most optimistic projections for 11.5 GeV collisions
- In 2010 we achieved a HLTgood (70 cm) of 30 Hz.



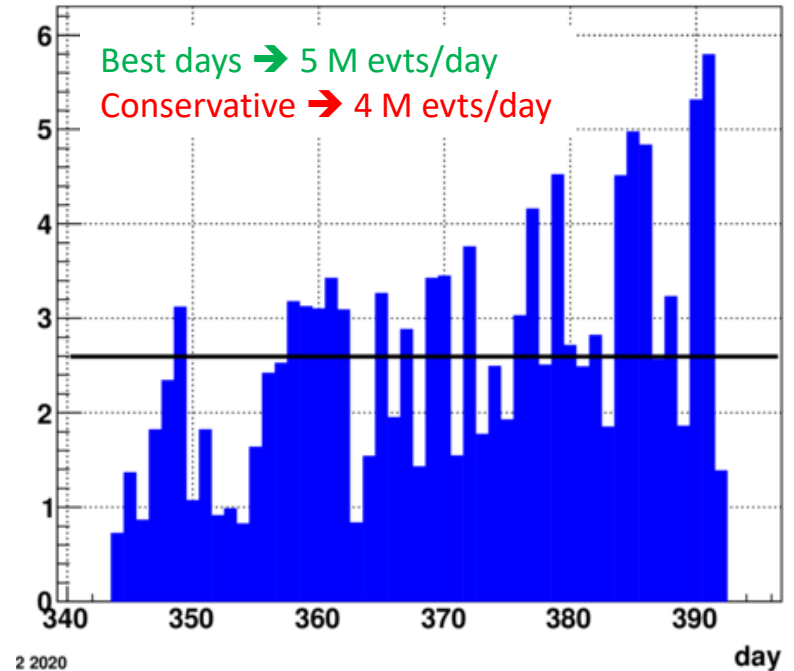
# 11.5 GeV Status and Projections

- Currently at 127 M events.

hours\_perday\_mb\_hlt-effective.txt



hlt-effective N\_events



Now we are at 127 M events

**Conservative:**

Between Feb 10<sup>th</sup> and Feb 24<sup>th</sup>, 14 days → 14 X 4 = 56 M → 127 + 56 = 183 M

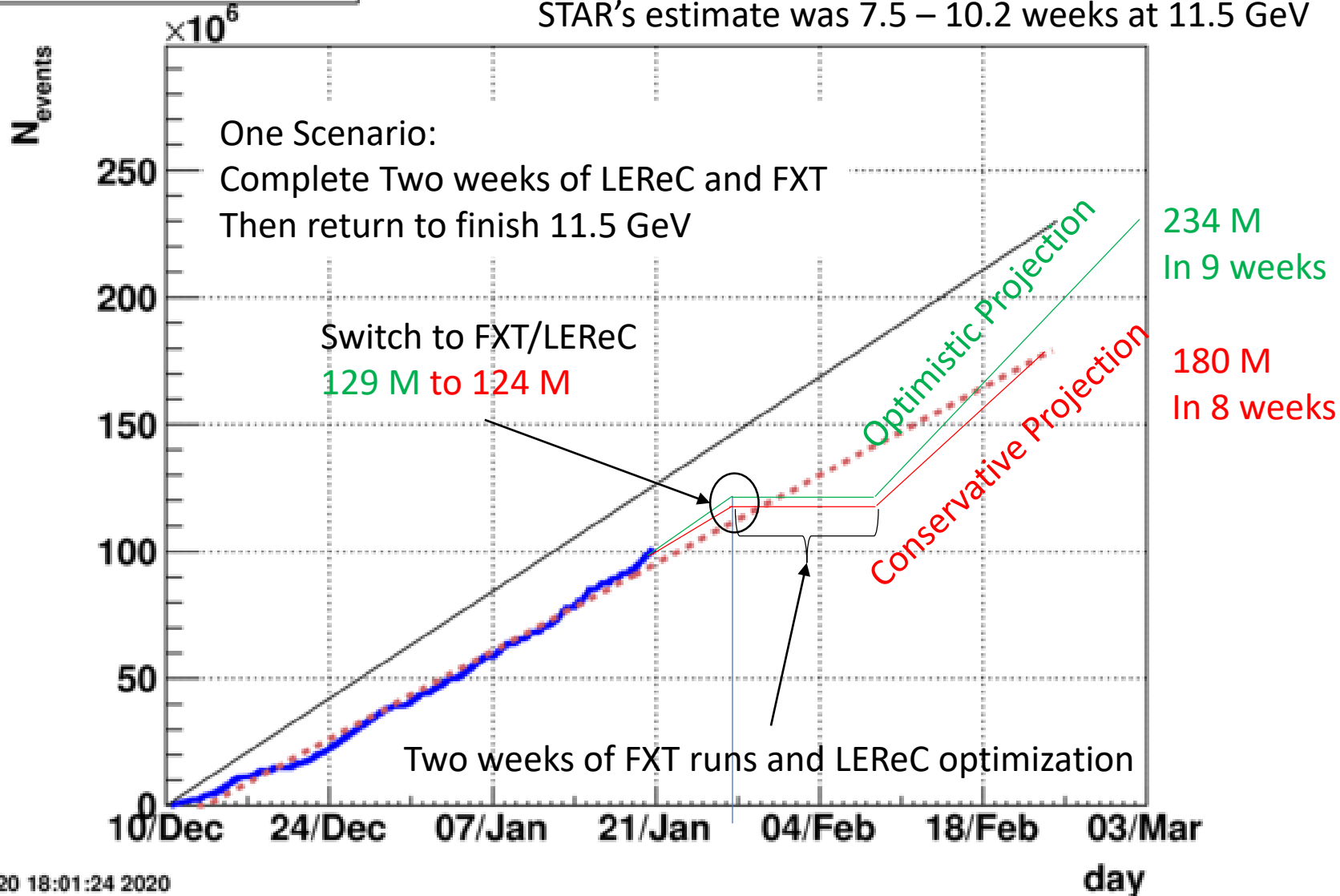
**Optimistic:**

Between Feb 10<sup>th</sup> and Mar 2<sup>nd</sup>, 21 days → 21 X 5 = 105 → 127 + 105 = 232 M

# 11.5 GeV – Last Week's Projections

minbias-hlt-effective

STAR's estimate was 7.5 – 10.2 weeks at 11.5 GeV



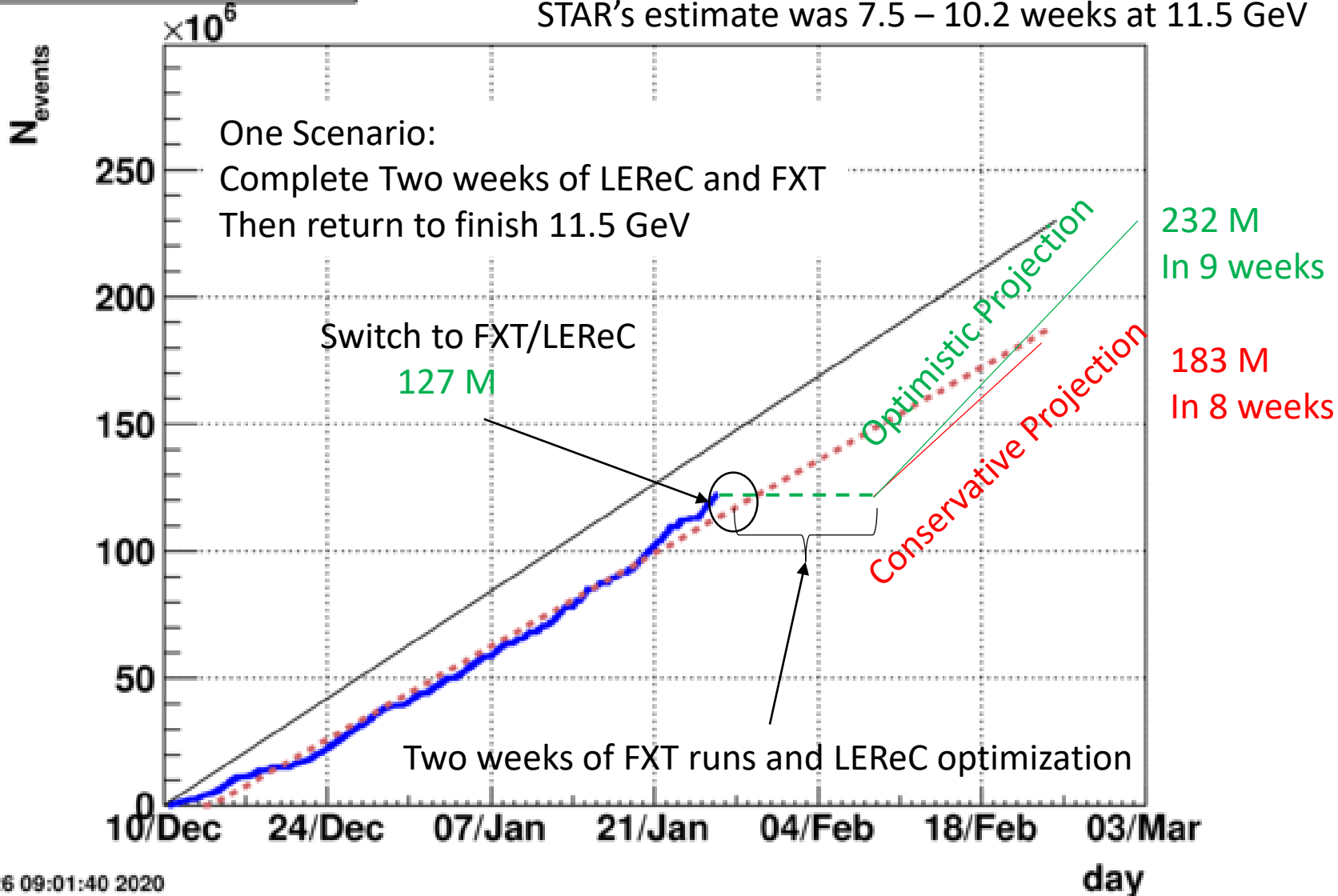
Mon Jan 20 18:01:24 2020

After March 2<sup>nd</sup>, there are still 15 weeks remaining

# 11.5 GeV -- Current Projections

minbias-hlt-effective

STAR's estimate was 7.5 – 10.2 weeks at 11.5 GeV



Sun Jan 26 09:01:40 2020

# Completing the FXT program between Jan 27<sup>th</sup> and Feb 10<sup>th</sup>

- The plan is to interleave six FXT energies with LEReC commissioning over a two week period.
- Just stating the FXT run at 31.2 now.
- Wednesday – Development for the 19.5, 13.5, and 9.8 FXT energies; 19.5 GeV FXT overnight
- Thursday – Setup for 9.2 GeV collisions and electron cooling; Finish 19.5 GeV FXT overnight
- Friday – 9.2 GeV collisions with cooling during the day; Start 13.5 GeV FXT overnight
- Saturday – Finish 13.5 GeV FXT, then switch to 9.8 GeV FXT
- Sunday – Finish 9.8 GeV FXT, then switch to 7.3 GeV FXT
- Monday – 9.2 GeV collisions with cooling, then switch to finishing 7.3 GeV FXT overnight

## 9.2 GeV Collisions with Cooling

- Last year achieved average rates of about 8 Hz, with out much optimization
- Hope to achieved rates between 30 – 50 Hz with cooling
- Optimization runs during the next two weeks should allow us to between plan the remaining weeks of the 2020 run.

## Summary:

- Performance of STAR and Collider now hitting most optimistic projections for 11.5 GeV collisions
- Can accurately project time needed to complete this system (3 weeks)
- Starting the FXT runs. These are to be completed weeks of Jan 27 – Feb 10
- First 9.2 GeV collisions with cooling and with STAR taking data will take place this week.



# Completing the FXT program between Jan 27<sup>th</sup> and Feb 10<sup>th</sup>

- Goals: 100 M HLTgood at each of six energies: 31.2, 19.5, 13.5, 9.8, 7.3, 5.75 GeV

- Recap of 2019 FXT:

- STAR DAQ is limit
- Defocus beams

4.59 GeV:

- June 28 – July 1
- 12 four hour fills
- 200 M events

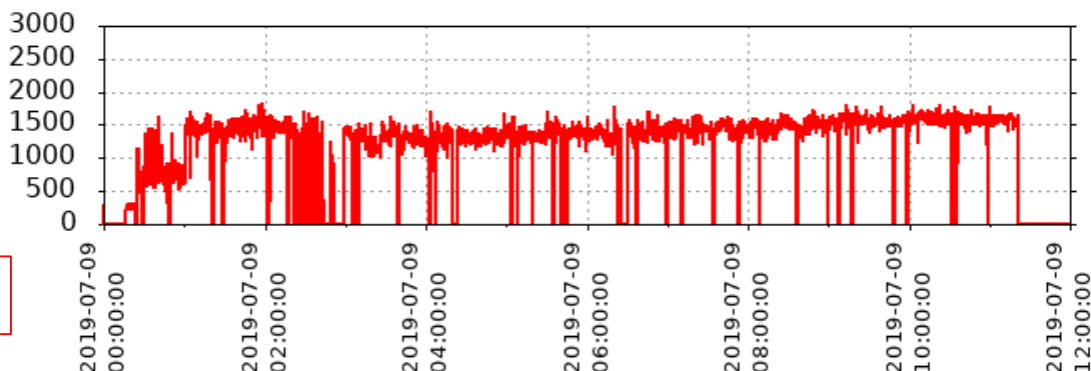
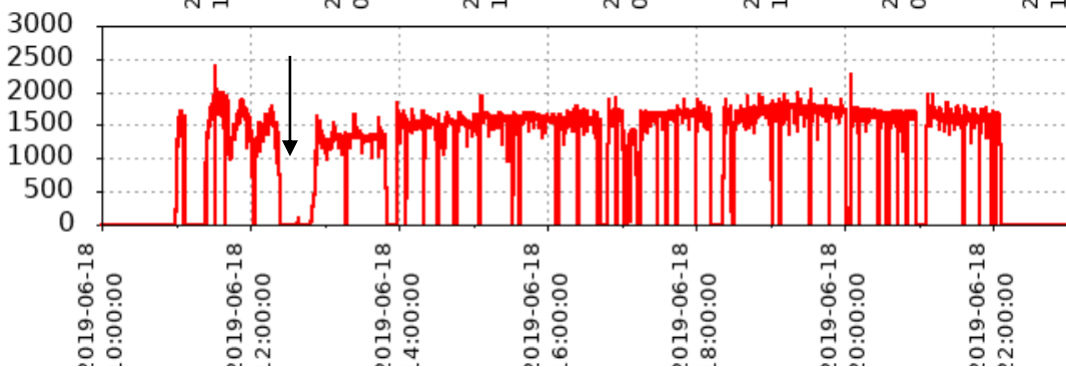
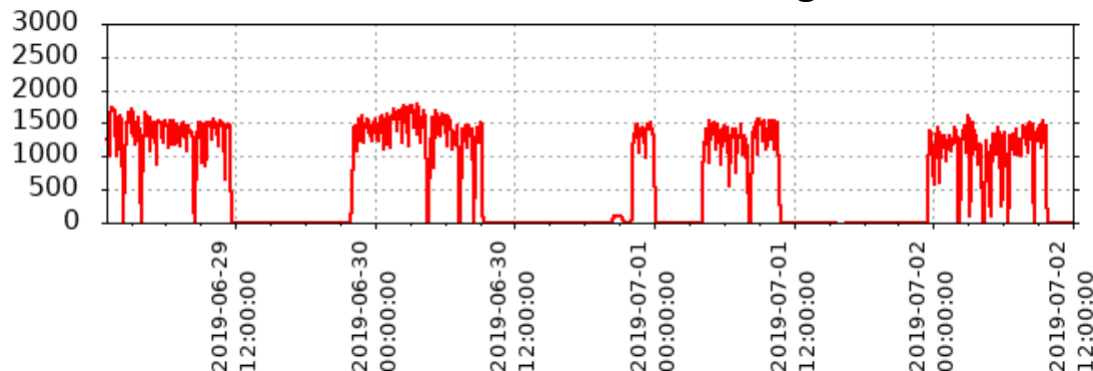
7.3 GeV:

- June 18<sup>th</sup>
- Two fills over 12 hours
- 50 M events

31.2 GeV:

- July 9<sup>th</sup>
- One 12 hour fill
- 50 M events

DAQ Rate limit is about 2.2 kHz --- HLTgood about 75%



**100 M in 24 hours is repeatable**