

RHIC status

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Time meeting

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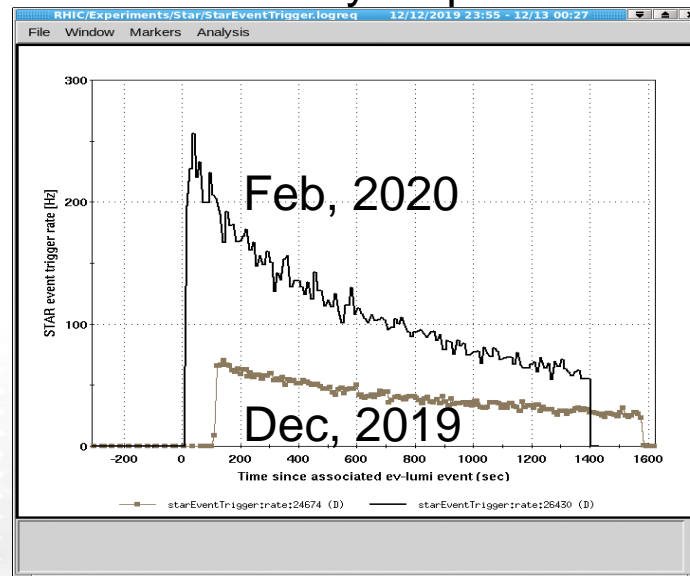


RHIC status

- The physics goal (230 M) at beam energy 5.75 GeV was achieved, the accumulated good event rate is 235 M.
- RHIC switched to physics program at beam energy 4.59 GeV with LEReC cooling on Feb 24.

More than a factor of 2 improvement of average lumi for beam energy 5.75 GeV

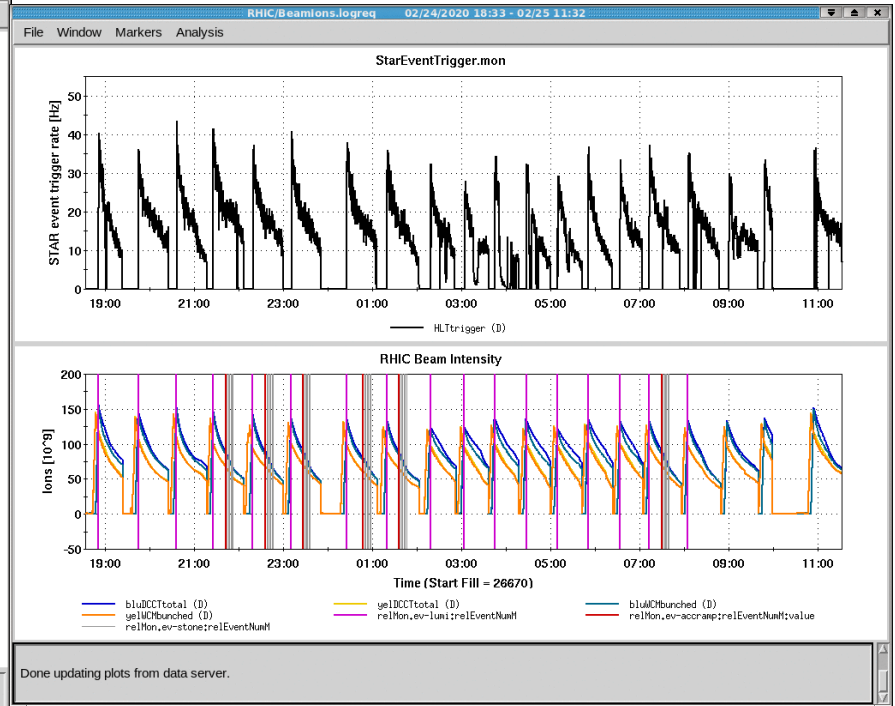
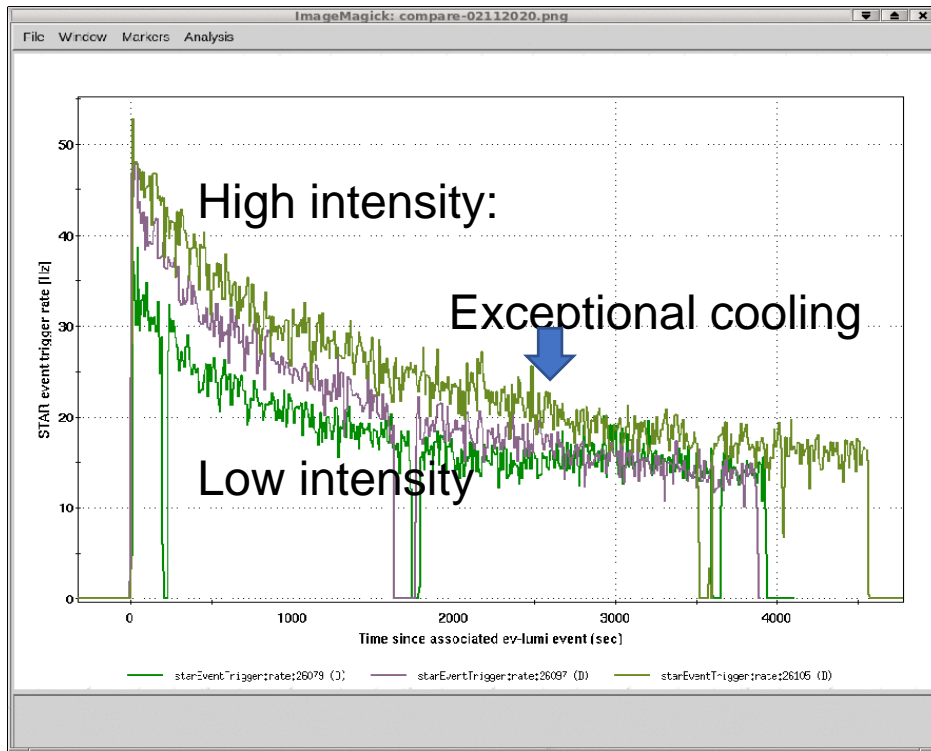
- Bunch intensity improvement
 - High reliability, high quality Tandem beam
 - Double RF systems for large long. Acceptance and better bunched beam lifetime
 - Raise intensity limit in AGS from 8 to 9.8E9 per cycle
- Exploration of working points for beam with large space charge tune shift
 - Design SC tune shift was 0.06, at the end of the program it was 0.12!!
 - Raise tunes from 0.09 to 0.12 and implement different tunes for injection and store (lower tunes).
- Feedbacks from STAR have been very helpful.



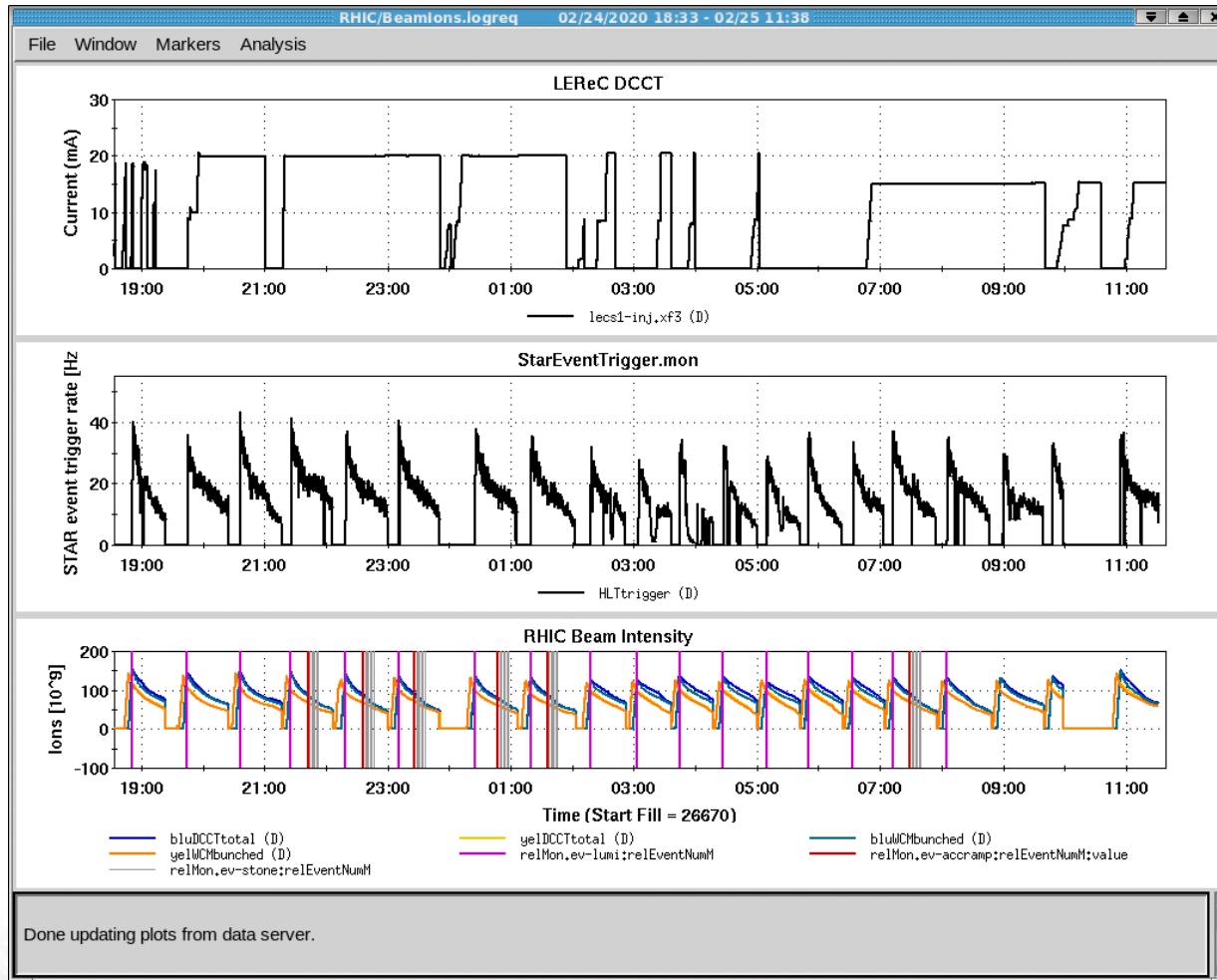
Operation configuration at beam energy 4.59 GeV

- Bunch merge scheme 4→1 in AGS. Beam intensity in RHIC with EBIS was 150E9 ions per ring.
- Store length was 30 minutes without cooling, 40 minutes with cooling.
- LEReC average current was 20 mA.
- Beta squeeze reduced the beta star from 4.5 m to 3.5 m.
- Vertex distribution is centered longitudinally.

Comparison with best store 2 weeks ago

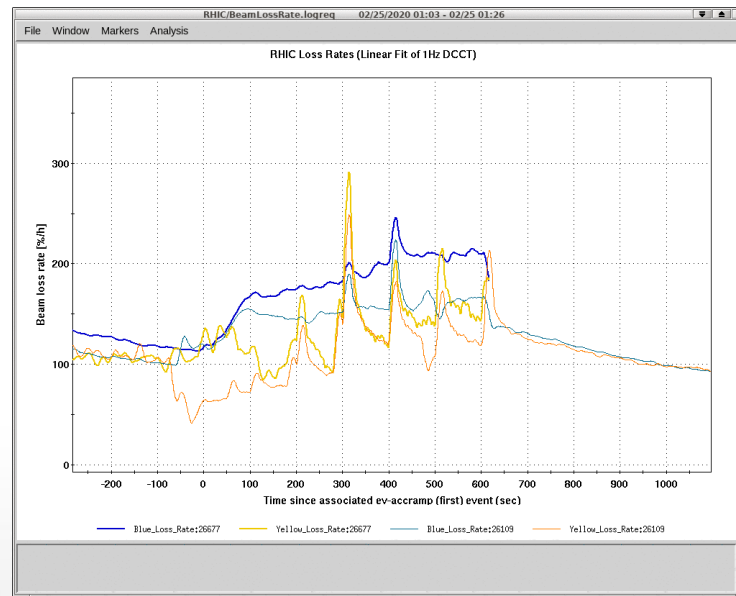


LEReC cooling status



Beta squeeze during store

- The squeeze starts ~15 minutes into the stores.
- Collimator setting can be fine tuned to alleviate the beam loss.



Improvements to be made

- High and stable EBIS beam intensity.
- Stable running of LEReC CW beam.
- Optimization of cooling, especially in Blue ring.
- Beam lifetime tuning, for injection and store.
- Injection damper setup.
- Alternative scheme for beta squeeze.