

RHIC status

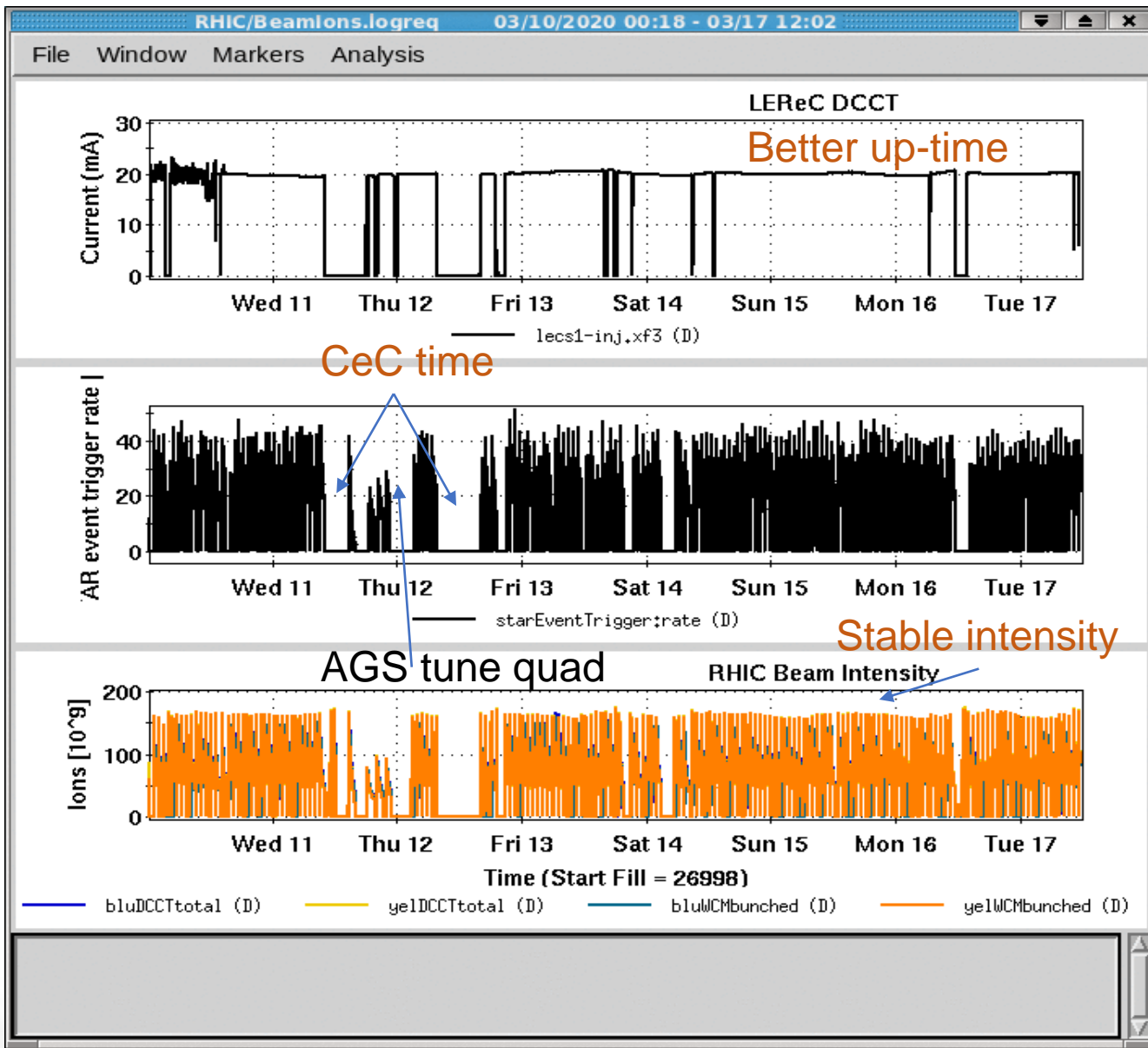
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Time meeting

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ENERGY



Smooth RHIC operation for physics program at 4.59 GeV with stable intensity and LEReC performance

CeC dedicated time

- CeC took 2 blocks of 4-hour dedicated time last week.
- Effect of CeC dipole on RHIC tune is manageable and effect of solenoid on RHIC beam is negligible.
- Abort gap alignment at IP6 (for physics) and IP2 (for parasitically CeC running) can be switched by MCR.
- The overhead time (mainly reestablishing electron beam) was visible and irregular. The preferred scenario is longer dedicated time, and routinely 0.5-1 hr overhead time.

Plans regarding working point

- Continue operation for physics with 0.23 tunes, and make changes to RHIC for better lifetime. The changes include but not limited to relaxing collimators, smaller absolute chroms in combination with octopoles tuning, inject with large beta star then squeeze, inject without collision, introduce coupling for stability.
- Schedule beam development when there are ideas to make 0.12 tune with cooling better. The lifetime at 0.12 tunes was good when one ion beam is in interaction with electron beam, it went substantially bad when inject the second beam in the other ring due to beam-beam.
- Schedule beam development of running ion beams at different working point, say yellow at 0.23 and blue at 0.12.

Beam development for improving lifetime at 0.23 tune

- Beam lifetime is better with tune spread manipulation using a combination of octupoles and chrom sextupoles.
- No substantial gain of the trigger rate was observed.
- Background is worse with the new configuration.
- We reverted back to the nominal settings for physics operation.

Other notable items

- Beam loading effect was observed when the 28 MHz cavities were tuned off frequency and turned off. They are back on with feedbacks.
- Beam loading effect of LEReC electron macro bunches were observed when 76 kHz was left on in CW mode.
- The voltage ramping down was delayed from 5 minutes to ~10 minutes into stores.
- A few mishap of beta squeeze caused high background which tripped STAR TPC.

Plans

- Blue beam intensity has deteriorated over time. It deserves to be looked at.
- We are studying whether there is any benefits of ramping up LEReC current while filling RHIC rings.