Accelerate a flat gold ion beam from 31 GeV to 100 GeV in the RHIC Yellow Ring

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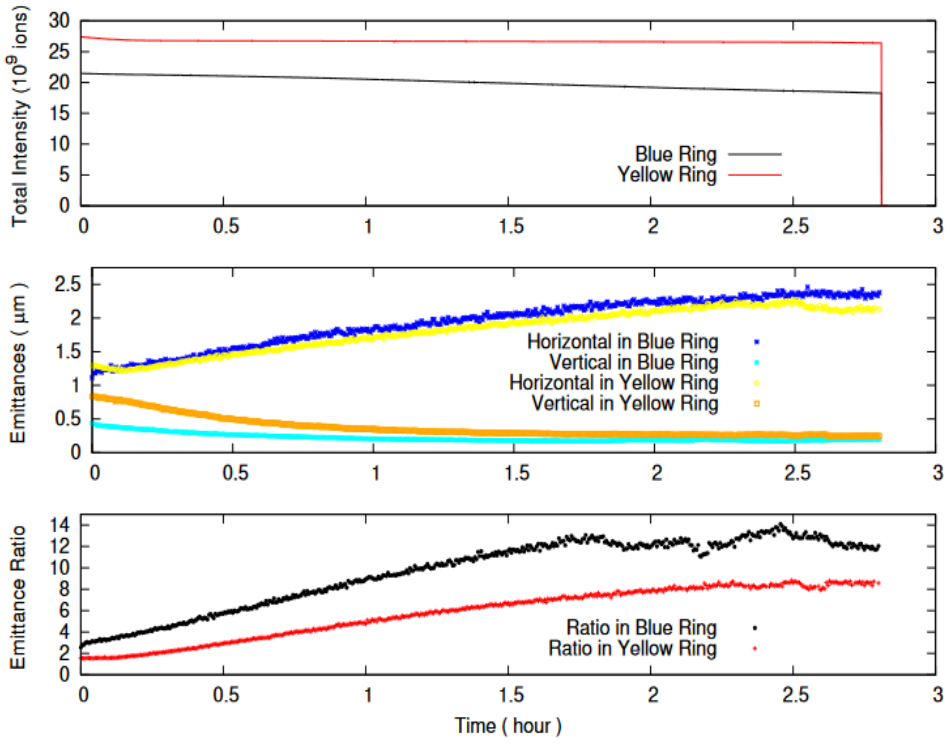
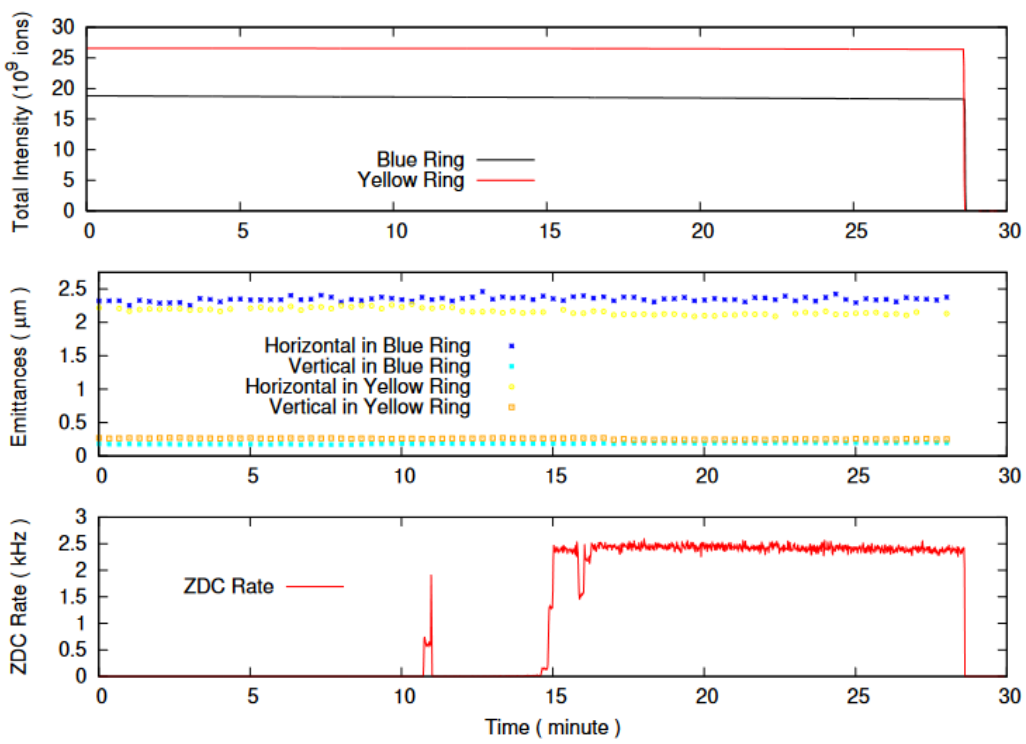
We demonstrated 11:1 emittance ratio at store in run 23





The design transverse emittance ratio is 11:1 in the HSR. We tried to experimentally demonstrate it.

New Proposal Details

- **Experiment Description**: Au ion beam, Yellow ring

  1) establish the ramps: 9.8GeV to 31GeV gold ramp, and 31GeV to 100GeV ramp.

  2) set up vertical and longitudinal stochastic cooling at 31 GeV for gold beam in the Yellow ring.

  3) accelerate 11:1 emittance ratio gold beam from 31 GeV to 100 GeV.

- **Beam Time Request**: totally 3*16 =48 hours

  1) First session: 16 hours, set up 31 GeV ramp , vertical and longitudinal cooling set up at 31GeV in Yellow ring.

  2) Second session : 16 hours, (continue cooling setup if needed), ramp development 31->100GeV

  3) Third sessions: physics experiments, get flat beam at 31GeV in the Yellow ring and ramp up to 100GeV, totally 16 hours, may be split into 8hours * 2 sessions.

Readiness

To-do-list:

1) Ramp development: 9.8GeV → 31 GeV (from p-Au run)
   31GeV →100GeV (new ramp) , Guillaume
2) Operation preparation: tape sequence, etc, Ian, Travis,…
3) Stochastic cooling : 31 GeV , vertical and longitudinal in Yellow ring
   Kevin
4) Review previous p-Au 31 GeV operation data: Yun, Vincent, Guillaume
5) Decoupling on ramp: Yun, Chuyu, Derong