

Low Energy RHIC electron Cooling (LEReC)

RHIC Time Meeting

July 28, 2020

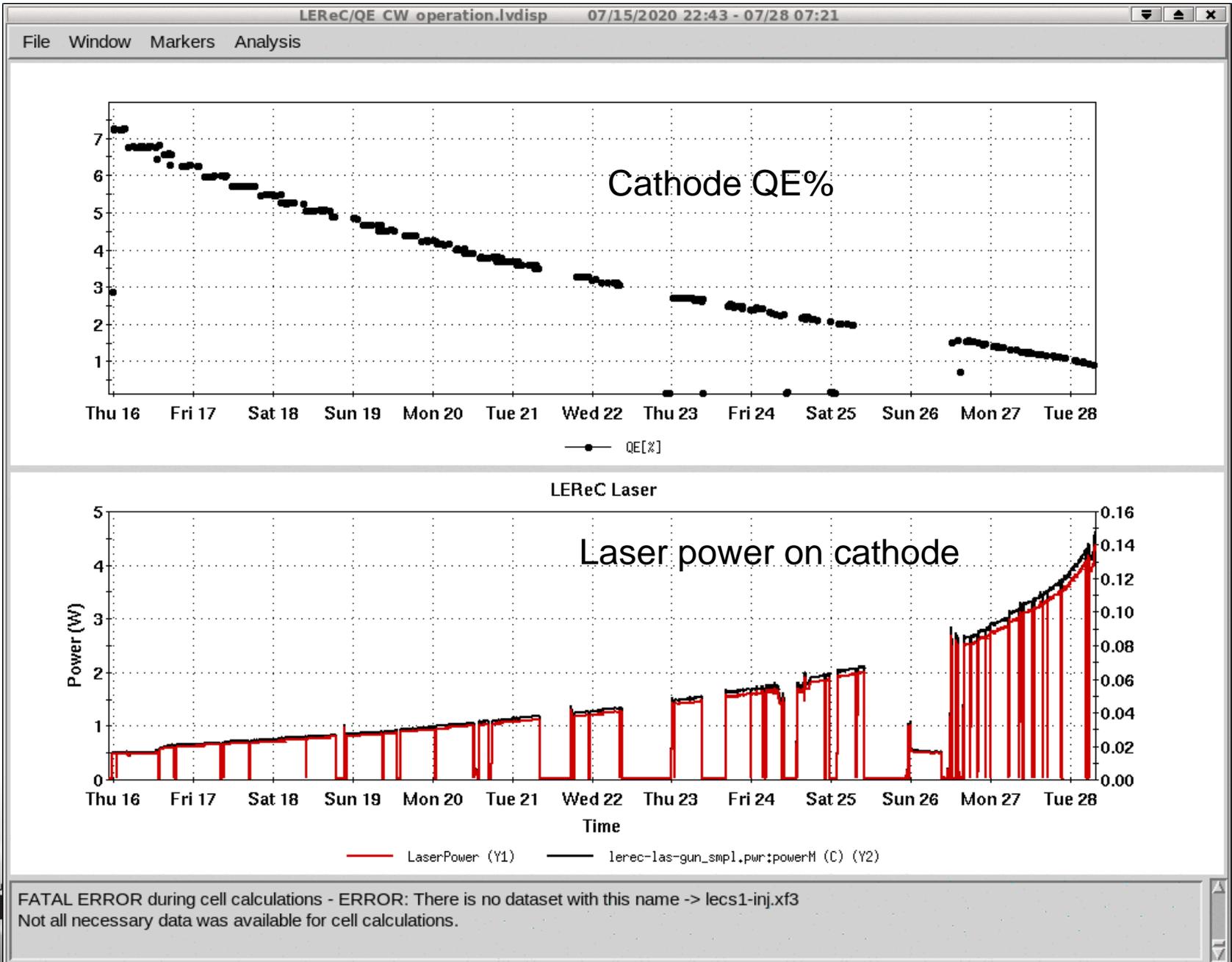
BROOKHAVEN
NATIONAL LABORATORY

 U.S. DEPARTMENT OF
ENERGY

LEReC progress/updates: July 21-28

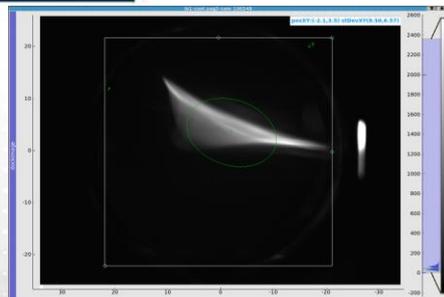
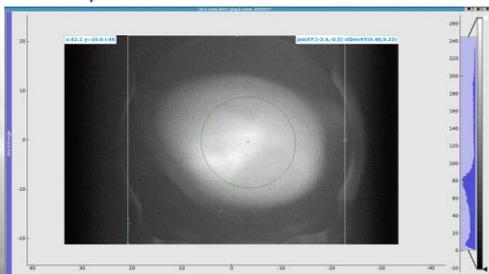
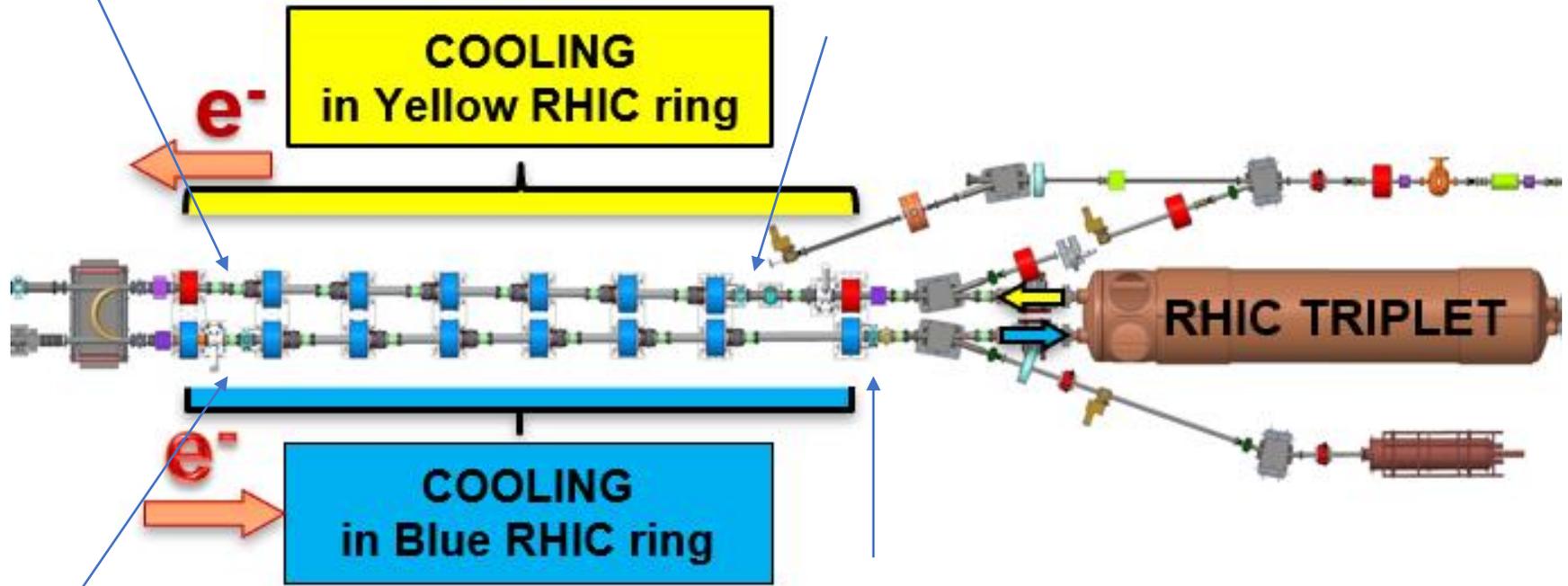
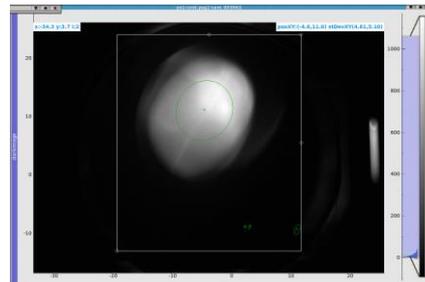
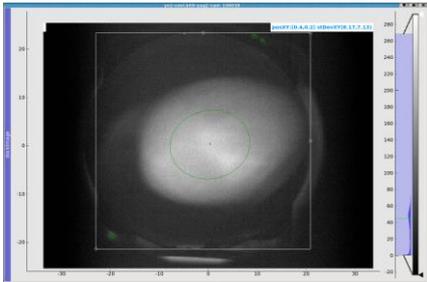
- Stable operation of accelerator systems. Stable cooling.
- Took some time to recover after the power dip on July 25, with many systems affected, including laser and kepcos power supplies.
- Several Gun trips, most likely because the anode and ion clearing power supplies were still in wrong state after the power dip until July 27. No Gun trips after these power supplies were recovered.
- Operated with second cathode (from second FW) July 15-28. Cathode exchange on July 28.
- Spent few hours on July 24 for machine development to work on electron beam optics for Blue cooling section. Additional few hours are scheduled for July 28.

LEReC cathode performance



Machine development:

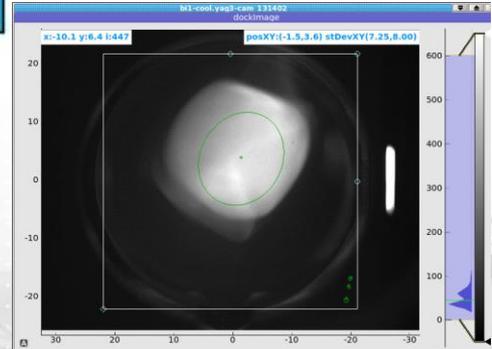
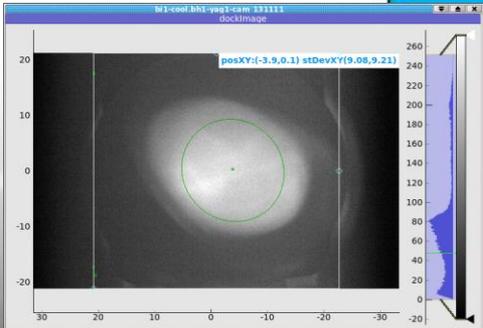
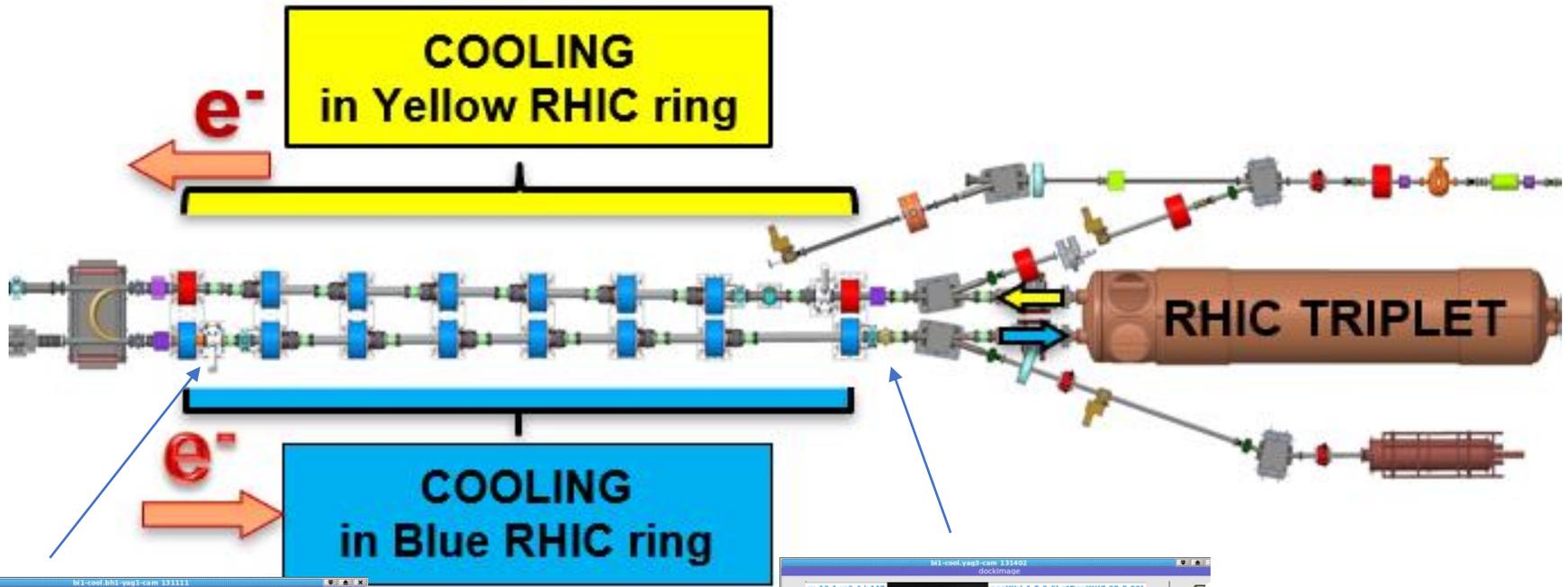
cooling section optics in operations (without ions)



Machine development: July 24

More round optics (without ions) was developed, but more work is needed to see whether this optics could lead to better cooling performance with ions.

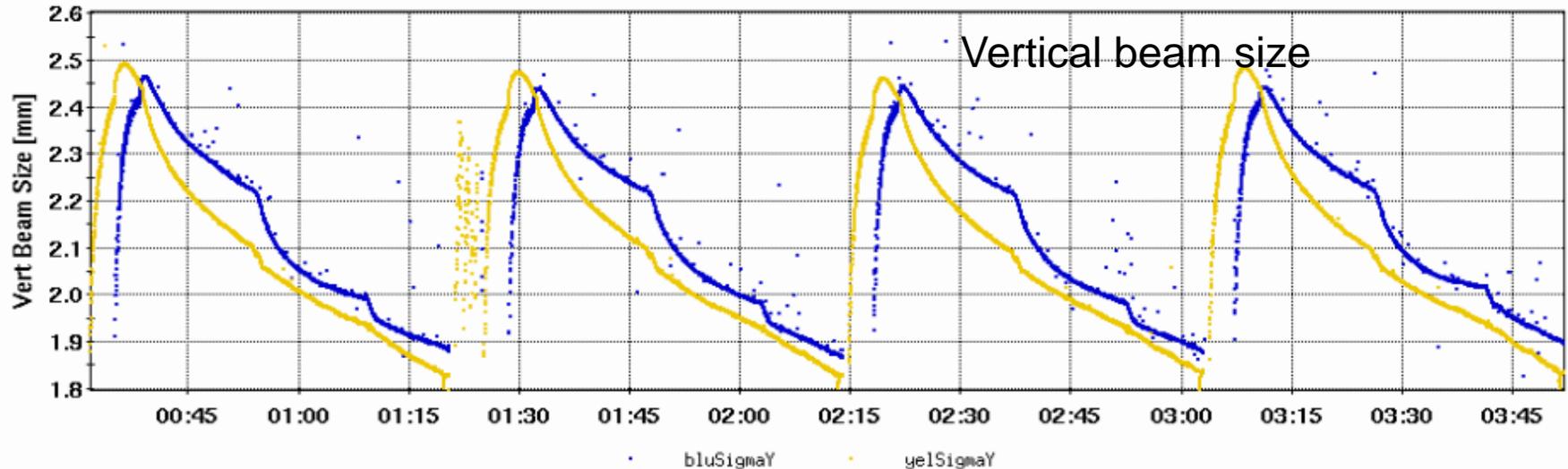
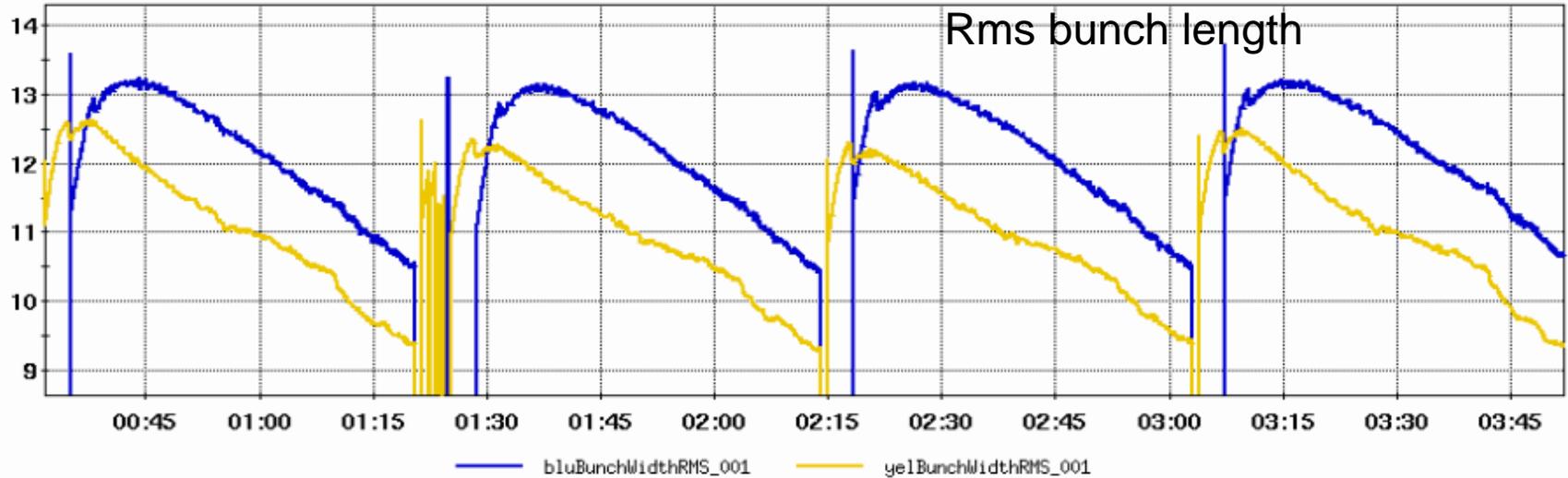
For now we continue to operate with old optics with results in somewhat different but good cooling in both Yellow and Blue.



LEReC cooling performance with old e-beam optics in operation

RHIC/BeamIons.logreq 07/28/2020 00:31 - 07/28 03:52

File Window Markers Analysis



LEReC status and plans

- Stable LEReC operation and cooling
- Checking cooling performance and tuning some parameters
- Machine development to work on e-beam optics in cooling sections