

## LCLS UEC Meeting April 27<sup>th</sup>, 2023

**Present:** Uwe Bergmann, Elisa Biasin, Yue Cao, Leilani Conradson, Margaret Doyle, Mike Dunne, Gilles Duomy, Taisia Gorkhover, Nicholas Hartley, Paul Jones, Cathy Knotts, Agostino Marinelli, Matteo Mitrano, Samuel Teitelbaum, Mariano Trigo, Sebastien Boutet\*, Chris Kupitz\*, Hope Michelsen\*, Matthias Kling\*  
\* indicates guests invited for this meeting

### Director's Updates:

- LCLS-II system is cooling again after helium loss and warming due to power outage, and subsequent scrubbing to counter any possible air ingress. Should be cooled within the next couple of weeks (by mid-May), allowing the subsequent restart of the LCLS-II beam.
- Timeline for restarting the copper linac restart is still uncertain. The high voltage team is still working through issues with the restart, and those raised by the DOE's accident report. Given the delay, Run 21 will require significant rescheduling, with some experiments deferred to Run 22.

### SAC Meeting

- Matteo participated in the recent Scientific Advisory Committee meeting. They feel that the facility outlook and plans for restarting are positive, and discussed possible changes in shift patterns (see discussion below).

### Shift Pattern changes

- The UEC discussed what changes in shift patterns and scheduling could positively impact the scientific output of LCLS, and what changes could be most valuable to the user community. The main points of discussion are summarized below under three broad headings:

#### Novel shift patterns

- This includes ideas such as shorter beamtimes (data set collection, protein screening, finalization of an existing data set) and reserving contingency shifts at the end of the schedule
- These contingency shifts could allow a standard configuration experiment to complete a dataset, rather than needing to apply for another beamtime
- Rapid access beamtimes are designed to address issues of specific and urgent need, and are considered by the chair of the appropriate PRP area, rather than the whole panel
- Scheduling such experiments at short notice is challenging, so space has to be left for these, and for contingency shifts, on the schedule. We therefore risk wasting shifts in order to offer this flexibility.

#### 12 vs. 24 hour shifts

- Some other facilities offer more of their time in single blocks (e.g. 60 hours straight rather than 5x night shifts). This can lead to wasted time as issues need to be fixed while the beam is running.
- For many experiments, breaks between shifts are necessary in order to take best advantage of the beamtime.
- For complex experiments with significant build-up, breaks to fix and debug issues are essential in order to make best use of the beamtime. However, many standard configuration experiments can take data almost non-stop.
- More complicated beamtime patterns have been used in the past e.g. one day setup, full day break to debug and fix, then 24-hours straight data collection to finish.
- Although some scientific areas tend to prefer a single block of shifts, this needs to be treated on a case-by-case basis, rather than by scientific area or endstation

- In conclusion, Beamtime questionnaires will include a question about which approach user groups would prefer. Some groups already include this, but will now be specifically asked for. The facility noted that scheduling logistics may preclude the users' preference being adopted.

### **Staffing / support**

- Many scientific areas require frequent staff support, and could not easily be run user-only, as many other facilities do, particularly on overnight shifts. The nature of LCLS means that some experiments will never be possible without constant staff support.
- Experienced groups may be better able to use unstaffed (or low-staffed) shifts, but care needs to be taken to avoid moving towards a 2-tier system where experienced users increasingly dominate the schedule, creating an exclusionary "club". This is something that LCLS and the PRP seek to avoid.
- With the second accelerator coming online, staffing multiple simultaneous beamtimes is challenging. Using experienced users to take some of the load off and allow more support for newer users could benefit everybody.
- Experienced users could be encouraged to help train new users, for instance if similar beamtimes are scheduled back-to-back, users could participate in each other's beamtime to support or learn, respectively. However, this would be challenging for users travelling further.
- Similar approaches and collaborations have occurred in the past (e.g. BioXFEL), but tended to dry up due to the lack of incentive for the experienced users. Nevertheless, the facility could work to make communication between groups easier in order to encourage this.