

LCLS UEC Meeting, June 9, 2015

Mike Dunne, David Fritz, Petra Fromme, Steve Johnson, Nicholas Kelez, Gianluca Gregori, Cathy Knotts, Jan Luning, Peter Weber, Philippe Wernet, Bill White.

LCLS Proposal Review: UEC members asked several questions related to the LCLS proposal review process:

- What is the status for the ethical training of the PRP? status of written proposal guidelines? changes or updates in the panels and/or processes?

Mike reported on the last PRP meeting which was held at the end of May. The LCLS proposal review process is fundamentally the same as other PRPs with regard to required standards of behavior. Mike reported that he talked to the assembled PRP members to clarify the expectations of the PRP, and discussed the issue of (perceived) bad behavior in some elements of the review process. Mike worked with the LCLS PRP Chair and the extended PRP to review guidelines for the LCLS proposal review process. LCLS scientists served as secretaries to the PRP panels, working with panels to ensure the highest levels of ethical conduct and confidential proceedings. The PRP was directed not to contact proposal teams for additional information, or engage in any form of external contact with regard to their discussions.

As is normally the case, about a quarter of the PRP members rotate off the PRP and new members are added for each review meeting. At the level of PRP chairs, there has been one change, with Dick Lee now chairing the MEC panel. <http://www-ssrl.slac.stanford.edu/lcls-resources/sites/default/files/documents/lclsprp.pdf>

UEC members requested to see full proposal review comments. Mike reiterated that the settled LCLS policy is to provide an integrated summary of reviewer comments, the discussions of the panel, and assessment of technical feasibility, with the objective of providing helpful guidance for future submissions.

UEC members asked about shortening the time between the proposal review process and notifying the proposal teams. Mike agreed, and noted that this time there was a faster turnaround for the whole process, such that the full set of reports could be issued at the same time.

The next deadline to submit new LCLS proposals for experiments for the period March 2016 – July 2016 (Run 13) will be July 31, 2015. <http://www-ssrl.slac.stanford.edu/lcls-resources/proposal-submission>.

LCLS Staffing, Diagnostics, Scheduling and Experiment/Configuration Standardization:

- Are there updates on the measures taken to reduce the workload of instrument scientists and, in turn, to improve the support? Measures to increase beamtime or make more efficient use of beamtime? Updates on the hiring situation in particular in terms of the strategy to replace key scientists who recently left?

Mike reported about several new or upcoming LCLS staff recruitments in SXD, MEC, CXI, and HXD. He also reported on efforts linking local scientific groups to increase the number of students.

Diling Zhu and Joe Robinson are leading an effort to review best practices to prepare for user experiments, maximize pre-planning efforts, and apply these across broader departments.

Bill reported that there are major changes underway for Run 13 to address the combined issues of staff workload and increasing user capacity. LCLS is introducing “standard configurations” for some fraction of the run for each instrument. The idea is to increase the number of independent users that can be accommodated at LCLS, while reducing the amount of setup and reconfiguration time. By having a relatively stable configuration for an extended time, each instrument can be operated more efficiently. LCLS plans to operate in standard configuration mode for at least 25% of the beam time starting in Run 13. Read more about standard configuration on the LCLS website.

https://portal.slac.stanford.edu/sites/lcls_public/instruments/Pages/sc_run13.aspx

- Are there updates on the measures for making beamtimes more flexible (in terms of duration, day/night shifts)? What has the experience been so far in making the use of beamtime more efficient with flexible beamtimes?

Users request a break to avoid working 24/7 over many days. UEC members also commented that searching the hutch currently requires multiple LCLS staff and asked if there were possible solutions. Bill reported that LCLS is working to simplify safety procedures and train more people who will be authorized to search the hutch. The most challenging period for staff is at the start of each experiment. Regarding questions about how to measure/judge beam time use efficiency, Mike reported that John Arthur is back at LCLS helping them to develop ways to quantify the effectiveness of operations, providing actionable data to help drive future improvements. Examples of metrics may include measuring the fraction of time data is being taken on each instrument.

SLAC/LCLS infrastructure:

- What are the current situation and future developments of badging at SLAC?

Users requested to be kept informed about SLAC training and badging requirements as well as processes in transition. Users reported examples of students denied access without warning in the middle of the night. They also questioned the SLAC policy that users have to present original identification documents each visit, including users with green cards who have to constantly bring their green card (and passport) to gain access through SLAC Security. Users requested that SLAC securely store information on these documents for future use to make improve access for users.

Mike reported that SLAC is introducing a new senior post of “VUE Center Manager” to deal with all external users, visitors and new employees. This person will seek to streamline many aspects of our user process, including badging, training, shipping, accommodation, etc. LCLS users will report to the VUE Center in the new SLAC building (known as the SUSB, due to be completed in late September) for all their initial needs. User administration staff for SSRL and LCLS will report to the VUE Center Manager to allow a fully integrated approach to these tasks.

Feedback on this new process is sought over the coming months.

- What is the schedule for the new SLAC Scientific User Support Building (SUSB)?

The SUSB is scheduled for completion (beneficial occupancy) on September 17, 2015. After this date, it will take several weeks to move staff and functions into the new space. The annual LCLS/SSRL annual users' conference is scheduled to be the first official event in the new SUSB, October 7-10, 2015. A cafeteria service will start in late October.

- What is the development for rest areas/amenities in the NEH (see notes from last meeting)?

LCLS plans to have a user rest/recovery area in the NEH (near the kitchen area), due to open in mid-July. Painting and patching of walls in these spaces is underway.

- Are there plans for amenities in the FEH (it would be nice to have sofas in the back part of the overflow area in the FEH)?

There are no explicit plans at this time. LCLS is working to plan to accommodate a new instrument in the FEH (known as MFX). LCLS will investigate the possibility of placing user sofas in some locations. Other recommendations are encouraged – email to Mike Dunne or Nicholas Kelez.

New Guest House:

- Are there concrete measures related to the current conversations with Stanford (Cathy's information on Chi-Chang Kao's conversations with SLAC)?

The SLAC housing coordinator will work with the new VUE Center to help users identify local accommodation, B&Bs, room rentals, etc.

Over the longer term, SLAC and Stanford are working together to build the case for a second Guest House. A survey to users is planned in the near future to gather data about lack of availability and alternate local lodging options over the past several months.

LCLS-II Science Opportunities:

- What was the feedback from the SAC (April 2015 SAC meeting)? What are the consequences for “what comes next” (in terms of new instruments, strategic developments, rebalancing strategic R&D, new staff, LCLS long-range strategic plans and investment priorities)?

Following the past few months of discussion, the workshops in February, and consultation with the LCLS SAC, a [Detailed study of the Science Opportunities enabled by the LCLS-II facility](#) was recently released.

https://portal.slac.stanford.edu/sites/lcls_public/Documents/LCLS-II%20Science%20Opportunities%20_final.pdf

The next step is to formulate a “facility response” to these science opportunities, covering the required suite of instruments, end-stations, detectors, etc. A document laying out

options will be published in late July, with the goal of receiving feedback from the community by end-September. The combined response will be taken to the LCLS SAC in October, to allow finalized plans to be agreed with DOE-BES based on available funding.

All users are strongly encouraged to engage in this process, as it will fundamentally shape how the facility evolves over the coming ~5 years.

LCLS Triennial Review Report (June 2014):

- Has it been delivered? Can the LCLS UEC have it?

LCLS received a letter from DOE praising the success of LCLS science output to date, and outlining several areas to work on, mostly centered on the need to increase the efficiency of user operations, with the objective to reduce costs. This in turn will maximize the funding available for facility development leading up to the use of LCLS-II.

Other LCLS Developments:

In response to UEC questions, Mike reported that the recently installed Delta Undulator has demonstrated variable polarization output including left/right circular with greater than 100 microjoules per pulse, and a very high degree of polarization purity (~99%). Operation of the DELTA system in Run 13 will be assessed on a proposal-by-proposal basis provided proper diagnostic/instrumentation are supplied by the User group for full characterization of the polarized DELTA output. Bill Schlotter is scheduled for commissioning time in June (using a 'cookie box' polarimeter from the European-XFEL group). Bill Schlotter and Hermann Durr are also working on single shot polarization characterization via XMCD.

Regarding self-seeding, Mike reported that there have been mixed results from the soft-x-ray self seeding system. For users who require a monochromator, seeded beams can provide 2 to 4 times more photons per pulse than SASE beams, and with similar pulse durations and shot-to-shot intensity fluctuations. The narrow seeded line, 0.4 to 1.1 eV FWHM, for 50 fs pulse duration typically contains an average pulse energy of 0.3 mJ, with occasional shots up to 1 mJ. It is accompanied by a relatively broadband SASE background of comparable total energy. We are offering its operation during Run 13 with the understanding that lengthy tune up time might be needed and that larger contiguous blocks of awarded beam time (24 and 36 hour shifts) will be scheduled in favor of multiple 12-hour shifts. Seeded beams for hard-x-ray operation are in stable operation, available from 5.5 keV to 9.5 keV and can be tuned up from a SASE beam in about 30 minutes.

There have been a number of recent advances with double-pulse output from the FEL beam, including options for 2-pulse, 2-color. See the FAQ on the LCLS website for full details.

Users' Meeting: Separate discussions to finalize plans for the annual users' conference and workshops are underway with the conference organizers. The LCLS UEC is represented on the Organizing Committee by LCLS UEC Vice Chair Petra Fromme. A dedication of the SUSY will be incorporated into the annual users' conference, most likely during the Thursday morning plenary session (10/8) or Wednesday afternoon workshops (10/7). The conference website is live and UEC members are encouraged to register and plan to attend.

<https://conf-slac.stanford.edu/ssrl-lcls-2015/welcome>

In conclusion, Mike asked the UEC if they found the teleconference format to be useful. The UEC responded that the format worked well for the UEC, acknowledging that it is sometimes difficult to activate the broader scientific user community. The UEC commented that they would like more communication, with notes and important points right up front for the user community. The efficiency of beam time and metrics will be major points for discussion at the next UEC meeting. Notes from the UEC meetings are posted on line once reviewed by the LCLS Director and UEC Chair.

<http://www-ssrl.slac.stanford.edu/lcls-resources/lcls-users-organization-executive-committee>