LCLS UEC Meeting Minutes: 2022-02-25

Present: E. Biasin, Y. Cao, G. Doumy, M. Dunne, P. Jones, C. Knotts, A. Marinelli, E. McBride, M. Mitrano, D. Oberthür, B. Ofori-Okai, D. Rolles, R.J. Sension, M. Trigo, G.J. Williams, M. Khalil, P. Sun, L. Conradson

Absent: N. Hartley, J. Kern, C. Rajendran, G. George, T. Gorkhover

Guests: D. Fritz, S. Boutet

Updates from Mike Dunne:

- Superconducting (SC) linac:
  - A cooldown was started a few weeks ago and aborted after some problems were identified. Another cooldown is planned for next week.
  - LCLS is targeting early summer to get the linac to the desired temperature. Expecting mid-November to start operation.
- Science and Instrumentation Review (for AMO science and gas-phase chemistry):
  - Took place on February 14-16, 2022.
  - Part of a rolling series of reviews for each area of LCLS, reporting to the Director and the LCLS SAC.
  - The panel was asked to evaluate the last 3 years of LCLS operations and scientific output; future scientific directions; plans for facility development; and partnership opportunities.
  - LCLS will likely receive the written feedback in the next two weeks, and will inform the UEC.
- Triennial review:
  - (Recap from last meeting) the review panel made 3 major recommendations, 2 of which overlapped with the interests of the UEC:
    Optimum staffing level and resource needs – to develop a robust plan to optimize and rebalance the staffing level with the available resources.
    Career development paths – to provide an assessment and plan for the career development paths of LCLS staff.
  - Input from the UEC is highly welcomed ahead of Mike's response to DOE in mid-March. Mike will share a draft response with the UEC in about a week.
  - DOE recognizes that the light sources are in a difficult position at the moment because of limited resources. The voice from the UEC and the SAC is important.
- The installation of qRIXS is underway, to be ready for commissioning in a few months (initial steps planned for May 2022).
- New user/staff rest areas are in place, including picnic areas, trailer lounges.
  - They can be used by both staff and users.
  - Sleeping areas are also coming soon.
- Question from the UEC: is SLAC reopening?
  Response: Users can now access SLAC without any local limitations. There are still a

number of COVID protocols, such as the requirement for face coverings indoors. It is anticipated that these will be relaxed in the next few weeks.

Structure of the Town Hall on March 3rd (Sebastien Boutet):

- A draft agenda was shown to the UEC for comment. Points raised:
  - Endorsed the approach of having breakout sessions to allow more detailed discussion of specific areas.
  - The agenda should avoid parallel sessions on closely related areas (e.g. AMOS / chemistry).
  - Suggestion to include the early science approach session (Cryan, Wolf, Mehta) in a breakout session, or have an extended period, so users can ask questions.
- Following this input, a revised agenda was crafted:
  - Overall facility updates (M. Dunne) 2 min
  - UEC Update (E. Biasin) 3 min
  - Hard X-ray Beam Capabilities (A. Brachmann) 3 min
  - Superconducting Beam Capabilities Plan and Timeframe (A. Brachmann) 6 min
  - Early Science Approach and How to get Involved (J. Cryan, T. Wolf & A. Mehta) 10 min
  - Current laser capabilities and high rep rate plans (J. Robinson) 5 min
  - Data systems in the high rep rate world (J. Thayer) 5 min
  - Breakouts with details of standard configs [each session has 3 parallel breakouts]
    - Session 1 (12 min)
      - Materials Science Capabilities (A. Mehta, M. Chollet, G. Dakovski, D. Zhu)
      - Biological Science Capabilities (M. Hunter, R. Sierra, A. Batyuk)
      - Gas Phase Chemical Science Capabilities (T. Wolf, M. Liang)
    - Session 2 (12 min)
      - AMO Science Capabilities (J. Cryan)
      - MEC Science Capabilities (G. Dyer)
      - Condensed Phase Chemical Science Capabilities (K. Kunnus, R. Alonso-Mori, M. Chollet, R. Sierra)
    - Q&A
- The zoom link will be posted on the LCLS website: https://lcls.slac.stanford.edu/news/lcls-virtual-town-hall-run-21-regular-proposals

Overview of upcoming LCLS new instruments (David Fritz):

- An overview of upcoming endstations was provided to the UEC for comment. There are many planned developments but only limited beamtime and resources, leading to the need for a phased introduction and a balance between commissioning and user beamtime. Continued input from the UEC is important.

- Related to this is the need to spend sufficient time on technical commissioning, then on community-wide "early science" developments, and then to open-access PRP calls. Getting this balance right is another key area where UEC input is valuable.
- See details in the attached slides, including the nominal timeline for endstation commissioning.
- Points raised by the UEC will be conveyed to the SAC meeting in April.
- LCLS is installing 4 instruments in 3 hutches (TMO, TXI, qRIXS, ChemRIXS), each with multiple endstations and upgrades planned.
    - TMO:
        - Endstations at the first interaction point (IP1) have been provided to users over the past few months, using the 120 Hz Cu linac.
        - Multiple "roll in" endstations (LAMP/MBES, MRCO, cVMI) have been deployed. Air platforms are used to roll them in and out from the first interaction point. This has been working well.
        - DREAM endstation is currently being assembled, in preparation for the LCLS-II high-rate beam.
        - MRCOFFEE endstation (an upgrade from the MRCO prototype) also planned for next year
    - ChemRIXS:
        - Some early science experiments were done in the past fall; now getting prepared for the SC operation.
        - A higher throughput spectrometer is in design - planned for next year
    - qRIXS:
        - Initial commissioning planned before the summer shutdown.
        - 3 modes of operation: RIXS (at 10,000 and 30,000 resolving power), REXS, and XPCS/XSVS
    - User supplied endstations (for the open port in beamline 2.2)
        - SurfSpec – surface science and catalysis. Now onsite, awaiting installation.
        - k-Microscope – quantum material science, ARPES. Currently being tested at FLASH.
    - TXI:
        - Still in design phase.
        - 3 endstations: tender X-ray spectroscopy, forward scattering/imaging, 2-beam nonlinear X-ray science
- UEC suggestion: make sure that the beam from the new linac is ready before calling for proposals.

Update on this year's User Meeting (Matteo Mitrano):

- Dates: September 24-30, 2022.
- Currently in the process of organizing the workshop. The deadline for workshop proposal is on March 7th. Please contribute to the proposals for the workshops: https://docs.google.com/spreadsheets/d/11puzZBcwxcYY0XilKOBDf8JCezAqEep8ju1kIdzDc5o/edit
- At the next UEC meeting, we will discuss
    - how to advertise the User Meeting

- whether it will be in person or remote

General discussion:

- Question: some qRIXS experiments were bumped to Run 21. Is there new information on the schedule of these experiments?
  - Response: not clear at the moment because it depends on the LCLS-II commissioning timeline and instrument development progress. Will notify users as soon as possible – likely in April.