



LCLS Users' Newsletter, Issue 1, April 8, 2009

Dear Colleagues:

We would like to present to you the first issue of the LCLS Users' Newsletter. We are pleased to report that we have recruited Henia Kamil as the LCLS User Research Administrator Manager. Please join me in welcoming Henia and feel free to contact her if you have any questions or suggestions on how we can best serve you. Henia will compile updates of LCLS activities and will distribute a newsletter periodically. This first issue includes a summary of the results of the first LCLS proposal selection round, notes of the most recent meeting of the LCLS User's Organization Executive Committee as well as updates on LCLS activities, deadlines to submit proposals, and machine updates.

Best regards,
Jochen Schneider

Results of the first LCLS proposal selection round

From: Jochen Schneider

In response to the first LCLS call for proposals for experiments with soft X-rays at the AMO station, 28 proposals were received with 219 scientists from 16 countries involved. 21 proposals wanted to use the AMO station as built; 5 proposals wanted to use a special chamber built in Hamburg (called CAMP) which would be moved to LCLS if beamtime were allocated; and 2 proposals wanted to use very special chambers which the groups would provide. On December 3-4, 2008, the proposals were discussed by the LCLS Proposal Review Panel (PRP). Proposals are ranked on a scale from 1 (highest) to 5 (lowest). The PRP is chaired by Chi-Chang Kao from Brookhaven National Laboratory. Based on the PRP recommendations, LCLS management decided to allocate beamtime to 10 experiments, 3 of which will use the CAMP chamber. These experiments will take place during the first LCLS experimental operation period, September-December 2009. Two groups which needed specific single purpose chambers and got very high ranking were invited to discuss with LCLS scientists the technicalities for implementing the instruments at LCLS at a later stage.

News, Events and Updates:

April 13-15, 2009: Matter in Extreme Conditions (MEC) Workshop
(<http://www-conf.slac.stanford.edu/mec2009/>).

May 6, 2009: LCLS User Executive Committee Meeting.

May 15, 2009: Deadline for LCLS Proposals for Soft X-Rays at the AMO and SXR stations. (<http://lcls.slac.stanford.edu/user/>)

October 19-21, 2009: The joint LCLS/SSRL User Meeting
(<http://www-conf.slac.stanford.edu/ssrl-lcls/2008/2009.asp>)

Update from the LCLS Users' Organization Executive Committee (LCLS UOEC)

From: Linda Young, Chair, LCLS Users Organization Executive Committee

The LCLS-UEC met by conference call on March 16, 2009. Present were Linda Young, Dick Lee, Harry Ihee, Tom Earnest, Art Nelson, Mark Sutton, Cathy Knotts, John Arthur, and Jochen Schneider. Notes of the meeting are included below for your information. The next meeting will be held on May 6, 2009.

Jochen Schneider and Linda Young reported on the AMO Beamtime Preparation Meeting, held March 12-13 at SLAC. This meeting was quite successful; spokespersons from the 10 approved experiments clarified their expectations from LCLS and after discussion the users defined a running schedule that maximizes efficient use of the LCLS beam and beam studies periods. A "tutorial" to familiarize users with the data acquisition and control systems was strongly urged by the users. Subsequent to the release of the working version of the EPICS control system in June, it was agreed that a mechanism for "tutorial" will be arranged by the LCLS Data Acquisition and Controls Group. In addition, the Controls group should make available sample data files in the HDF5 format to be used by LCLS during experiments (i.e. with the actual container naming conventions to be used at experiment time) so that users can start to write analysis software immediately. These files should be placed on an iRODS server that mimics the way users will get data back to their home institutions during experiments. A new aspect of LCLS operation is the possibility of incorporating a roll-up chamber, e.g. the CAMP chamber built by the Center for Free Electron Laser Studies in Hamburg for performing experiments at the end of the AMO beam line. For roll-up chambers, it is necessary to make early and extensive contact with LCLS operations, controls and safety to ensure readiness for operation in due time.

The LCLS User website is in the process of being updated.

The deadline for the second LCLS call for proposals is May 15, 2009 and includes operation of the AMO and SXR beam lines over the time period March – July 2010.

The LCLS User Meeting will be held in conjunction with the SSRL User Meeting on October 19-21, 2009. Dick Lee and Sebastian Boutet will be the Co-Chairs of the conference for LCLS.

It was agreed that an LCLS quarterly newsletter, similar in spirit to email updates sent by other Light Sources, will be sent out by email with highlights of LCLS commissioning and other news of interest to users. The call for NUFO (National User Facility Organization) volunteers was sent to all LCLS users with USA email addresses and netted responses from eager volunteers for advocacy – both in Washington and at home congressional offices.
<http://nufo.org/>

The next meeting of the National Users Facility Organization (NUFO) will be held June 10-12, 2009. The annual NUFO meeting brings together user executive committee representatives of national user facilities with facility administrative and managerial staff for the benefit of our collective user communities. This year's meeting is being held at Argonne National Laboratory and hosted by all six of Argonne's national user facilities: Advanced Photon Source (APS), Argonne Leadership Computing Facility (ALCF), Argonne Tandem Linear Accelerator System (ATLAS), ARM Climate Research Facility (ACRF), Center for Nanoscale Materials (CNM), and Electron Microscopy Center (EMC). Day One of the three-day meeting focuses on users, user organizations, and the role they play in promoting science at national and international levels. Dr. Patricia Dehmer, Deputy Director of the Office of Science, will speak about the important role played by facility users in fostering our national science mission. Representative Judy Biggert, ranking minority member of the House of Representatives Science and Technology Committee for the 111th Congress of the United States has been invited to discuss US science and technology priorities. Day Two looks at industrial use of our facilities and will include descriptions of best practices, barriers to partnering, and potential collaborative solutions. Day Three focuses more deeply on administrative issues, with sharing of best practices in a number of common areas. User facility administrators and user representatives are invited to attend. http://www.aps.anl.gov/Users/NUFO/2009_Meeting

LCLS Machine Updates:

Commissioning Status of the LCLS Accelerator and Undulator Systems.

From: Henrik O. Loos, Accelerator System Division, LCLS SLAC:

After successful commissioning of the LCLS injector and the first bunch compressor from April to August 2007 and the main linac with the 2nd bunch compressor through 2008, the new beam transport line through the undulator hall to the main dump was commissioned starting in December 2008 with one of the 33 undulator segments installed in January 2009. During the injector and linac commissioning phase, accelerator tuning to the required transverse beam, emittance and peak current was achieved. The transverse and longitudinal feedback systems were commissioned to reach most of the short and long-term beam stability goals. Earlier this year, the undulator diagnostics and girder motion control were commissioned and the required undulator trajectory straightness at a level of a few microns was achieved using a beam-based alignment technique. Spontaneous undulator radiation from the one installed segment could already be observed. With 20 more undulator segments during the March down time added, first X-ray FEL light is expected soon, using preliminary X-ray diagnostics before the full suite becomes available in May for the FEL commissioning. First user experiments are planned beginning in July.

<http://pulse.slac.stanford.edu/Seminar.asp>

Soft X-Ray (SXR) Instrument Update

The SXR beam line will provide intense ultra short soft x-ray pulses generated by the free electron laser (FEL) with a highly diverse set of experimental configurations using established and powerful tools such as x-ray emission, coherent imaging, resonant

scattering, photoelectron spectroscopy and x-ray absorption spectroscopy. The science that can be performed at the SXR beam line covers wide-spread fields such as catalysis, magnetism, correlated materials, clusters and biological structure. The beamline is equipped with a monochromator whose energy range (500eV - 2000eV) covers several of the important K- and L- edges of the second and third row elements for resonant excitation with a resolving power in the order of 5000, but the monochromator can also deliver beam in the non-monochromatic mode. A simple stationary experimental setup is provided in Hutch 1 (shared with AMO) before the monochromator where samples can be studied by XAS in transmission mode, detected in a single shot setup at the monochromator exit slit position. The main interaction point situated in Hutch 2, after the monochromator and a set of K-B mirrors that focus the beam down to 10x10um, is different with respect to other LCLS instruments in that it has no stationary end station. The consortium and various collaborators will role-up and connect different endstations and detectors to the instrument for the experimental program that can also be utilized by the general users via collaborations. See additional information on these end stations and technical specifications at <http://lcls.slac.stanford.edu/sxr/SXRTechEndStations.aspx>