

April 27, 2022
Argonne National Laboratory

APSUO STEERING COMMITTEE AND PARTNER USER COUNCIL MEETING



DENNIS MILLS

Deputy Associate Laboratory Director for X-ray Science
Photon Sciences Directorate



Argonne National Laboratory is a
U.S. Department of Energy laboratory
managed by UChicago Argonne, LLC.

OUTLINE

9:10 am – 9:50 am

- Response to Questions from Previous Meeting
- Update on the Review of the APS GU Program
- Update on Progress on the New Partnership Models
- Helium Shortage

11:20 am – 12:00 noon

- Universal Proposal System Update - *Connie Vanni*
- Any Other Business
- User Meeting, Schools, Workshops

RESPONSE TO PREVIOUS QUESTIONS

“Can APS add a link to the Ask The APSUO to the End of Experiment form?”

The Vector ticket has been put in to have this added to the EEF.

“Can APS add language to the bottom of the Allocation emails that includes the link to Ask the APSUO?”

This has not been added to the allocation emails since we are in the process of creating the new system. The Ask the APSUO link is currently available in the User Portal, the APSUO home page as well as the APS User Information page.

“Can APS add a 1 hour lunch session at the Users Meeting for the SC to have an open forum?”

We can still facilitate a 1 hour lunch and learn session at the Users’ Meeting but will need Steering Committee members to volunteer to host and be available to field questions and facilitate. Any Volunteers?? Contact Susan or Connie.

“Create a Slack channel for the APSUOSC”

This has been set up as a channel for communication within the SC.

RESPONSE TO PREVIOUS QUESTIONS

“What are the procedures for turning the beamlines back on after the dark period?”

These are under development. Operations (not the Upgrade) is responsible for developing the procedures. APS needs to establish a requirements list. Several people have been working on this in the background, but Dean Haeffner will organize an ad hoc team for this, with a goal of having a draft document by the next APSUO/PUC meeting (July 27, 2022).

“Who is the point of contact for the ‘Turn back on’ check list?”

As mentioned above, Dean Haeffner is coordinating the development of a check list. The point of contact for the beamlines is the Floor Coordinators. The FCs can then feed the info to the appropriate committees for review/evaluation. For example, we need to survey every beamline to gather information about the commissioning needs, restrictions. We will focus more effort/time on this and provide a better guidance by July 27, 2022.

RECOMMENDATION FROM TRIENNIAL REVIEW RELATED TO THE APS GENERAL USER PROGRAM

BES encourages the APS to use the upcoming dark period to critically evaluate the current proposal review process and develop an improved process with potential to grow the APS userbase to exploit its world leading coherent hard x-ray capabilities.

Will update APSUO/PUC today on progress of GU Program Review and Universal Proposal System, both of these will feed into this recommendation.

In addition, evaluate the current organization structure of the APSUO to ensure broader representation of the APS userbase and to improve communication between the APS and the scientific community.

Will initiate a dialogue on this with current members in the APSUO breakout session.

GENERAL USER PROGRAM REVIEW UPDATE

- Recall that three subcommittees were organized to cover various aspects of the GU program:
 - overall process
 - proposal and submission process
 - review process
- Recently each of the subcommittee chairs submitted their draft reports to me. I combined the three reports into a single report and returned the combined report to the chairs.
- After the chairs have made their comments on the draft of the combined document, we will distribute the draft document to subcommittee members to make any changes and edits the subcommittees members deem necessary for a “final” version. We will then distribute the report to larger groups of stakeholders (APSUOSC, PUC, XSD staff) for their comments.
- Goal is to finalize the report by summer and then APS management will begin to assess which of the recommendations can be implemented and in what priority order.

REVIEWERS

GU Program Overview

| From | Name | Affiliation | Role |
|------------|-----------------------|----------------|------------|
| APSUO | Carlo Segre | MR-CAT | CAT |
| APSUO | Fan Zhang | NIST | User |
| APSUO | Mark Dean | BNL | User |
| BAC | Denis Keane | DND-CAT | CAT |
| PRP | Barbara Lavina (UNLV) | HP | User |
| PRP | Joe Strzalka | SAXS | XSD |
| PUC | Lisa Keefe | IMCA | CAT |
| XSD | Gilberto Fabbris | MM/XSD | XSD |
| XSD | John Okasinski | MPE/XSD | XSD |
| Mills | Steve Sutton | CARS | CAT |
| UO | Connie Vanni | | UO |

Chairs are listed in bold

Each sub-committee has a member of the User Office to assist in answering questions about current GU program policies and procedures and to provide data or information to the members.

General User Proposals

| From | Name | Affiliation | Role |
|------------|------------------------|---------------------|------------|
| APSUO | Anthony Chappaz | Central Michigan | User |
| APSUO | Christine Piro | Franklin & Marshall | User |
| APSUO | Zou Finfroc | XSD/CLS | User |
| GUAC | Keith Brister | LS-CAT | CAT |
| BAC | Jeff Eastman | MSD/ANL | User |
| PUC | Michael Becker | GMCA | CAT |
| XSD | Kamila Wiaderek | SRS/XSD | XSD |
| XSD | Don Walko | TRR/XSD | XSD |
| Mills | Meimei LI | NE/ANL | User |
| UO | Jessi Krzemien Czyz | | UO |

Proposal Review Process

| From | Name | Affiliation | Role |
|------------|--------------------|---------------------------|-------------|
| APSUO | James Walsh | Umass | User |
| APSUO | Jesse Yoder | IMCA CAT | CAT |
| GUAC | Mary Upton | IXS/XSD | XSD |
| PRP | James Kaduk | Structural Science | User |
| PRP | Marcus Young | Scatt- app mat | User |
| PRP | Eric Landahl | Pump/Probe | User |
| PUC | Spencer Anderson | LS-CAT | CAT |
| PUC | Maddury Samayazulu | HP-CAT | CAT |
| XSD | Saul Lapidus | SRS/XSD | XSD |
| XSD | Volker Rose | MIC/XSD | XSD |
| UO | Bev Knott | | UO |

DRAFT RECOMMENDATIONS FROM THE “PROGRAM OVERVIEW” SUBCOMMITTEE

- Create a new access mode in an industrial user program beyond industrial measurement access mode. This new mode could include modified rating criteria, a dedicated review panel, and faster turnaround time from proposal to beamtime.
- Continue the operation of the BAC.
- Make the function of the BAC clearer to the community, and in particular to PRP members to enhance the communication between PRPs and the BAC.
- Update the APS website to provide an explanation of the goals and rationale for aging. A policy should be implemented to avoid situations where an excessively large fraction of the proposals at a beamline must age to get beamtime.
- Make public the APS User Demographics data and update each year. *[The UO has discussed this with the other light sources to try to get a standard set of demographics data consistent across the labs]*
- Ensure that any new GU proposal system be structured to allow for double-blind proposal review and that option should be considered for possible implementation in the future.

DRAFT RECOMMENDATIONS FROM THE “PROPOSAL PROCESS AND SUBMISSION” SUBCOMMITTEE

- Add short descriptions of each access type and its available modes within 1.2 section and cross linked to further sections when introduced in more detail. Correct all inconsistencies about modes of access for consistency in the documents and within website.
- Highlight rules for access for MX beamlines, if they are fundamentally different from the rest, in the procedure and relevant websites.
- Group access modes in 4 categories that users can easily identify themselves within. We propose 4 major categories: General User, Partner User, Collaborative Access Team and Director’s Discretionary. Then each category can be further divided into appropriate access modes. *[The UPS has built in various categories such as GU, PU, CAT and XSD staff, CAT members, etc,]*
- Determine whether staff proposals are useful.
- Indicate explicitly that user groups may jointly submit proposals in the GUP system for MX and provide some guidelines, identifying that the key advantages for multi-group users are access when only short stints of beamtime are needed from a particular group, and flexibility between groups.

DRAFT RECOMMENDATIONS FROM THE “PROPOSAL PROCESS AND SUBMISSION” SUBCOMMITTEE

- Review joined proposals competitively in the same pool with the other MX proposals, as they must be normalized at some point anyway, and it is unnecessary to overcomplicate the proposal system. The information in the main proposal and in the beamtime requests per run influence the allocations per run.
- Require all proposal to indicate the P.I. and, more importantly, the lead experimental contact, who has formal responsibility of either performing experiment or indicating the main experimenter at given time. This should be implemented whether the proposal is for a single user group or for multiple user groups, as it attempts to ensure that the user end of the experiments will be run effectively and efficiently.
- Develop procedures for each proposal type written in a clear step-by-step fashion that novices can understand and follow.
- Update APS_1700813 to provide the extra steps for PUPs to receive beam time on a CAT beamline including a provision requiring CAT approval.

DRAFT RECOMMENDATIONS FROM THE “REVIEW PROCESS” SUBCOMMITTEE

- Generate the data necessary to correlate GUP scores with final publications, and some metrics of the publications. We expect that a few dozen (not more than 100 publications/proposals) would provide sufficient information to form conclusions. Number and impact factor are certainly a start, but we do not expect them to provide the final answer. If “better” proposals do not yield “better” outputs, something is fundamentally wrong with the system.
- Define the scoring system with enough instructions for reviewers should be developed. Either adapt MX process to all scientific review (excluding questions about need of the third-generation sources – all agreed it is no longer relevant) or derive new set of weighted questions that provide partial score for example: 1. Research importance; 2. Well defined hypothesis; 3 Clear experiment plan etc.
- Readjust scores from different panels in a way that each panel average score should be constant and fall into appropriate distribution, or beamlines should be able to accept only certain percentage of proposals from given panels. *[NSLS II does this and I’ve talked to them about how this is performed.]*

DRAFT RECOMMENDATIONS FROM THE “REVIEW PROCESS” SUBCOMMITTEE

- Evaluate PUPs with a separate panel involving APS/XSD management.
- Develop a mechanism where beamline staff can influence the score if in their opinion review panel missed the point of the proposal, i.e., require beamline scientists be “in the room with the PRP”, but not members of the PRPs. *[The UPS will have the capability for BL staff to comment on the proposal via a technical review report that the BL scientist can fill out and be provided to the proposal reviewers.]*
- Recognize long-time/good reviewers at the APS Users Meeting. *[We are initiating this at this year’s User Meeting.]*
- Require beamline scientists to update the PRP once per year on the technical capabilities of their beamlines. There should also be a scientific statement for each beamline on the APS web site, so that users know what it does and is good at.

UPDATE ON THE NEW PARTNERSHIP MODELS

- Through continued discussions with BES program managers, I think we have come to general agreement with our proposed approach for: (1) having more than one Partnership model and (2) having the staffing and yearly investment numbers as goals (not absolute requirements) with a closer scrutiny of those numbers for each Partner at their triennial tenure review.
- BES has now requested that APS work with the other light sources to get agreement of our proposed Partnership policies across all the light sources so each facility is working from the same set of guidelines.
- Our draft Partnership models have been circulated to the 5 BES light source directors and was discussed briefly at the 5-way meeting last week.
- Our goal is to have concurrence by the end of June 2022.

HELIUM SHORTAGE

- U.S. helium suppliers rely heavily on the Federal Helium Reserve (FHR) in Amarillo, Texas and has recently tightened due to ongoing failures at the country's primary production facility .
- An explosion at a new Russian He production facility will delay production well into 2022, and its future ability to ease global supply concerns has been further complicated by Russia's incursion into Ukraine.
- The FHR, operated by the Bureau of Land Management (BLM), has experienced several safety incidents that have not been adequately addressed. Most recently, on April 16, 2021, the plant which produces crude helium from the FHR Cliffside Field helium storage reservoir, experienced a serious safety incident in which a natural gas cloud was released and floated above the facility.
- Despite the April incident, the Cliffside Field facility continued to run until July 1, 2021 when BLM abruptly shut down the operations in January 2022 for unplanned maintenance.
- This has resulted in shortages and increased prices:
 - Both liquid and gaseous helium are being rationed by vendors
 - Liquid Helium
 - Under current contract paying \$7.48 / liter
 - Effective May 1, current supplier (Linde) will charge \$13.50 / liter.
 - Alternate supplier requesting 12-month contract at \$65 / liter to bridge rationing gap
- Efforts continue to get defense priority and allocation system (DPAS) certification applied for Argonne in liquid helium procurement.

from Compressed Gas Association website



QUESTIONS



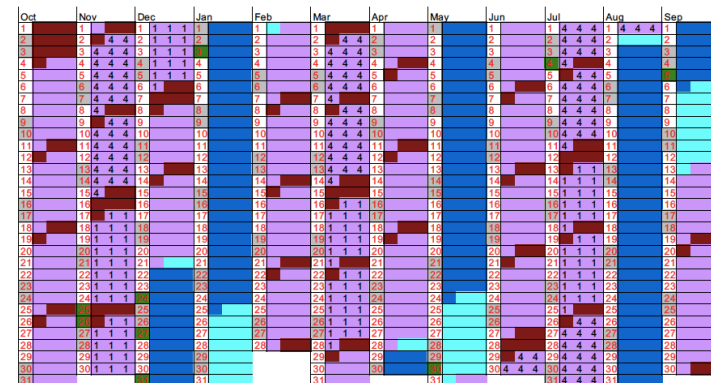
Argonne National Laboratory is a
U.S. Department of Energy laboratory
managed by UChicago Argonne, LLC.

Universal Proposal System Update - *Connie Vanni*

ANY OTHER BUSINESS

- Planning underway for repair of concrete on final two APS superdoors (A&B) during May shutdown (& relocate power cable)
 - May 2 – Tie-in temporary emergency power generators to APS infrastructure
 - May 3-5
 - May 6 – Normal power restored
 - Floor coordinators have lists from beamlines of what temporary power cables are needed and are working on it

- Looking into the final run (2023-1) before the currently scheduled dark time. IF, the Dec/Jan maintenance period is not fully booked up with APS-U tasks to prep for dark time, may consider starting 2023-1 run early to get as much beamtime as possible.



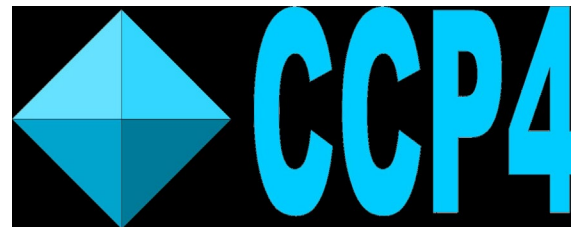
AGENDA FOR 2022 APS/CNM USER MEETINGS

| | MONDAY MAY 2 | TUESDAY MAY 3 | WEDNESDAY MAY 4 | THURSDAY MAY 5 | FRIDAY MAY 6 |
|-----------|--|--|---|--|--|
| morning | <p>APS WK1: Multi-modal X-ray Imaging using multiple APS beamlines. Current status and future upgrade</p> <p>CNM WK3: CO2 capture and conversion into value added products</p> | <p>APS WK1: Multi-modal X-ray Imaging using multiple APS beamlines. Current status and future upgrade</p> <p>CNM WK3: CO2 capture and conversion into value added products</p> | <p>CNM WK2: Current Trends and Opportunities in Nanobiointerface Materials</p> <p>APS WK5: Dark Field Dark field x-ray microscopy for mesoscale phenomena in ordered materials at APS-U</p> | <p>APS WK5: Dark field x-ray microscopy for mesoscale phenomena in ordered materials at APS-U</p> | <p>Special Session: DEI discussion</p> |
| afternoon | <p>Joint WK4: Machine Learning at the Edge for Real-time Analysis and Experimental Steering at Synchrotron Light sources and Nanoscale Centers</p> | <p>Joint WK4: Machine Learning at the Edge for Real-time Analysis and Experimental Steering at Synchrotron Light sources and Nanoscale Centers</p> | <p>CNM WK2: Current Trends and Opportunities in Nanobiointerface Materials</p> <p>APS WK8: Materials for Neuromorphic Computing: Operando Studies to Optimize Performance</p> | <p>APS WK10: Impact of Bright Sources on EXAFS Measurements and Analysis</p> | <p>Steve Heald Retirement Celebration</p> |
| | MONDAY MAY 9 | TUESDAY MAY 10 | WEDNESDAY MAY 11 | THURSDAY MAY 12 | FRIDAY MAY 13 |
| morning | <p>Combined Plenary</p> | <p>CNM Facility Plenary</p> <p>Special Session: APS Upgrade Q&A</p> | <p>APS WK6: X-ray scattering of Emergent Quantum Phenom. in 2-D layered Materials.</p> <p>CNM WK7: Ultrawide bandgap materials for microelectronics</p> | <p>APS WK9: Accelerated Advances in Energy Storage Systems Enabled by APS and APS-U</p> | <p>APS WK11: Advanced Spectroscopy and LERIX (ASL) Workshop</p> |
| afternoon | <p>APS Facility Plenary</p> | <p>Poster Session</p> | <p>APS WK6: X-ray scattering of Emergent Quantum Phenom. in 2-D layered Materials.</p> <p>CNM WK7: Ultrawide bandgap materials for microelectronics</p> | <p>APS WK9: Accelerated Advances in Energy Storage Systems Enabled by APS and APS-U</p> | <p>APS WK11: Advanced Spectroscopy and LERIX (ASL) Workshop</p> |

SCHOOLS AND WORKSHOPS

Schools:

- CCP4 USA Crystallography School: *June 13 - 24, 2022*
 - 2022 school will take place **virtually**
- NXSchool: *July 10-22, 2022*
 - **on-site**
- APS/IT Summer XAFS School: *July 24-29, 2022*
 - **on-site**
- Dynamic Compression Summer School: *July 31- Aug 5*
 - upper-level undergrads/first-year grad students
 - **on-site**



Workshops:

- A series of “First Experiments” workshops for APS-U Feature Beamlines planned for summer/fall 2022 – see Dean Haeffner
- A structural biology Town Hall is being organized for summer 2022– see Bob Fischetti



QUESTIONS



U.S. DEPARTMENT OF
ENERGY

Argonne National Laboratory is a
U.S. Department of Energy laboratory
managed by UChicago Argonne, LLC.

CURRENT BY-LAWS REGARDING APSUO SC MEMBERSHIP:

- Each regular member has a three-year term, except for the Past Chair who may have up to a four-year term on the Steering Committee.
- Steering Committee members may be re-elected.
- The Steering Committee shall also include a position for a graduate student or postdoctoral fellow, if elected within two years of completing Ph.D. This position shall have a two-year term.
- Four members shall be elected by the APSUO members each year, except in years when the student/postdoctoral fellow position is being filled, when up to five members may be elected.
- To promote representation of smaller interest groups, a weighted system of voting shall be used. Each ballot may select the number of candidates that equals to the number of expected vacancies, with the first choice assigned a number that equals to the number of expected vacancies, the second choice assigned a number that equals to the number of expected vacancies minus one, and so on.