**ALS 12.2.2 2015 Annual Report**

**COMPRES Facilities Comments**

**Andy Campbell**

Management of this beamline, and cooperation with ALS management, seems to be really good. They have successfully weathered some staffing issues in the last 1-2 years, and continue to pry a lot of money from ALS, both for staff and for equipment. Also, the HPSTAR AP sounds like it is being managed well on the ALS end, and this can help COMPRES users in the end, hopefully, by making available equipment (e.g. microscope, micromanipulator) that COMPRES users can enjoy. Would be a great program, if the synchrotron were brighter.  
  
Radial diffraction with laser heating is probably a dead end. 1. Separating high T diffraction from surrounding cooler material is a great challenge. 2. At high T the deviatoric strain is released anyway.  
  
Budget: Foreign travel in justification ($2500, EC meeting) doesn't match the budget spreadsheet ($2000, ACA). Also, I'm not aware of foreign travel by beamline scientists being supported by COMPRES in the past. Beavers' salary is higher than other beamline scientists; why? She hasn't been with us very long either.   
  
Yan report is shoddily prepared. He could use some mentoring on presenting his work. Beavers is much more together; her report is fine.

**Bin Chen**

My own experience with the laser heating system: The user interface has been significantly improved. It is much more user friendly than before.

Dr. Yan helped me prepared two custom designed Re foil heater for diamond anvil cell using the laser cutting machine. The service should be better advertised to attract more potential users.

The budget looks fine with me. We will need to check whether the foreign travels can be supported by COMPRES.

**Kanani Lee**

12.2.2 appears to have improved dramatically over the past couple of years as compared to when I was an active user (more than 4 years ago?). The leverage that the COMPRES funds have had this year is admirable. The facility is becoming the place to go for single-crystal work and continues it’s lead role in radial XRD.

HPSTAR’s role also looks like a positive move for the beamline with both postdoc funding and equipment purchase with only nominal amount of beamtime allocated (5% down from 10%). As compared to COMPRES’s allocation of 35%, this is a good deal for the ALS. COMPRES has a long history with the ALS, but should we be worried that our time may be cut? Certainly seems so given the language in the report should we limit our support.

**Mark Rivers**

This project continues to receive substantial contributions from the ALS, so that COMPRES funds have high leverage.

The report appears to be quite frank, admitting where they had problems with lack of demand, etc. and steps taken to address the problems.

I expressed concern last year about the CMOS detector. It is a new development from involving a company with a retired LBL staff member (Al Thompson). It is probably a good deal for the ALS, but seems risky to me in terms of a production detector for users.

The management and staffing has definitely improved this facility in recent years.

We need to learn what the EOIC review of the stages for the stages and collimator.

It would be good to get information from them about the usage of the gas loading system and the laser milling system. These were not purchased by COMPRES but I think the information would be useful because COMPRES does fund another gas loading system. Last year’s report encouraged this:

“The facility should be supported near the requested level. The Committee recommends that 12.2.2 staff keep better records of gas loading and laser mill users,…”

The budget looks reasonable to me.

More than half of the publications listed are materials or chemistry, not the science that NSF-EAR would be funding.

In Appendix 2 is this a list of all of the projects that received time on 12.2.2, or only the “COMPRES” proposals. I think it is all of the proposals. If so, which ones are “COMPRES” proposals and which ones are not? Page 9 says that 51.5% of allocated shifts went to “COMPRES users”. How are they defined? We should ask that Appendix 2 indicate which proposals are from COMPRES users and which are not.

I went through the publications and categorized them at materials science/chemistry, earth science, or technique development. There are a number of papers that straddle the categories, but approximately 50% of the publications each year are definitely not something that EAR would be funding. There are thus about 10 EAR publications each year. In Christine Beaver’s publications which are almost all for single crystal I only count 1 out of 16 publications as being of EAR related.

Christine Beavers personal report looks good to me. Jinyuan Yan’s report I found rather weak. He lists involvement in 6 development projects, but there are almost no details. How is the radial diffraction laser heating not working? What is the progress on the internal heating system? What are boron-krypton gaskets, how many have been provided, etc. He is only a co-author on 1 published paper in this time period? Why are collaborators not including him in publications?

**Dan Shim**

• What were the problems in previous years and how they have been resolved? Laser heating is mentioned clearly but others, like X-ray focus issue and software issues are not reported. If they were reported in previous years, please ignore this comment.

• Are there any notable results from laser heating, not static compressions?

• Alignment between X-ray and laser beams were difficult because X-ray fluorescence from DA or pressure medium could not be imaged. How about now?

• I like the single crystal technique development. Can they discuss about control and analytical softwares.