**APS Sector 3 2018 Annual Report**

**COMPRES Facilities Comments**

**Arianna Gleason**

**Lowell Miyagi**

**Anne Pommier**

*-Science*: This facility has been very successful over the last year and presents new interesting research highlights related to Earth sciences (focus on the Earth’s lower mantle and core), some studies are published in high-profile journals (e.g., Nat. Comm.). As pointed out last year, Sector 3 offers unique capabilities that is of benefit to the COMPRES community. Most publications listed are in Earth and planetary science journals (p.6-8).

*-User community:* Accounting for a comment by last year’s Facilities committee, more info is now provided regardingthe statistics for each piece of equipment.

20 groups from geoscience community (including COMPRES), COMPRES gets ~ 50% of the allocated beamtime (COMPRES users still get good access to the facility).

18 graduate students and 14 postdocs involved in 3-ID and 30-ID. These numbers seem comparable to last year.

Same as last year, 13 COMPRES groups have used the Mössbauer lab (mail-in service).

15 groups used the offline Raman system.

Similar to last year, there is a good involvement of the facility in community activities (e.g., several workshops organized, active in the annual COMPRES meeting).

*-Management team:* One researcher (W. Bi) co-funded (60%) by COMPRES and APS (40%) (+5 full time scientists paid by APS).

As last year, Bi provided a detailed and well-written report, underlining a good involvement in research and in proposal writing, as well as in outreach activities. In general, her report suggests very good professional development (involved in proposal writing, in papers, attendance of conferences, etc, beside assisting/training users). She has been involved in 23 projects and reported 18 co-authored papers; this shows a much better involvement in pubs as a co-author than last year.

It is mentioned that W. Bi worked with both COMPRES and non-COMPRES users: it would be useful to know how her time is split between the 2 types of users (even a rough estimate).

*-Facility:* Last year, a new Mössbauer spectrometer was acquired; it seems to be working now.

It seems that the Raman system for in situ HP measurements that was acquired last year is still under construction – It is expected to be completed and installed early next year (p.5).

Two workshops are proposed for 2019 – some description of the workshops would have been helpful.

Budget: 166k requested, 104k from COMPRES and 62k from APS. Justification looks reasonable. The budget would keep funding W. Bi, who plays a key role in the success of the facility.

*Comment: the overview section (p. 1) is a copy of the overview section from their last year report…*

**Mark Rivers**

As was the case previous years, this facility continues to produce high-impact Earth science papers. There were 13 published papers (compared to 7 in 2017), and 5 submitted in 2018. The fraction of users with NSF-EAR support is high, which is excellent for COMPRES.

There is a high acceptance rate for COMPRES proposals compared to general acceptance rate (62% and 53% vs. <40%). 18 grad students and 14 post-docs were involved in experiments. 21 COMPRES user groups have been allocated beamtime in the past year. The report included excellent highlights on 3 selected Earth-related studies (strongly anisotropic magnesiowüstites in Earth’s lower mantle; experimental constrains on the sound velocities of cementite Fe3C to core pressures, valence and spin states of bridgmanite in Earth’s lower mantle). The Committee appreciates that the report is very well written, and that it presents statistics for the offline Mossbauer system Raman systems.

Last year COMPRES provided funding for an on-line Raman system. This is expected to be completed in early 2019.

The User Satisfaction survey results are very positive. The group might consider adding additional questions which can provide beamline-specific information and suggestions.

The COMPRES supported staff, Wenli Bi, again organized a workshop Nuclear Resonance Scattering. Dr. Bi also successfully conducted her own research and is actively developing high-pressure techniques for the COMPRES users.

**Chris Seagle**