HYSPEC Executive Committee meeting at the SNS on October 26, 2011.

Agenda

8:30 am - 9:00 am Welcome & Inauguration. (Coffee/pastry at the SNS snack room I. Zaliznyak/S. Shapiro)
9:00 am - 10:00 am HYSPEC tour
10:00 am - 11:00 am HYSPEC update (M. Hagen/B. Winn, CNMS L-183)
11:00 am - 11:30 am MANTID demo/update (A. Savici, CNMS L-183)
11:30 am - 12:30 ~1:00 pm discussion of initial/commissioning experiments and other HYSPEC/IDT issues (CNMS L-183)
12:30~1:00 pm – adjourn

Executive summary

A meeting of HYSPEC Executive Committee (EC) was held at the Spallation Neutron Source on October 26, 2011. In attendance were HYSPEC EC members, I. Zaliznyak (BNL, co-PI), S. Shapiro (BNL, co-PI), R. McQueeney (Ames/Iowa State), J. Rhyne (LANL), and M. Hagen (ORNL, HYSPEC Lead Scientist, ex-officio). Also in attendance were L. Passell (BNL, HYSPEC IDT member), B. Gaulin (McMaster, HYSPEC IDT member), A. Savici (ORNL), B. Winn (ORNL, HYSPEC Scientist), and M. K. Graves-Brook (ORNL, HYSPEC Scientific Associate).

EC members and other participants visited HYSPEC instrument floor and cabin, and observed a demonstration of positioning of the instrument detector vessel and of the sample table. Instrument controls work fine and a number of initial measurements are already under way. Essentially all beamline component are in existence and work as designed, although several issues have been identified, which are being debugged. These were described in the HYSPEC update presented by Mark Hagen. A. Savici presented current status and future capabilities of MANTID software. More details are given in the attached minutes.

The discussion at the EC meeting lead to following decisions and suggestions.

- EC members will propose early commissioning experiments by the end of November. Once Mark Hagen informs HYSPEC PI's that carrying out initial measurements is possible, EC will discuss these either via teleconference, or via email, and assign them for the execution. Experiments with „half-polarization" analysis (using the Heusler monochromator) are acceptable (R. McQueeney).
- It appears that running an on-going proposal assignment (i. e. choosing IPTS at any time, not jus twice a year) is now a possibility (some IDT's began running this way, ORNL is considering introducing in-house „program development time", which is run this way). EC should discuss this at the next meeting/teleconference.
- Among technical tuneups optimising the instrument operation for certain measurements, EC has proposed designing and installing an after-sample beamstop, so that magnetic scattering small angles could be measured symmetrically (R. McQueeney, J. Rhyne, I. Zaliznyak).
- Flux-on-sample measurement and comparison with other SNS spectrometers (CNCS, SEQUOIA) are a priority.

Minutes of the HYSPEC Executive Committee meeting at the SNS on October 26, 2011.

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HYSPEC status update (M. Hagen).

1. CD4 has been granted around Aug. 5. Few items are left on the ”to do” list. Some have been already completed – concrete floor to the level of the marble dance floor has been finished.
2. Detector vessel tail heavy – probably need to re-equilibrate pressure in air pads. Pressure valves have been ordered.
3. Neutron beam was opened in late August. Most beamline components, including the Fermi chopper and the radial collimator, perform very well.
4. Goniometer is installed, tilts and translation are working. Some cable management work is under way.
5. Argon is still not in the vessel. Gas is here and preparations to fill are under way (leak tests are pending – will probably be done next week). Issues with Argon operations are resolved.
6. 3He polarization setup is in final stages of production. Helmholz coils have been made – need small mechanical adjustments. New kidney-shaped cell is in makes, as the old one was contaminated with Oxygen. Plan to put in the beam in Dec. 2011 – Jan. 2012.
7. Supermirror transmission polarizer has been completed at PSI. It is very fragile – the shipping procedure is being designed.
8. Road bumps are encountered => comissioning experiments are not lkely before December.
    a. Minor problem – T1A chopper box vacuum issue. Choppers tripped on vacuum limits. Pre-T1B Aluminum separation valve now closed and the primary part of the beam system, between chopper T1A and T1B is being constantly pumped to 170 mTorr (~0.01 atm). Frame overlap chopper T1A is stopped and kept in an open position. Not a big nuisance – frame does not pass through Fermi and crystals. Plan try repairing in November short shutdown, if not – January long shutdown.
    b. Bigger problem. Flux in Ei = 20-30 meV range is about factor 4-5 times lower compared to Mcstas simulation (without 30’ fine collimation though, but

measurement does not show much difference with/without collimation). Secondary shutter issue? Then solvable – needs shutter-tuning scan.

c. Another problem – universal across SNS instruments. BG from the prompt pulse, probably through target biological shielding. Problem for CNCS and HYSPEC – hits detectors in the second frame. Becomes less of a problem when factor 4-5 is recovered. Since this is a well-characterized BG – detector-independent and having well-defined time structure – it could be subtracted in a standard MANTID-based preocedure.

d. Hardware problem on reading the detector vessel angle (problem with absolute encoder? If everything else fails – can be replaced. Sample arm with drum shield can go on and off).

9. Rob McQueeney: need a beamstop shielding after the sample to be able to stop direct beam for measuring low–angle scattering symmetrically on both sides.
10. Steve: magnet mounting? The answer: 16 T magnet is mounted without the goniometer. Should have dilution fridge option.
11. Bruce Gaulin, and others: there is a need for a simpler, cheaper and smaller, un-shielded, 10-12 T magnet.
12. HYSPEC will have its own CCR and ILL orange 4He cryostat (in procurement). SNS-owned dilution fridge insert will be also available.
13. Target date for HYSPEC to enter the user program – ~1 year from CG-4, which is in August of 2012.

Using MantidPlot (A. Savici).

1. Mantid is a workbench software for neutron scattering. Mantid components – workspaces and algorithms.
2. Currently has the data reduction (converting event data to histograms) and reduced data visualization (corresponding to workspace browsing) are implemented. This already superseeds ISAW for experiment planning and setup.
3. Data visualization and analysis capabilities superseeding Mslice and Horace are planned for future developments.