

HYSPEC News - August, 2013.

Dear HYSPEC ID Team Members,

Two years have now passed since HYSPEC construction has been completed and the DOE granted CD-4 decision in July of 2011. Since early 2012, users began taking the scientific data, and many of us have already tried running experiments on HYSPEC. These experiments not only lead to a number of significant results obtained by different groups, but, importantly, helped to “debug” the instrument and lead to a number of important tune-ups and improvements, which have markedly upgraded its performance. A short and by no means exhaustive list of these changes and upgrades includes,

- Adding Cd shielding to the sides of the radial collimator after the sample and a Cd-shielded entrance windows with different vertical apertures in front of this collimator
- Design and installation of the primary beam system enclosure, which contains the slits and other incident beam systems. The enclosure, as well as the scattered beam systems including the radial collimator after sample, are now covered with the neutron-absorbing paint, which prevents double scattering of neutrons scattered by the sample and the sample environment back into the detector vessel
- Design and installation of the motorized beam stop, which can now be scanned like any other motor, using the instrument control environment PyDAS
- There have also been a number of improvements of the PYDAS instrument control software and the data acquisition software (ADARA) by the SNS team
- Last but not least, HYSPEC now has a set of instrument-dedicated sample environments providing temperatures from 1.5 K to about 600 K. These include two CCR refrigerators, of which one has a thermal decoupler enabling high T, and an orange He pumped cryostat.

I can now confidently report to you that HYSPEC is a mature instrument, and is ready to take on fundamental and unique science problems. Recent tests have shown that in the range of incident neutron energies typical of thermal beams, i.e. $E_i = 7 \text{ meV}$ to 20 meV , and at a moderate energy resolution, $\Delta E/E \sim 2.5 - 3 \%$, HYSPEC provides at least two to four times as many neutrons as any other inelastic instrument in the SNS suite.

All of the above lead to a very significant demand on the HYSPEC beams time. Currently, HYSPEC is in a normal operation in the SNS general user program and is well subscribed.

As all of you know, the deadline for the next SNS proposal cycle is looming in about a week, see <http://neutrons.ornl.gov/users/proposals.shtml>. While the memorandum of understanding between the SNS and the HYSPEC IDT has not yet been finalized, the mode of running our HYSPEC science program is likely to remain similar to what it has been in the past. All proposals will have to be submitted to the ORNL-SNS IPTS system before the nominal deadline. If you would like your proposal to be considered by the IDT Executive Committee (EC) for the IDT beam time, you would have to send an email to the EC Chair (currently, it is zaliznyak@bnl.gov) with the proposal IPTS number and a copy of the statement of research, as soon as you submit the proposal to the IPTS, and before the SNS proposal deadline. In the case that the IDT proposals could be accommodated in less than 20% of the instrument time, which is the maximum amount available for the IDT science program, the balance of the neutron beam time would be used by the SNS for the general user program.

HYSPEC TEAM UPDATE

As many of you know, Dr. Mark Hagen, who was the HYSPEC Lead Scientist leading the instrument design and construction, had moved in December of 2011 to become the Group Leader in data analysis and visualization, and now is moving to lead the similar effort at the European Spallation Source. We all would like to thank Mark again for his effort, dedication, and hard work on the HYSPEC project, and wish Mark good luck and continuing success in his new position. Before moving on, however, Mark has passed HYSPEC to a motivated and dedicated team – Instrument Scientist Dr. Barry Winn, and Instrument Associate Melissa Graves-Brooks, whose efforts were instrumental in successful testing and commissioning of the instrument. Recently, in the Spring of 2013, Dr. Ovidiu Garlea was hired as a HYSPEC Instrument Scientist, joining Barry and Melissa, and thus completing the HYSPEC Team. Ovidiu is an experienced neutron scientist, who had previously worked on the HB1 triple axis spectrometer and the HB2A powder diffractometer at HFIR. HYSPEC Team and the IDT EC are excited by this new addition of skill and expertise, as well as Ovidiu's enthusiastic approach to neutron experimentation.

Finally, an important issue that is coming up before us is the rotation of the IDT Executive Committee membership. In the very near future we will need to elect several new EC members. If you would like to serve on the HYSPEC IDC EC, or would like to nominate somebody as a candidate for the EC elections, please send me an email with the short summary of your nomination (zaliznyak@bnl.gov). The role of the EC members in running the IDT science program would be to consider, review, and select the IDT beam time proposals.

For the most current news and information about HYSPEC, please visit the HYSPEC IDT website at BNL, <http://neutrons.phy.bnl.gov/HYSPEC/>, or the ORNL SNS HYSPEC site, <http://neutrons.ornl.gov/hyspec/>.