

CSPEC ICEB Meeting:
8th June 2020.
VYDYO.

Attendees:

TUM:

Wiebke Lohstroh (WL)
Jurgen Neuhaus (JN)
Peter Muller-Bushbaum (PMB)

LLB:

Stéphane Longeville (SL)
Gregory Chaboussant (GC)
Eric Eliot

CSPEC:

Pascale Deen (PD)
Gregoire Fabrèges (GF)
Luis Loaiza (LL)
Daria Noferini (DN)
Fernando Yamil Moreira (FM)

ESS:

Rasmus Toft-Petersen (RTP)
Shane Kennedy (SK)

Agenda:

13:00 - 13:15 Aims of the ICEB. (PD)
13:15 - 13:30 CSPEC Overview and components reminder. In scope / future plans. (PD)
13:30 - 15:00 Project update: (Overview of project, schedule & budget) (CSPEC/ESS) (FM)
Installation (FM), Risks (FM)
15:00 - 15:30 DMSC, data management. (JT)
15:30 - 15:50 Sample environment (DN)
16:00 - 16:30 Discussion, actions, decision on risks, issues to follow up.

Indico link.

<https://indico.esss.lu.se/event/1466/>

WL: No event mode for monitors - why and how will that work in repetition rate multiplication (RRM) mode?

PD/ JT: Experience from SNS shows that the data load when recording all monitor counts in event mode makes data files very cumbersome to load. The ESS will be similar. As such monitors will be recorded in a hybrid mode, i.e. in between event mode and histogram mode consistent with the requirements of RRM. The detectors will be in event mode.

GC: What will the results of the LET detector tests be and has space contingency been accounted for in the case of a change of detector vessel/ technology.

PD: The LET MGB10 detector tests will focus on the quasi-elastic tail that was prominent on the SEQUOIA tests (thermal time of flight chopper spectrometer with E_i up to 2 eV) which we believe to arise from a lack of absorbing blades on the radial blades of the detectors. There are indications from previous tests that this is the origin. The LET tests will be performed on a detector with the correct absorbing blades and for a cold energy range that corresponds to that of CSPEC, 2 - 20 Å.

FM: The CSPEC time of flight chamber specification include space allocation for the He3 detectors (as requested by the STAP) and significant space for detector vessel changes. Nevertheless the detector vessel design is also at quite an advanced stage.

JT: DMSC need to know the CSPEC schedule and align to it. PD: This can be provided.

WL: what is the point of SCIPP. JT: SCIPP provides a fast multidimensional workspace that can be incorporated into MANTID. The workspaces in MANTID suffers outdated coding practices and is therefore slow.

JT: DMSC do not foresee any problems with the data rates on CSPEC.

WL: How will DMSC deal with the implementation of instrument control when all instruments are coming online at the same time? JT: There has already significant work on the integration of the choppers controls with tests on V20 (HZB). The detector electronics will be a challenge that we have to work on with significant lab testing prior to installation.

SK: ESS will do their best to implement installation in parallel for various instruments - however priorities will have to be made that may not match the wishes of the instrument teams.

GC: Sample environment. It is important that we have a functioning and effective sample environment that allows for fast sample changes. The sample changer will not cost a great deal but will be a very effective sample environment piece that will enhance the scientific experience and reduce the waiting time required during experiments.

PD: Sample environment: We do not have access to a 12 T magnet but see it as vital for our science case and will be applying for grants to fund it. CSPEC see no reason why such a high field magnet could not be used on other instruments, time and scheduling permitting.

PD: Sample environment: We are considering the possibility of a pulsed magnetic field, also through grant opportunities, in collaboration with BIFROST.

SK: Detector tank: CSPEC envisages PA and high field magnets. This requires very stringent control on the magnetic permeability of the detector tank, this is particularly difficult to control at the welds. Is this realistic? CSPEC: The specifications of the tank requires a relative magnetic permeability (inclusive of welds) of 1.01 within a distance of 1.45 m from the sample position. The exact position of the welds will be discussed with the manufacturers and we envisage a close collaboration with them to ensure our specifications are understood and met.

SK: Detector technology. SAC have requested an independent review of the CSPEC detector project. This review will discuss with the technical and science director (SK and Andreas Shreyer). The review committee will involve independent members from detector groups at different neutron scattering facilities. CSPEC requests that a review member with a scientific interest in QENS, and with a technical understanding of cold chopper spectroscopy, will be added to this committee. The SAC recommends a focus on detector development for the SAC-25 meeting.

sThe ESS DG has to make sure that all the preparatory work is completed and that the costs are made available to start the project. As such the project is not slowed down.

Comments from CSPEC: Financially we underestimated the cost of a number of items at the scope setting meeting inclusive off but not limited to electrical works, motion control, installation of racks, chopper installation, cave, detector tank. This will have to be considered in the future.

Comments from CSPEC: Staffing levels: the CSPEC team are concerned that we cannot meet the demands of manufacturing and collaboration with companies, installation readiness reviews and installation with the current staff level. EE: Please provide an overview of the people required, where they will be required and when. TUM will provide an installation technician/engineer to facilitate the installation of ODIN and CSPEC.

SL: Comment on the tender process of the CEA. The CSPEC chopper tender was the first one of the LLB and a number of issues had to be resolved which cost significant time. The process is now streamlined and is expected to be much faster next time.

SK: FM presented a traffic light overview of the CSPEC components and provided an overview of the components that need urgent attention. Primary spectrometer: choppers, monitors, secondary spectrometer: Shielding design, tender for top chamber, detectors. The assignment of a red colour

to the components does not mean that these will delay the instrument, rather that the CSPEC team must pay attention to these.

SK: At the next ICEB CSPEC will present a high-level risk summary (with the interdependence on the ESS installation schedule).

Next ICEB: More focus on schedule and a complete summary of costs. This was not possible this time since the tenders for the largest items (choppers and detector tank) have not yet gone out. CSPEC will provide more information for the next ICEB and make subsequent decisions on cost and schedule. Next ICEB meeting will take place in Q4 2020, October/November 2020.

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