

DESIR Collaboration Committee Meeting Manchester, 23rd & 24th September 2010

Present:

Bertram Blank (Chair, BB), Gilles Ban (GB), Paul Campbell (PC), Jose Luis Tain Enrique (JLT), Xavier Flechard (XF), Stephane Grevy (SG), Fadi Ibrahim (FI), Teresa Kurtukian-Nieto (TKN), Gerda Neyens (GN), Peter Thirolf (PT), Jean-Charles Thomas (JCT), David Verney (DV)

Apologies for absence:

F Le Blanc (FLB), D Lunney (DL)

Proposed agenda:

1. Recent evolutions of SPIRAL2 and their impact on DESIR (BB)
2. EQUIPEX funding request (2012-2020) (BB)
3. RFQ (GB)
4. HRS (TKN)
5. Traps update (PT, XF)
6. Update LUMIERE (PC, GN, FLB)
 - towards a laser-spectroscopy test bench at LIRAT (JCT)
7. BESTIOL update, double Penning and others (SG, JLT)
8. General equipment update (BB)
9. KORIA connection (JCT)
10. DESIR Preliminary Safety Report within SPIRAL2-Phase2 (JCT)
11. DAQ (XF or BB)
12. Discussion of DESIR MoU (BB)
13. Beam intensities (comments from everybody)
14. LOI (BB)
 - a. BESTIOL-type experiments (JLT,SG)
 - b. LUMIERE experiments (GN, FLB, PC)
 - c. TRAP experiments (DL, PT, XF)

SESSION 1

1 & 2) SPIRAL2 update and impact on DESIR

The scope and aims of the meeting were described and the first report, EQUIPEX, presented (BB). A 15.2 Meuro (over 7.5 years) proposal has been submitted in response to the EQUIPEX call. The proposal is to construct (initial 3 years), equip (core infrastructure) and commission the DESIR building. The proposal has received IN2P3, CNRS and CEA support. In order to construct the proposal the timeline, responsibilities and core infrastructure were formally defined.

The defined DESIR core equipment (and responsible facility) are: the measurement station (IPHC Strasbourg), General Purpose Ion Buncher GPIB (CSNSM), Ion sources (CENBG), beam lines (IPNO) and the building (GANIL). The responsibility for the physical construction of the beam lines will be clarified following an October meeting with potential collaboration partners from India.

A decision on the proposal will be available before the end of 2010.

Equipment items not included in the bid were detailed and queries from committee members addressed. The following queries were raised: i) possible competition within the EQUIPEX call from other GANIL SPIRAL2 projects, ii) absence of support for a Technical Coordinator and iii) the timing of the bid.

The equipment not included in the bid (HRS, SHiRAC etc) was that considered external to the DESIR hall itself. The bid will face competition from a comparable request for support submitted by the S3 collaboration. The position of Technical Coordinator will most likely be supported if the EQUIPEX bid succeeds. As future EQUIPEX calls cannot be guaranteed the proposal was submitted in this round.

2.ii) Building update

The "basement-less" design option will not be further considered and the design of the DESIR hall will proceed with only minor alterations from that suggested by the collaboration. A costing is available.

2.iii) Safety issues

To be defined by the end of 2010 and refined, following feedback, in mid 2011. Further discussion moved to session 2 (JCT).

3) SHiRAC update (GB)

The design changes presented at the Leuven meeting have been implemented – the majority of these arise from the necessity to shorten the device length (next presentation). Transmission of the device, through 1mm slits, was quoted at 50 - 60 % for ~ 5 eV energy spread. It was noted this was well within the design specification.

Further possible shortenings of ~500mm were positively discussed and can be made available if required.

It was noted that SHiRAC has to withstand strong radiation. Therefore, this aspect has to be included in the design of the final version of SHiRAC.

4) HRS layout (TKN)

It is now clear that the area available for housing the HRS & SHiRAC will now be 1.5 m shorter in one direction than was hoped. The implications for the device are significant and are compounded by the 1m long "double valving" sections required to satisfy radiological safety.

A new layout of the HRS, involving a 45 degree swing of the spectrometer itself was presented. Bar changes to the focal point the spectrometer design remains as close to intact as can be realistically hoped. The new layout was well received by the committee and it was noted that further reductions in the size of the area allocated will be hard to tolerate.

The inclusion of real dipole field maps in the ion transport calculations were presented and noted to provide a compelling and convincing design case. A full costing is available and was discussed in context of that funding which already exists.

ACTIONS: TKN to undertake a like-for-like theoretical study of the original and rotated layouts with the design stage to be concluded by the end of 2010.

5.i) Traps 1 (PT)

Progress in temperature (and thus measurement) stabilization of the MLL trap was reported. The suggestion of an optimal +/- 1 Kelvin stabilization of the DESIR hall was raised. This was noted to be a significant technical challenge and that measurements over short time intervals in Munich could tolerate +/- 2 K fluctuations. When actively stabilized inner bore fluctuations could be reduced to 2 mK and 50 mK over 9 h and 5 day periods, respectively. Similar improvements in pressure stabilization were also presented.

A query was raised as to whether the trap could be installed directly in 2014

5.ii) Traps 2 (XF)

The case for keeping in the LPC cooler was presented and accepted - the device is sensitive to distance from cooler to trap and requires careful ion manipulation between the two.

6) Lasers (GN)

A summary of progress with the CRIS line in ISOLDE was presented. This focused on the beam transmission improvements achieved once the line has been successfully modeled and new components installed. The decant of the JYFL laser station was discussed (PC) and timescales for recovery of this facility noted (Q1 2011).

Other items (JCT) moved to session 2.

7 & 8) JLT, SG, DV

Pile-up and sum peak issues encountered when using segmented detectors in the TAS were presented. The necessity for segmentation and choice of scintillator were raised as queries. The former, segmentation, will be required due to the absolute size of the detectors and the latter, NaI, selected on grounds of resolution, price and scaling considerations (outweighing any timing benefits).

The double Penning trap, DPT, was presented. The device will facilitate beam purification and trap assisted spectroscopy at DESIR. Costs and funding possibilities were made available to the committee

A series of tape station based experiments were presented and a suitable, general purpose, frame (capable of supporting large detectors) highlighted. The optimal position for such a device was considered to be an open matter.

9 & 10) Items moved to session 2

11) DAQ discussion

Two general purpose data acquisition possibilities, outside of the independent systems for trap and laser experiments, were detailed. Only one option will be provided with GANIL support and the committee was made aware that adopting this option was the strongly suggested path.

ACTION: BB to invite developers to the next DESIR meeting (see final section)

12) DESIR MoU (all members)

The present draft of the DESIR Memorandum of Understanding was considered section by section and redrafted, during the meeting, to take account of all points raised. It was clarified that the MoU covers exclusively the construction phase of DESIR and that all experimental equipment remains the property of the involved researchers at all times.

ACTION: BB to circulate new draft for further consideration with a view to satisfying the future legal requirements of all involved collaborating institutes.

13) Beam intensities (BB)

Expected beam intensities, in line with an action requested during the Leuven meeting, had been circulated prior to the committee meeting. The calculations were opened for queries - the points raised primarily concentrated on the fusion yields and isomer production rates. The fusion yields were confirmed to be based on scaled GSI FEBIAD yields and the yields of isomeric fission fragments from the Oak Ridge database.

14) Letters of intent (all members)

The strategy for submission of day 1 Letter of Intent (deadline 17th December) was discussed. A range of frameworks, covering themed submissions, equipment based submissions and free submissions, were explored and the advantages and disadvantages of each highlighted. In order to proceed the committee agreed to invite free submissions to the DESIR chair in order that these be explored for natural overlap or other natural grouping. Given the final submission deadline, a mid-October deadline was set for these initial submissions.

ACTION: BB to invite descriptions of day 1 experiments (title and short abstract) for collating and grouping as appears desirable.

SESSION 2

6) Laser test bed (JCT)

The case for constructing a laser test bed at the LIRAT station was presented and discussed in terms of the opportunities it could provide. The proposal is to be discussed by the LUMIERE and LPCTRAP members of the collaboration and further investigated.

It was noted that a physics case concentrating on exotic proton-rich nuclei would provide a strong basis for such a proposal.

9) Korla (JCT)

A meeting with representatives of the KoRIA project was summarized. No further contact has immediately followed but future involvement with members of DESIR is believed possible.

10) Safety issues (JCT)

A detailed review of the safety system that will be required for DESIR was presented. The topics included safe working levels, monitoring, inter-locking and procedures, especially those related to the opening of the vacuum system and subsequent pump down. The exhaust gas capture system was highlighted and identified as an important future issue.

Laser safety will be an issue for future discussion with the laser safety officer.

DETAILS OF NEXT MEETING

The next meeting of the DESIR collaboration (including collaboration committee) will take place during the 2011 SPIRAL 2 week, 24th – 28th January, with Monday 24th identified as likely day. An early action, to invite those involved with DAQ issues to the meeting, will be addressed at this time.