62nd MEETING OF THE LNF SCIENTIFIC Committee – 8-9/11/2021

1. DAΦNE, KLOE, BTF, PADME and SIDDHARTA 4
1.1 DAFNE, SIDDHARTA and BTF 4
1.2 PADME 7
1.3 KLOE 8
2. EUPRAXIA@SPARC_LAB activities 9
3. FFF proposals 11
4. Next Meetings 16

For the first time after the start of the pandemic, the Scientific Committee (SC) had the pleasure to meet in person at the premises of LNF. The interactions among the SC and with the LNF colleagues were highly appreciated. The presentations of the open session can be found at this indico page: https://agenda.infn.it/event/28359/timetable/#20211108.detailed

First of all, the SC chairperson happily welcomed a new member of the SC, G. Arduini from CERN, who takes over from M. Lamont. Then the director Fabio Bossi summarized the status of the lab and recent developments and achievements. During the closed session, he also gave a detailed overview of the personpower situation (see more details below).

- In recent months, there has been excellent progress on several fronts (DAFNE, SIDDARTHINO, BTF2, SPARCLab etc), as will be reported in more detail below. Again, this is thanks to the great dedication of all the personnel involved, and also due to the fact that the pandemic could be kept well under control within the lab, with a very limited number of people affected. Currently, the average fraction of personnel present at the lab is ~70-80%.
- DAFNE operations with beam are basically starting now; an important related discussion item for this SC session was the run plan SIDDARTHA-2 vs PADME in 2022.
- BTF2 has been commissioned up to ~680 MeV, first users are planned for end of 2021/beg. of 2022, then a new official call for proposals will be issued by March 2022.

A key discussion topic of the closed session was on the overall person power and project status in the lab and the related future plans for DAFNE running. This followed up on a very detailed and interesting presentation of the projects and person power situation in the Accelerator Division (DA) by A. Gallo, given during the open session.

- Currently, LNF has 309 permanent or fixed-term employees, plus 34 postdocs, with an age distribution that peaks quite high around 57-58. Importantly, ~100 people will be retiring in the next ~10 years.
- A crucial observation is that, since 2014, the number of researchers, engineers, and admin. personnel is quite stable. However, the number of technicians has been steadily falling since 2018, from ~150 to ~120, with the loss flat across all divisions. This loss can be mainly explained by retirements and a lack of corresponding new hires (also impeded/delayed by Corona and/or the hiring processes).
- This is one of the main issues of the lab, which has to rely on a good infrastructure and corresponding technical support. While outsourcing is being considered in a few sectors, it is not possible everywhere. Furthermore, it starts to be more and more difficult to find well trained and qualified people, also because of competition with industry. The problem is even more pronounced for accelerator-related expertise, that starts to be extremely difficult to find. Note that this is also one of the key ingredients when discussing the future of DAFNE running.
- Furthermore, this person power issue and availability of qualified personnel is become more acute because of (a) the imminent need for EuPRAXIA of additional, highly specialized workforce; (b) of the truly substantial number of ongoing projects that are being handled by the Accelerator Division (as shown in the presentation by A. Gallo), among these the “re-launch” of activities related to the ELI-NP project in Rumania. In fact, A. Gallo concluded that besides the currently running facilities and the rising project EuPRAXIA@SPARC_Lab, there is a huge number of extra activities where the DA is committed: accelerator construction for third parties, projects funded by the regional government, European and international collaborations, INFN and other national projects. All commitments taken together are risking to go beyond the available resources. The years 2022/2023 appear particularly challenging. Gallo also stated that, in order to exploit the resources in DA to the maximum extent possible, a better work organization is necessary. A

divisional project office is being structured, with internal resources allocated. This development is considered essential, it will be pursued with the highest effort and priority. Finally, A. Gallo asked for full support by the INFN management, in particular concerning special measures and resources that might be required to deal with extraordinary commitments, such as ELI-NP.

- The director clearly emphasized that currently he is not allowing the launch of new projects, until those ongoing are concluded.
- In the ensuing discussion, the SC highlights the urgent need of a detailed analysis and plan of person power available and assigned to the many projects, including their time profiles. Partly this is already in the working, but a more comprehensive view is definitely needed. Together with such an overview, a prioritization of ongoing and planned activities, especially in the accelerator division, and a soon-to-be taken decision on how long DAFNE (collider part) will still be operated, is unavoidable.
- Concerning DAFNE, A. Gallo emphasized that it appears feasible to run the collider part for 1-2 more years with the present consolidation work; however, for longer running further major consolidation/refurbishment work would be needed, coming with a significant price tag. On the other hand, the LINAC / BTF sections can (and should) be run over a longer period (also in view of the external user needs). Even the accumulator could be considered for longer use if needed (eg. in a possible combination with a future PADME proposal and special beam-extraction scheme).

The SC concluded by commending the lab and all involved for the recent progress made, despite the still difficult circumstances!

Like for the previous meeting, the SC thanks the lab and all involved people for the clear presentations during the public session and for the open and constructive discussions during the closed meetings. The SC appreciated very much that the recommendations from the last report were, once more, clearly addressed and that the speakers strived to respect the allocated presentation time.

1. DAΦNE, SIDDHARTA, BTF, PADME and KLOE

Findings DAFNE-BTF:

- During the SIDDHARTINO run, DAFNE has been operating at approximately 50% of the instantaneous luminosity achieved during the KLOE-2 operation. Priority has been given to operation with respect to performance improvement.
- The following main reasons were presented as the main sources of the reduced performance,
    - positron beam emittance blow-up,
    - coupling,
    - sub-optimal operation of the feedback systems,
    - poorer injection efficiency,

  and would require machine development for studies that were sketched but for which resources are missing.
- During injection the experiment is not taking data. Increasing the repetition rate of the LINAC would reduce the injection time and therefore would increase the data taking efficiency for the experiment, although the expected gain has not been quantified.
- 800 pb^{-1} are required to complete the SIDDHARTA-2 programme with kaonic deuterium during 2022. Assuming that the luminosity production rate is comparable to that achieved in 2021 (i.e., about half of that achieved in previous runs) it is expected that this will take approximately a full operational year. The operational schedule for 2022 and the time allocation for DAFNE operation with respect to the concurrent operation of BTF for PADME was not presented.
- Several consolidation works have been performed in the DAFNE accelerator complex to minimize down time (e.g., replacement of the wiggler water hoses, etc.) but reliable operation over a time scale longer than 1-2 years would require a significant investment in material and manpower, the exact extent has not been quantified and it would add up to the (rising) electricity costs for the operation of the facility.
- The committee congratulates the accelerator team for the successful run of the DAFNE complex, for the significant reduction of the background to the experiment as well as for the consolidation work undertaken to guarantee reliable operation.

Findings BTF:
The SC took note of the very successful completion of the commissioning activities for the second beam line (BTF-2). We commend the involved team for this significant achievement and congratulate the lab in general for providing such an important infrastructure to the national and international user community!

Recommendations DAFNE-BTF:

- *Establish an operational schedule for the operation of the DAFNE complex in 2022 (considering the concurrent operation of BTF1 for PADME) based on the present operational performance.*

Findings SIDDHART(A/INO):

- From June 1 to July 18, the commissioning run of the SIDDHARTA-2 experiment, SIDDHARTINO, has acquired about 54 pb^{-1} of data. This was followed, in the summer and early autumn, by the installation and testing of the full SIDDHARTA-2 set-up, which is now ready to start taking data. During this period:
  - Work on optimization of the trigger, DAQ, SDDs, as well as on the reduction of background, has been done. Right now, background levels have been reduced by a factor of nearly 3, which is a sufficiently good starting point for the measurement of the kaonic deuterium planned by the SIDDHARTA-2 experiment.
  - About 30 pb^{-1} of data were delivered at a He target at two different densities (1.5% and 0.75% of liquid helium density), aiming at comparing the corresponding signal rates. Different degrader thicknesses were studied for the highest density to find the optimal conditions in terms of the kaonic helium yield.
  - The analysis of the SIDDHARTINO run on kaonic helium has produced very competitive results, worth of publication: the most precise measurement of the kaonic helium 3d→2p transition in gas and the measurement of yields at the lowest density. Two papers are now in preparation.
  - The HPGe detector for a parasitic measurement of kaonic lead is also ready to be installed in the DAFNE hall. The detector was

transported to LNF from Zagreb, the installation of supporting structure and shielding has been completed, and successful feasibility tests have already been performed.

- The committee congratulates the SIDDHARTA-2 collaboration for the excellent results obtained with SIDDHARTINO and for the excellent progress in the preparation of the SIDDHARTA-2 set-up in view of operation in 2022.
- To reach the goals of the kaonic deuterium experiment, the SIDDHARTA-2 team expects collecting 300 pb^{-1} in a first run, plus 500 pb^{-1} in a second run with optimized components. While the present lower luminosity does not represent a problem for the running of the SIDDHARTA-2 experiment, it may compromise its goal of achieving 800 pb^{-1} within 2022.
- A longer-term experimental programme over a period of 3 years (2023-2025) has been presented and it would include 3 phases:
    - Light and Heavy Kaonic Atoms measurements requiring 400 to 600 pb^{-1}
    - Intermediate and Heavy Kaonic Atoms measurements requiring 200 to 400 pb^{-1}
    - Ultra-High precision measurements of Kaonic Atoms requiring 400 pb^{-1}

Recommendations SIDDHARTA

- *The SIDDHARTA-2 team should start taking data with the present luminosity, while working carefully on optimizing their S/B ratio as much as possible, like they have been doing in the past. Given the present background and machine conditions, it is important to know what is the minimum integrated luminosity required to get sensible results for the kaonic deuterium measurement.*
- *While operation for SIDDHARTA-2 could be completed possibly within 2022, or within the first half of 2023, operation over a longer time scale would require a significant investment in material and manpower for the consolidation of the accelerator and improvement of the performance to minimize the required running time. A resource loaded plan should be prepared to guide the decision on the approval of an experimental programme beyond 2022.*

1.2 PADME

Findings PADME:

- The PADME team is making steady progress on the analysis of the gamma-gamma cross section. The ECAL detector has been well studied and various analysis corrections to the measurement are complete or close to being finished. The expected systematic uncertainty will be around 5% and will dominate the statistical uncertainty. The analysis team expects to complete the analysis in a few weeks, this analysis is being written up in a PhD thesis and will form the basis for a paper.
- The dark photon analysis benefits from the gamma-gamma analysis, the collaboration is making steady progress and tuning the analysis and cut selections to control, e.g., pileup events in the E-VETO. Some of the reconstruction techniques developed for ECAL will also apply to the E-VETO detector and will therefore be useful for the single photon analysis. The main challenge is to remove the Bremsstrahlung background. In any case, Run-II is much cleaner than Run-I and might be sufficient for the analysis.
- The collaboration is proposing to perform an energy scan around 280 MeV in order to search for the X17 boson resonance. About 18 energy steps are envisioned around the asserted resonance. After considering various detector options, the collaboration decided on a pure calorimetric setup with the B-field turned off and a new tagging detector in front of the ECAL to distinguish electrons from photons. The e-tagger is constructed from scintillation bars with SiPMs at the ends and reuses the electronics design from the E-VETO. Resources to build this detector are available and completion is expected around June 2022.
- An X17 search run would require about 90 days of data, the collaboration presented a preliminary run plan.
- Two weeks of beam studies are necessary in order to decide on using the Primary or Secondary beam for the X17 boson search. If the Primary beam is used, it will require about a day of machine tuning per energy step, while the Secondary beam would only require a few hours. The collaboration expects less background in the Secondary beam than in earlier runs due to having moved the beam window more upstream. In addition, in both the Primary and Secondary beam case, a week of energy spread studies is necessary.

- The beam studies do not need the new tagger in front of the ECAL and can occur at any time that is convenient.

Recommendations PADME:

- *The SC recognizes that the SM gamma-gamma cross section measurement is a step for the dark photon analysis. The SC appreciates the progress made on this analysis and very much looks forward to the submitted paper.*
- *The collaboration should maintain focus on completing the dark photon analysis - and publish the results – before dedicating too many resources to new ambitions.*
- *Clarifying the X17 boson is an interesting goal as one more positive signal has been reported in literature recently. The LNF beam facilities and PADME have a unique possibility for examining the X17 claim in a relatively clean environment. While there is excitement to perform the experiment and also some urgency, the probability of PADME getting 'scooped' with the e^+e^- resonance production search is low. Nevertheless, the SC endorses a timely run.*
- *The beam studies to decide on the Primary or Secondary Beam should be done when the machine schedule for the SIDDHARTA-2 run allows.*

1.3 KLOE

Findings KLOE:

- The KLOE collaboration has continued the data and MC reprocessing with version DBV-40. For data 4.5/fb are done and the remaining 1/fb is in progress and expected to be done by January. For MC, the production for DBV-38 is finished and for DBV-40 0.5/fb of inclusive phi production is done.
- KLOE has made significant progress in the data analyses that were planned since the last meeting. The analysis probing CPT violation in $K_SK_L \rightarrow 4\pi$ was finalized and has been submitted to JHEP. Several other analyses were presented in preliminary form at the EPS conference in July and are now being finalised for publication. In particular, a clear signal is observed in the $\gamma\gamma \rightarrow \pi^0$ production mode with the HET tagger used for tagging the outgoing e^+e^-. Here, the

remaining work ongoing is the estimate of the ratio of acceptances for the signal events and the normalisation channel (Bhabha events).

- It is expected that the six analyses which are well advanced will conclude by summer of 2022. However, none of these analyses uses the full dataset of 5.5/fb, they are based on up to 2/fb only and with an older software version. Many of the results are still statistically limited and an analysis of the full dataset with DBV-40 would be highly desirable as they present a unique opportunity and are world-leading. In the spring of 2022, the collaboration plans to start discussing on how to "open" these data and on the future of the collaboration.

2. SPARC_LAB and EuPRAXIA@SPARC_LAB activities

Findings SPARC_LAB:

- Since the last SC meeting, considerable progress on lasing was achieved. The main feature added is external seeding of the FEL process with the EOS laser. This allowed increasing the pulse energy of the FEL radiation from 30nJ to 1 μJ.
- The phase jitter generated by the second S- band klystron is identified as the presently dominating limitation for beam stability.
- At the time of the committee meeting SPARC_LAB was in shutdown for several hardware upgrades. In particular, a new RF gun is installed, an improved focusing system for matching the electron beam to the plasma capillary is implemented and the photocathode laser optics is adapted to allow for transport of 2^{nd} (blue) and 3^{rd} (UV) harmonics of the TiSa gun laser to the cathode.
- This allows to test two-photon photoemission of electrons from Cu with blue light instead of the commonly used UV, with the potential of better control of the transverse emission profile. This is a novel and interesting operation mode for RF photo-injectors.
- The publication on FEL lasing from a beam accelerated in a beam driven plasma in SPARC_LAB is under review.
- Some of the committee members enjoyed a tour of SPARC_LAB and the future EuPraxia@SPARC_LAB construction site. They thank all participating LNF scientists for this opportunity.

Comments SPARC_LAB:

- The SC appreciates that the SPARC_LAB team has considered all recommendations from the 61st SC meeting report and gave competent response to the recommendations.
- The SC believes that the SPARC_LAB upgrade actions and plans have been chosen in a sensible manner.
- The SC is curious to see what plasma acceleration and FEL performance will be achieved with the improved set-up

Recommendations SPARC_LAB:

- *The SC recommends doing a full comparative study between beam performance at blue and UV emission from the cathode. This new operation mode is of potential interest for many photo-injectors worldwide.*
- *The SC recommends realizing the upgrade of the K2 modulator to a solid-state version with high priority.*

Findings EuPRAXIA:

- EuPRAXIA is now officially on the ESFRI roadmap for European research infrastructures.
- The new computing infrastructure for CPU intensive simulations of plasma acceleration was procured and is presently implemented.
- The TEX facility for high power tests of RF accelerator components in X-band technology is in preparation.
- Building design has been completed and the building permit process has started.
- A resource estimate for staff and budget has been performed.

Comments EuPRAXIA:

- The SC appreciates that the EuPRAXIA team has considered all recommendations from the 61st SC meeting report and gave competent response to the recommendations.
- The SC commends LNF that EuPRAXIA is now included in ESFRI.
- The appearance of a second potential supplier for X-band tubes is a positive development which even opens the possibility for 400 Hz operation.

Recommendations EuPRAXIA:

- *The staffing plan for EuPRAXIA needs further consolidation and integration with the resource planning for all LNF accelerator activities.*
  To keep the ambitious schedule of EuPRAXIA@SPARC_LAB, the LNF management needs to allocate soon the staff and budget for the project preparation phase.
- *The 400 Hz option can provide a unique feature for the FEL user facility. The SC recommends a thorough study what is required to make all facility components compatible with 400 Hz operation.*

3. FFF proposals: presentations and discussions

In the following the detailed findings and comments from a special SC meeting on 2nd Sep 2021 are reported for future reference, complemented by further findings and observations made during this SC meeting.

These discussions were based on the input received in the form of oral presentations at its May'22 meeting and of a written document, *"Report: Fundamental Physics at Frascati",* by F. Bossi, P. Gianotti and E. Nardi, that summarizes the scientific discussions at the workshop *"Fisica Fondamentale a Frascati (FFF)"* held on 13th January, 2021. The SC focuses on three proposals that will be discussed below. Additional material about the FFF workshop can be found at the webpage of the meeting (https://agenda.infn.it/event/25299/).

The SC would like to congratulate the LNF, its director, the proponents of the various proposals and all involved for this excellent initiative, for the detailed descriptions of the proposals and the related efforts, as well as for the interesting and constructive discussions that have taken place so far.

"Mission" of the LNF SC in relation to FFF:

The SC was asked by the LNF director to assist him in the process of identifying possible FFF activities that may be implemented in the coming years. In particular, the SC was requested to

- first, provide a frank statement, purely regarding the scientific interest of the proposals, independently of their concrete feasibility (in terms of resources, timelines etc);
- second, to discuss their feasibility in the context of the already existing plans of the lab, on the timescale of the coming 3-4 years, with most notably the upcoming core activity, namely the ramp-up of EuPraxia-related efforts;
- and finally, to formulate concrete requests and recommendations for further studies, to be carried out by the lab and the proponents and to be presented at the SC's next regular meeting in November 2021. This last point was implemented; the SC would like to thank the proponents for the updates/answers provided at this Nov meeting.

It is important to highlight that the SC has been asked to advice the lab director, but not to take a decision on one or more of the FFF proposals.

In the following, the LNF SC provides its main findings, observations and comments regarding the three main proposals. Here we refrain from giving a summary of the actual scientific content of the various proposals, which can be found in the document mentioned above.

Axion Searches

- Axion searches are of strong scientific relevance, as was also highlighted in the European Strategy for Particle Physics update.
- The SC recognizes axion searches to be of great topicality, with a vibrant community and new ideas appearing on a regular basis.
- This proposal is very much factorized (in terms of infrastructure needs) from the other two (see below)
    - unless FLASH has to be installed in the DAFNE hall – then this would induce some "interference"; how much of an interference this implies should be studied in more detail. The SC learned that in May 2022 there will be an inspection of the FINUDA magnet infrastructure, that will provide valuable information for further studies/planning. Furthermore, we learned that investigations will be made about running FLASH in the KLOE hall (obviously, requiring a challenging move of FINUDA).
- The FLASH idea is considered to be really intriguing, with QUAX understood to be an important part of the R&D towards FLASH.

- There is overlap in axion parameter space between FLASH and ABRACADABRA – however, the latter is also far from being close to realization; its TDR is expected to be ready before the end of 2022. After all, it might be beneficial to have different technologies, in order to cross-check each other's results.
- In general, the cross-disciplinarity and the development of new technologies are considered to be assets for the lab, with "relatively minor" investments to be made.
- LNF should consider becoming a hub and incubator for the wider, national community interested in this type of physics, instead of having an inwards view only, eg. by launching workshops and discussion groups, in order to bootstrap the national axion community; ultimately, this could lead to new ideas and new technologies.
  Furthermore, LNF might also consider reaching out to the Physics Beyond Collider Study Group at CERN presently supporting initiatives like RADES; this could also lead to new ideas and technologies.

Feebly Interacting Particles, Dark Photon Searches

- In terms of parameter space still to be covered, the SC remarks that there is very strong competition elsewhere (eg. NA64, Mu3e, LHCb), which could be a reason for serious concerns.
  - at this Nov meeting, the proponents emphasized that PADME might have the best sensitivity (compared to the competition) for visible decays. Also, there is some uncharted territory in the large-coupling low-mass region of parameter space.
- The background studies carried out so far appear to be rough estimates only; however, understanding the background is absolutely crucial for these searches and their potential reach.
  - The SC understands that obtaining such detailed background estimates requires substantial effort and person power, that might be outside the potential of the PADME collaboration. However, the SC iterates on the fact that without such estimates it is difficult or impossible to have conclusive discussions on the real reach of the experiment.
- The proposed additional precision tests of QED represent nice physics studies, but the SC considers this to have rather limited return on

investment and also wonders about the actual size and interest of the related community.

- A very detailed description of the needed beam extraction schemes was provided by the proponents. However, experts in the SC remark that slow/resonant extraction from an electron storage ring is known to be feasible, thus the related scientific/technological interest, in terms of accelerator R&D, is limited;
    - yet, the question remains if it can be done efficiently at DAFNE. Dedicated tests might be needed to address this question.
    - On the other hand, possible work on the efficiency of positron sources and injection schemes might be interesting and in synergy with ongoing FCC-ee studies.
    - At this Nov meeting, the SC learned that just using the accumulator (instead of the main DAFNE machine) might be an interesting alternative option, to be looked at.
- Overall, the SC has expressed some reservations, both considering the physics/science case (especially because of the lack of detailed background estimates as mentioned above) and the technology aspects.

Studies of strong interactions with strangeness

- The scientific philosophy of this proposal is rather different compared to the other proposals, in the following sense:
    - there is no new physics to be found, but there are certain (guaranteed?) outcomes in terms of measurements that are very interesting for the related community;
    - for example, the puzzle of the kaonic mass: this is not new physics, but fundamental physics. The same observation applies to further insights into kaon-nucleon interactions.
- Furthermore, it is recognized that these measurements can have important implications for astrophysics.
- There appears to be strong interest in these measurements by the related theoretical and experimental community.
- DAFNE is a unique place where this type of physics can be studied under good conditions (low energy kaons)
    - in Europe LNF is the only place to do this,
    - while Japan is the only other place with a big community and related facilities. However, there only very energetic kaons are

produced, that need to be slowed down, resulting in a less clean environment.

- However, there was consensus in the SC at its September meeting that the first version of the proposal was too ambitious, concerning the proposed list of experiments:
    - The programme proposed for the first 3 years might have been feasible, but could eventually also require 4-5 years in total.
    - On the other hand, the later scattering experiments (requiring a new detector after the earlier experiments based on the SIDDHARTA setup) were considered to be too ambitious within the proposed time frame.
    - Therefore, the SC raised the question of how much luminosity/time is needed (at least) for a scientifically interesting programme, realizable over a few years only.
- At this Nov meeting, the SC learned about a considerably updated version of the proposal, that attempts to provide a realistic 3-year plan, 2023-2025, based on prioritization discussions in terms of scientific interest, feasibility, science community involved. As mentioned already earlier, this plan would include 3 phases:
    - Light and Heavy Kaonic Atoms measurements requiring 400 to 600 pb^{-1}
    - Intermediate and Heavy Kaonic Atoms measurements requiring 200 to 400 pb^{-1}
    - Ultra-High precision measurements of Kaonic Atoms requiring 400 pb^{-1}

General remarks

- A key question to be answered: are the available (or potential future) resources of the lab really sufficient in order to ramp up the EuPraxia activities while continuing to run the DAFNE facility, a facility that is clearly aging and for which already now it is difficult to provide good efficiency and performance?
- The SC is concerned that keeping up DAFNE efficiency and performance will be very resource intensive.
- As mentioned earlier, the SC is of the opinion that operation over a longer time scale would require a significant investment in material and person power for the consolidation of the accelerator and

improvement of the performance to minimize the required running time (as, eg. proposed for the SIDDARTHA follow-up). A resource loaded plan should therefore be prepared to guide the discussions and decisions about an experimental programme beyond 2022.

- The lab and INFN will have to make an important strategic decision: is the lab interested in and capable of focusing on one "flagship" (EuPraxia) or two simultaneous "flagships" (EuPraxia and DAFNE) in the coming years?
    - Obviously, the latter option will not be possible without a growth in resources / person power.
    - Importantly, the SC notes that the start and ramp-up of the EuPraxia activities, with simultaneously ramping down DAFNE, may offer the opportunity and natural moment to open a new chapter, also in terms of generational/technical person-power turn over (expertise moving from rings to linacs and lasers). Also, EuPraxia and the related scientific/technical challenges might be more attractive for younger personnel to join than maintaining an aging infrastructure.
- In conclusion, now that the physics proposals and wishes have been spelled out and commented on, addressing all these resources-related questions will be the next crucial step, before the lab director will be in a position to take far-reaching decisions.

4. Next Meetings

63rd SC 16-17 May 2022
64th SC 14-15 Nov 2022