# Summary of Recommendations
# 28th LNF Scientific Committee Meeting (June 2004)

## DAΦNE

The machine, after the long shut down of last year, has started with the new interaction region of FINUDA and has provided, in the expected amount of time, the promised 250 pb-1 with good background conditions. During the data taking the luminosity has been regularly increasing without reaching a final plateau. A problem with horizontal instability encountered in the positron machine at the beginning has been cured and has disappeared.

The start up with KLOE is following the same pattern. The same instability has been found again and is being eliminated. The luminosity is still on the low side, of the order of 3 pb-1/day, but is regularly climbing up. In the views of the director of the machine, no identified problem is presently visible and the machine, simply with the normal optimization, should reach a stable production of 100 pb-1/month and may be something more by increasing the number of bunches. The background conditions, rather nasty at the start up, have been largely improved and brought back to the values of 2002. Vertical feed-backs have to be re-optimized for high current running.

The Committee supports from now to next meeting the programme of the Director of the Laboratory to run smoothly in the next period with the hope that doubling the luminosity the expected 2fb-1 can be reached in 12- 15 months. The situation will be re-examined at the Fall meeting of the Committee. Changes of structure of the division and of the machine directorate have been announced by the Director and will be discussed in detail in the next meeting.

## DEAR

This report is based on a discussion with Carlo Guaraldo and Catalina Petrascu and a document on SIDDHARTA prepared for the Scientific Committee meeting.

We are pleased to see the paper published in Physics Letters B on kaonic nitrogen. There is now also a draft in advanced stage of a paper on kaonic hydrogen results. There has been significant progress concerning the K-p scattering length as extracted from the kaonic hydrogen energy shift.

The DEAR collaboration – now extended with teams from Politecnico Milan, PNSensors Munchen and RIKEN, Japan - has performed first tests with an SDD array of small chips. The observed long term instability was cured by using a very stable power supply limiting the non-linearity to less than 0.2 eV. A test of a 30 $mm^2$ SDD showed very good energy resolution (139 eV FWHM). The (triggered) DAQ system yields the expected reduction of background. The layout of 1 $cm^2$ SDD's is in an advanced stage. Tests in the beam test facility will be done in July.

In conclusion we are convinced that the collaboration will have a completed detector in 2006 such that data taking could be restarted. The first experiments will be on hydrogen and deuterium. Further measurements on kaonic nitrogen will lead to an increased precision in the determination of the charged kaon mass at the few-keV level.

The Committee looks forward to an upgrade of the physics programme to be presented at the next meeting.

## FINUDA

The Committee congratulates the FINUDA collaboration on its successful first run, and was very impressed by the performance of the detector and the quality of the data. The experiment obtained 190pb$^{-1}$ of useful data between 1$^{st}$ December 2003 and 22$^{nd}$ March 2004. Their reconstruction chain is working and they have already achieved a momentum resolution of 0.4%. Preliminary results show that their resolution is already as good as that achieved by the KEK E369 experiment in the $^{12}_{\Lambda}$C spectroscopy.

The Committee encouraged FINUDA to adopt a focused strategy for the timely publications of results. The Committee noted that they wished to upgrade the TOFINO by replacing their HPD with photomultipliers.

The Committee recommended that FINUDA make a presentation at the next meeting of their future plans for the experiment, on the understanding that the next run was unlikely to be before the beginning of 2006, including the physics focus and any upgrades to the detector or the associated electronics and data acquisition system.

## KLOE

We commend the KLOE experiment for a fast and successful start-up of the experiment after a long pause. The initial background problems have been overcome in collaboration with the machine. The ongoing analyses are promising, with competitive results in several areas (branching ratio limit for $K^0_S \to 3\pi^0$, semileptonic $K^0_S$ decays, $K^0_L$ and $K^+$ lifetimes). We would like however to encourage the collaboration to be more aggressive in their publication policy, particularly for topics where there is an active competition from other major experiments. We therefore look forward to the timely submission for publication of more results. We expect to receive in the fall meeting an update on the plans and schedule for the completion of the analysis of the 2002 data.

The provisions made for CPU power and tape storage are sufficient for the foreseeable future. KLOE is ready and eager to accumulate an integrated luminosity of 2fb$^{-1}$ in one continuous run, a goal which we fully support.