

Summary of a Meeting between DLNP JINR (Dubna) and DESY Zeuthen from 05.04. to 06.04.2004 at DESY Zeuthen

Present :

V. Duginov, T. Mamedov, N. Morozov, E. Syresin (DLNP JINR Dubna)

A. Liapine, K. Hiller, H.J. Schreiber, K. Trüttschler (DESY Zeuthen)

R. Melikian, V. Nikogossian (Yerevan)

The meeting was aimed to present the status of the technical design study (TDR) of the BPM based beam energy spectrometer at a future linear colliders (LC). Also, the meeting was used for presentations and discussions of the possibility to performe beam energy measurements by means of synchrotron radiation (SR) and the resonance absorption (RA) method. Finally, some discussions were devoted to continuation of the collaboration between Dubna and DESY Zeuthen and on the possibilty to include the Yerevan group in future activities.

Concerning the status of the TDR

J. Schreiber discussed the comments obtained concerning the chapters on Introduction, the Physics Requirements and Basic Spectrometer Parameters. A revised version of this part of the TDR will be distributed at the beginning of May.

N. Morozov presented the part of the TDR dedicated to the magnets and field measurements. The basic technical parameters of the spectrometer magnets were outlined. A review was given of possible magnetic measurement techniques based on experiences obtained at SLC, LEP and CEBAF. We intend to performe B-field measurements by means of NMR and Hall probes, moving wire, and search and flip coils. Aspects of magnet control (alignment, temperature) and field stabilization were also discussed. Preliminary cost estimates were presented. We expect a revised version of this part of the TDR at the end of May.

A.Liapine summarized the status on the high-precision BPMs. Most activities are now directed to prepare and perform the test run at the ELBE linac in Rossendorf/Dresden. A new draft version of the BPM part is expected at the beginning of May.

V. Duginov summarized the present status of alignment and positioning techniques. He presented the parameters and prices of industrial equipment and instrumentation for our purpose and gave cost estimates. A first draft on alignment and slow control is expected at the beginning of May.

The general consensus of the participants was that the report can/should be finished in sommer of this year.

R. Melikian presented the idea of using resonance absorption of electrons within a B-field for precise beam energy measurements. It seems possible to achieve an acuuracy of 10^{-4} (or better) for relative and absolute beam energy measurements. This novel idea was extensively discussed. Some important items not clarified during the meeting will be investigated by Robert in the next future.

E. Syresin summarized the status of using synchrotron radiation (SR) for beam energy determination. Several possibilities were indicated but significant more dedicated invistigations are needed to establish the feasibility of at least one of his suggestions.

In this respect, **K. Hiller** presented first GEANT simulation results which are quite promising to permit some 10^{-4} energy resolution. Further works is however needed to pursue this study.

In this respect it was clearly pointed out that Dubna should support further SR activities (by some manpower) towards a feasibility report, together with DESY Zeuthen. Other methods not considered by Karlheinz should also be investigated.

J. Schreiber gave, as an introduction on the discussions on future collaborations, a summary on the present worldwide situation and activities towards a Linear Collider.

It was agreed to make accessible the presentations of the meeting and the summary on the web-page

<http://www-zeuthen.desy.de/main/html/aktuelles/workshops.html>

The next meeting should be held in Dubna on the second half of October 2004.

Since the present 'Agreement between DESY and Dubna on the Energy Spectrometer' will finish in summer 2004, a continuation will be prepared. H.J. Schreiber intends to visit Dubna for preparation of the new agreement and finalizing the draft on the TDR at the beginning of July.

Also, corporation with the Yerevan group has been discussed. Basically, existing agreements between the Institutes should be extended by Attachments. A possible meeting at Yerevan was proposed in May 2005.

Zeuthen, April 2004

Victor Duginov and H.Jürgen Schreiber