Openning Address at Ninth BES Annual Meeting

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Ladies and Gentlemen, Friends and BES Colleagues,

On behalf of the Institute of High Energy Physics, I would like to welcome all of you to participate in the ninth BES annual meeting, especially those from our foreign collaborators and those from BES member institutes other than IHEP.

During the past year, a lot of things have happened at IHEP. Despite many difficult moments, BES has made great progress in data taking, physics analyses, MDCIII construction and the preparation for BES further upgrade.

First of all, BES has published several papers using the BESI data since the eighth BES annual meeting. and the efforts to obtain more results in ψ', ψ, D and D_S data analyses have been continued. R measurement result with several points was presented at last year's Lepton-Photon Conference and now is published, world HEP community is waiting for BES to give R measurement result for the whole 2-5 GeV region. In this BES annual meeting, the status of various analyses will be presented, I hope that more results can be published soon.

In the area of BES data taking, we have succeeded in putting more than 22 million on-line J/ψ hadronic events on tape. This is not an achievement easily made. Recall that, soon after BES officially got the beam from Nov. 17 last year, almost entire vacuum system of BEPC linac exposed to the atmosphere because of a leaked window of a water loader. It took about three weeks to get the machine back to operation. At the beginning, the BES DAQ system did not work correctly for almost a week. A lot of other minor problems happened here and there. All this was very frightening, BES did not take data normally until the end of last year. People worked day and night to solve the problems. To overcome the difficulty, IHEP decided to take data continuously during the Chinese Spring Festival, many people cut their vacations short or did not take the planned trips. The efforts were paid off, the machine and the detector run smoothly from the beginning of this year, number of events taken per shift was gradually gone upward. Eventually, the total data sample taken is quite close to the goal set at the beginning. I believe, the original goal to take 50 million J/ψ events in two years can still be realized.

More importantly, the J/ψ data quality, looked so far, is much better than the J/ψ data taken in BESI. Many talks will be given at this meeting to discuss the data quality checked from different points of view. Also should be mentioned is that, because of the increased computing capacity, and the efforts made by BES data calibration and reconstruction group, the data processing was done faster and can be kept up with the data taking much better than before. This improvement will not be made without the support from the staff of our computing center. Much progress has been already made to transfer the BES software to Linux, to be able to reconstruct BES events on Linux computers will help greatly for BES data analyses.

The lifetime of MDCII is always a big concern, so to finish MDCIII on time is absolutely crucial. Hawaii people made big efforts in ensuring the quality of MDCIII endplates hole drilling, when the schedule was delayed for various reasons, IHEP sent four persons to partcipate in the work in Hawaii. Thanks the whole team worked on MDCIII, all the holes on two endplates have been drilled now. After the holes are reamed, the endplates and outer cylinder will be pre-assembled. The whole assembling should be arrived in Beijing in two months time.

As you all know, Chinese government had taken the steps to enhance the support for BEPC operation and its further upgrade, the annual operating budget was gone up from 27 to 50 millions yuans since the year of 1999, and a total of 90 millions yuans were allocated for BEPC/BES/BSRF further upgrade for three years. This makes it possible to fix many fragile aged equipments and electronic parts, to make spare parts and to order better devices, and to improve the general working conditions at IHEP.

For the long term development of high energy physics in China, there had been two possibilities for the future of BEPC, one was to build a tau-charm factory with a luminosity increase by a factor of about 100, and another was to further upgrade the BEPC in a major way, called BEPCII, with a luminosity increase roughly by a factor of 10. Now the Chinese Academy of Sciences has decided to support BEPCII option, and this approach has been accepted by Chinese government. Although personally I feel somehow disappointed, BEPCII does not have the same petential, compared with a tau-charm factory, to become a world class facility. But on the other hand, BEPCII will still enable us to do world class research works for quite a while, especially in the area of hadron spectroscopy and in the search for glueball, hybrid and exotic states.

The basic ideas for BEPCII are as follows: in the accelerator side, micro-beta and multi-bunch will be two major contributors to the luminosity increse; in the detector side, major detector components have to be upgraded for better performances.

To make micro-beta scheme viable, the beam length should be reduced to 1 cm level, a 500M Hz RF system should be used, current thinking is to use superconducting cavity. The storage ring resistance has to be reduced to 1 ohm level, the machine people now aim to design new vacuum components to make total calculated resistance of the ring to be less than half an ohm. A micro beta quadruple magnet has to be installed quite closer to the detector center. Perminent magnet is under consideration, but the option to use superconducting quadruple is not ruled out. For multiple bunch operation, six or seven bunches may be used, with three trains in each bunch. Machine people are making serious design study. The strategy is not finally decided, as to whether to make simultaneous upgrade for micro-beta and multi-bunch operations, or to concentrate on one of the measures first.

To obtain better physics results, both statistical error and systematical error have to be reduced. For BES detector upgrade, studies have to be made to understand where various systematic errors come from, for different physics topics and find the means to reduce them. Corresponding measures should be taken in designing and constructing the new detector components. It is agreed that, a new barrel shower counter with much better energy resolution should be built, the current plan is to use scintillator fiber and lead technique, similiar to the one used by KLOE at phi factory. For main drift chamber, studies are under way to see the possibility to use Al field wires and helium gas to reduce the multiple scattering. Discussions should be made with our machine people to define the interaction region in details, the vertex chamber and the luminosity monitor may have to be removed or new ones to be built. Better muon detection coverage should be considered, how to deal with endcap shower counter and time of flight counters also need to be discussed. To match with the multi-bunch operation of the machine, BES electronics, the trigger and DAQ system have to be almost totally re-designed and re-built, this needs big efforts and large investment. In designing the interaction region, the machine background to the BES detector should be treated seriously.

To cope with the new situation, we should discuss the issue about when MDCIII should be installed in the detector, next year or the year after? But people argued that new end door mounting mechanism should be installed next year, so that when a MDC wire is broken, the problem can be fixed in a couple of days, without breaking the vacuum system.

The current plan for BEPCII project is that, some initial design should be made for the machine and detector before October this year. In October an international workshop will be organized to review the design. A proposal for BEPCII should be handed to the government at the end of the year or the beginning of the next year. Our director CHEN Hesheng will talk about BEPCII in more details later in this meeting.

Obviously it is a big challenge to IHEP, and to the Chinese HEP community as a whole, to continuously operate the BEPC machine and detector, to take data with good quality and high efficiency and to produce physics results, on one hand, and meanwhile to design and construct BEPCII machine and detector in a few years, on the other hand. It requires all IHEP staff to devote their talents and efforts fully, more youth and energetic people should be recruited. I believe that, as the working and living conditions become better at IHEP, a capable team will be formed to meet the challenge, with many youth persons taking major responsibilities.

Our foreign colleagues are much welcomed to join BEPCII project and make their own contributions. Chinese collaborators in other universities and institutes are called for to join the efforts of BEPCII project and make their contributions in BES upgrade. It can be either to build some detector components, to participate in software upgrade, or just send some persons to IHEP to help the work.

I hope this ninth BES annual meeting will be a great success.

Thanks.