General Situation of BES
BES Annual Meeting
(Huairou)

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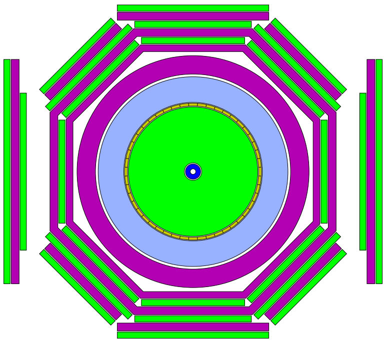

Outline

- Progress in the past year
  - BESII running
  - Data taking and BESII detectors
  - Physics analysis and publication
  - Prestudy of R value measurement
- Noise of MDC II and conclusion
- Summary

1 BES Running

- **Jun. - Oct. 96   Repairing of MDC II**
  To reduce the coherent noise from 1200 to 425 by:
  - **damper registers**
  - **distance of crates**
  - **number of cables**
  - **shielding of cables**
  - **seperation of crates**
  - **seperation of modules**

- **Nov. 96 - Jan. 97   Tuning of BESII**
  - **Determination of parameters of detectors**
  - **Solved the problems such as :**
    - **luminosity monitor**
    - **electronics of MDC**

- **Jan.97 - Feb.97** J/ψ **data taking**
  - 100%**HV of MDC :**
    Running 10161-10578
  - 95%**HV of MDC :**
    Running 10579-10829

- **Mar. 7-23,97   Prestudy of R measurement**

  Beam energy $1.0 \sim 2.5 GeV$ **:**
  $1.0,\ 1.10,\ 1.20,\ 1.25,\ 1.30,\ 2.015 \sim 2.5\ GeV$.

2 Data taking and detectors

- **Data taking**
  - **Trigger rate** $2-4Hz$
  - $\int Ldt/day \Rightarrow 80nb^{-1}(40nb^{-1}$ **for BESI)**
  - J/ψ **events/day** $\Rightarrow 150K - 200K$ **hadrons**
  - **Luminosity increase by factor 2**
- **Performance of detector**
  - **New detectors : TOF,Luminosity,VC work well**
  - **MDC II performence is good at beginning**
  - **BSC has big improvement**
  - **Trigger system has high efficiency**
- **Data quality is good(**100% **H.V.)**
- **The luminosity of BEPC at** $1.0-2.5GeV$
  - **need special tune from** $1.0-1.25GeV$.
  - **the beam energy from** $2.5 \rightarrow 2.0GeV$ **has been changed smoothly.**
- **Big improvement of BSC. Because of the :**
  - **set the H.V. according to the cell size**
  - **improve the gas in uniformity**
  - **stability of concerntration of n-pantane**
- **Luminsoity monitor.**
  - **misconnection of cable**
  - **work well for P . C . S . counters**
  - **problem:**
    - **we cannot remove the noise by delay coincidence**
    - **background and Bhabha go to the S counter at same time**
    - **background is about** 25%
    - **luminsoity by scalar is** 25% **higher than that by ADC**
    - **M.C. cannot fit the data**

3 Prestudy of R measurement

- the luminosity of BEPC at $1.0 - 2.5 GeV$.
- study of the Monte Carlo Models based on the BESI data at $3.55 GeV$.
- estimation of the detector efficiency.
- calculation of radiation correction.
- estimate of error of R.
- energy points of R scan.

4 Physics Analysis

- new important results
  - structure analysis of $f_j(1710)$ in $J\psi \to \gamma KK$
  - new results from PWA analysis on the $J\psi \to \gamma 4\pi$
  - search for η_c' in $\psi' \to \gamma 6\pi, \gamma kk\pi\pi$
- Topics on the progress
  - $D \to \mu X$
  - $D_0 \to K\pi$,$D_0 \to K\phi$, $D_0 \to k^0\pi^+\pi^-$, $D^0 \to kX$
  - $\psi_\prime \to \gamma\eta', \gamma f_2$
- Some topics need the referee
  - $D_s \to \phi\chi$
  - $D \to \mu X$
  - $\psi' \to \gamma\eta', \gamma f_2$
  - width and decay of X_{cj}
  - ψ' production at $4.03\ GeV$
- some topics need to have conclusion on the meeting
  - $D \to \phi X$
  - Total number of ψ'
  - $\psi' \to \tau^+\tau^-$
  - $\psi' \to VT, VP$

5 The noise and dark current of MDC II

- Five stages for studying on the noise of MDC II .

  A. Study on the noise and dark current of MDC II .

  - random
  - timing
  - amplitude
  - noise-H.V.
  - noise changes

  B. Source of noise & dark current-feedthrough.

  - prototype test
  - comparision test

  C. The properties of noise from feedthrough.

  - noise coupling between wires
  - noise is because of the dark current
  - current -H.V.
  - current -T

  D. Origin cause of the dark current on the feedthrough is the wrong mold process.
  * Report from Chemistry Institute :

  - infrared spectrum
  - melting temperature

  E. possibility study for $2KV$ scheme

  - What is the dark current at $2KV$
  - What is the noise level at $2KV$
  - How much does the Dark Current change in one month at $2KV$
  - How does the Dark Current change with the temperature
  - What is the eletric field at $2KV$
  - Observation of signal at $2KV$ on the propotype
  - How does the temperature effect the signal
  - Testing of H.V. board for field & signal wire
  - Test of the by pass capaciter

- Conclusion
  - Big problem : aging problem of feedthrough
  - Mistakes : wrong molding
  - Lost : lost time , lost physics data , lost support , lost reputation
  - Big effect : upgrade & BTCF
- Solution
  1 . It is absolutely need to build a new MDC and should start from now . It needs 2 years .
  2 . In order to take data as soon as possible , we should repair the MDC II using $\pm 2\ KV$ scheme in this summer . It needs 0.5 year . Hope we can take data at beginning of 1998 .

6 Summury

- We are in the difficult period now , because of no data taking , no much more publication in one year
- We need make a plan to build the new MDC & repair MDC II and work together to overcome these difficulties
- Every BES member should pay more time on the BES work(at least $30-40\%$)
- I suggest we should have special physics analysis meeting every 4 or 6 months