

weekly BESIII report

Summary

- Jpsi->inv.
 - face-to-face discussion with referee
 - comments received
- ChicJ -> gam lepton lepton
 - check generated signal events with event display.
- Gu Shan gave a report on the Physics and Software Meeting

Suyu

Jpsi -> invisible:

Discussed with Referee Liu Fang & Zhou Xiaorong about the abnormal value of $N(J/\psi \rightarrow \text{invisible})$, and got some useful comments and suggestions.

You can see details <https://hnbcs3.ihep.ac.cn/HyperNews/get/paper194.html>

⊕ Re: Update Memo V2.0

Forum: BAM-00194, Search for invisible decay of the J/ψ resonance, by Chi Zhang et al.

Re: ⊕ Update Memo V2.0 (Xiao Suyu)

Re: ⊕ Re: Update Memo V2.0 (Fang Liu)

Re: ⊕ Re: Update Memo V2.0 (Isabella Garzia)

Date: Sep 12, 10:05

From: Xiao Suyu <Xiao Suyu>

Minutes for Author & Referee discussion:

1. Check $J/\psi \rightarrow ee + \text{invi}$ process, requiring $N_{\text{gam}} = 0$. And $N_{\text{gam}}=0$ should exclude the electron positron shower (out of 20degree of electron shower).
2. Why does acceptance eff of peaking background become higher? Compare cutflow of 2009 and 2012 data set, and try to figure out whether there's obvious difference.
3. Check $J/\psi \rightarrow ee$ branching fraction, and expect to get a scale factor (< 1).

Amit

I was attending the workshop and in the workshop and I gained a lots of information:

1. I have known the event display from BesVis and also I have displayed some event from my analysis for 100MC sample events Figure:1.
2. I have received some new physics talks about Dark Photon
Search for dark photon in $e^+e^- \rightarrow \gamma_{ISR} X X$
3. I have discussed some analysis for the same analysis which I'm doing and they have suggested to me to do with 3 gamma photons.
4. I would like to show more events:

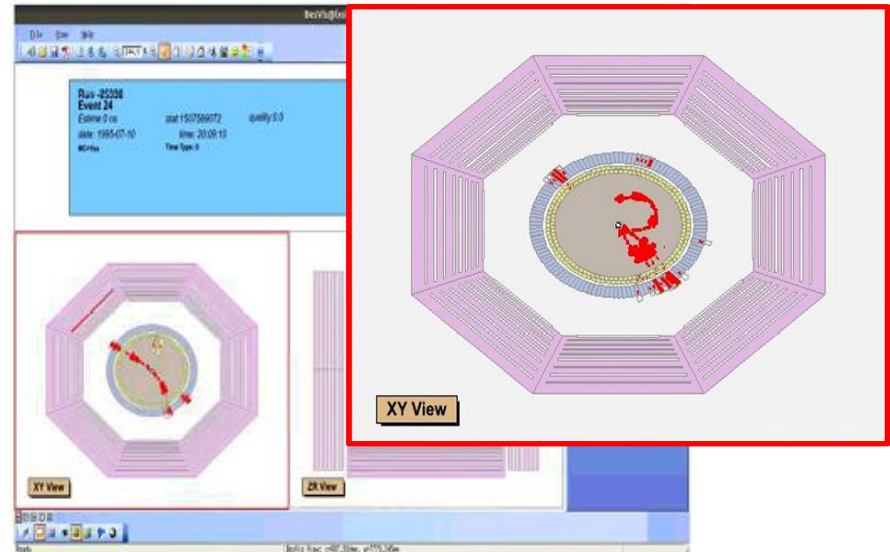
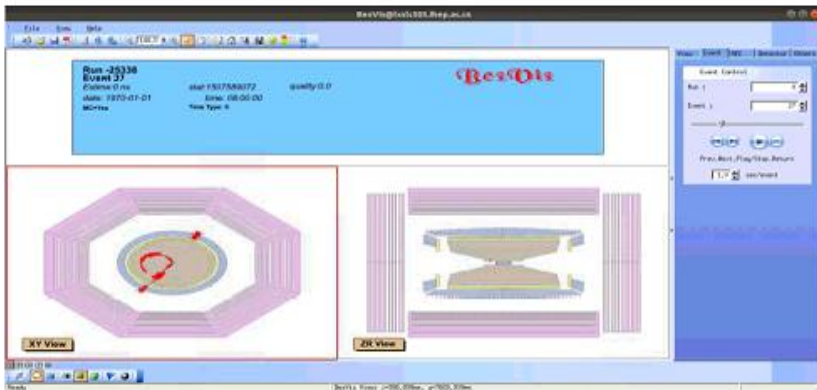


Figure:1 The red dots are showing charged tracks for the event number 24. Since the tracks are not in the straight line so we can easily know that it is charged tracks.

Figure:2 The event display for event 27 is more interesting because it has more clear charged tracks.

Shan

15:40 - 16:10

coffee break


16:10 - 17:45

Charmonium: I

Conveners: Dr. Kai Zhu (高能所), Ryan Mitchell (Indiana University)

16:10 **First measurement of $\chi_{cJ} \rightarrow \Sigma \pi K S + c.c$ decays 30'**

Speaker: Gu Shan (Beihang University)

Material: [Slides](#) 

personally selected highlights of
BESIII Physics and Software
meeting

event display updated

Event Display — BesVis

LONG Peixun



- Visualization tool is crucial in many aspects of high energy physics experiments.
- Upgraded BesVis supports events with scintillator and MRPC end cap TOF.
- New version is designed to load a suitable detector geometry automatically.
- Event display of DST format files in new version.
- 3D event display



- References
- [1]<https://indico.ihep.ac.cn/event/8418/session/9/contribution/57/material/slides/0.pdf>

new data set

Determination of the number of
 J/ψ events taken in 2017-2018

H.X. Yang M. Ablikim
Yanghx@ihep.ac.cn

Physics & Software Workshop
Sept. 10 – 13, 2018, IHEP, Beijing

The number of J/ψ events collected during
8th Dec. 2017— 14th Jun. in 2018
are determined to be 4595.69M

discussion on systematics

Performance and systematics working group meeting (RM A214)

Conveners: Dr. Karin Schoenning (Uppsala University), Prof. Xiaobin Ji (IHEP)

Material:



data taking and physics

Discussion on Data taking proposals

Changzheng Yuan

Sept. 11, 2018

Presented at last collab. meeting

1. J/ψ , $E_b=1.54$ (100 pb⁻¹), 1.55 GeV (4 billion J/ψ)
2. ψ'' , $E_b=1.89$ GeV (8~10 fb⁻¹)
3. XYZ, $E_b=2.06-2.22$ GeV (5 fb⁻¹)
4. Λ_c , $E_b=2.30-2.35$ GeV (3.4 or 6.5 fb⁻¹)
5. RQCD, $E_b=1.11-1.13$ (40 pb⁻¹), 1.25 GeV (100 pb⁻¹)

And Λ_c , $E_b=2.315$ GeV (50 pb⁻¹) — 1st step of Λ_c
program from Italian BESIII Community.

one will learn more from the discussion rather than simply read the final plan of data taking.

white paper

White Paper on *BES-III* Experiment

Abstract

Working Group and Conveners

Part One: Introduction

Conveners: Mingyi Dong, Hai-Bo Li, Shengsen Sun,
Ulrich Wiedner

Part Two: Light Hadron Physics

Conveners: Beijiang Liu, Marc Pelizaesus,

Part Three: Charmonium Physics

Conveners: Ryan Mitchell, Kai Zhu

Part Four: R values, QCD and τ Physics

Conveners: Achim Denig, Rinaldo Baldini Ferroli,
Xiaohu Mo, Wenbiao Yan, Christoph Redmer

Part Five: Charm Physics

Conveners: Hai-Bo Li, Jim Libby, Xiao-Rui Lyu,
Hailong Ma, Hajime Muramatsu,
Karin Schönning

Part Six: New Physics

Conveners: Shenjian Chen, Alexey Petrov, Dayong Wang

Part Seven: Summary

Conveners: Hai-Bo Li, Xinchou Lou

There has recently been a dramatic renewal of interest in the subjects of hadron spectroscopy and charm physics. This renaissance has been driven in part by the discovery of a plethora of charmonium-like XYZ states at the B factories and *BES-III*, and the observation of an intriguing proton-antiproton threshold enhancement and the possibly related $X(1835)$ meson state at *BES-III*, as well as the threshold measurements of charm mesons and charm baryons.

This physics survey provides detailed discussions on important topics in τ -charm physics that will be further explored during the next few years at *BES-III*. These studies and survey will present the potential physics program at the *BES-III* experiment in the rest of the BEPCII lifetime. The motivation of the physics survey is as follow: 1) it will optimize data-taking plan in the future, and provide the basis for the decision of data-taking in the next few years; 2) A write-up of the physics survey will be very helpful for us to get full support from the CAS in China and funding agencies; 3) It will provide physics motivations for possible upgrade of the BEPCII to higher luminosity with new techniques.

BEPCII energy upgrade

$E_b \leq 2.35 \text{ GeV}$

Upgrade of power supplies for bending field magnets

Air cooling upgrade for bending field magnets

Magnet protection system for ISPB

Feasible now

$E_b \leq 2.45 \text{ GeV}$

- Upgrade of ISPB magnets
- Finalise upgrades of power supplies and cooling
- ...?

Expected average luminosities

12 ... 8 pb⁻¹ / day

Run plan 2018/19

Long and intensive discussion in EB
Plan with 6 months beam time next year

EB recommendation:

- Finish **J/ψ** data taking (4 B, ~2.5 months)
- Continue **XYZ** scan ($\sim 3 \text{ fb}^{-1}$)
- Take larger scan at highest energies ($\geq 4.6 \text{ GeV}$) in 2019/20 after new ISPB magnets have been installed

END