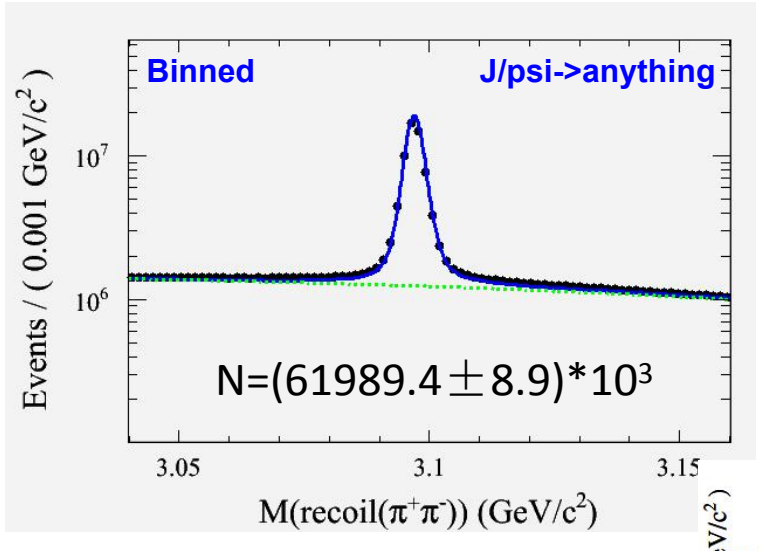
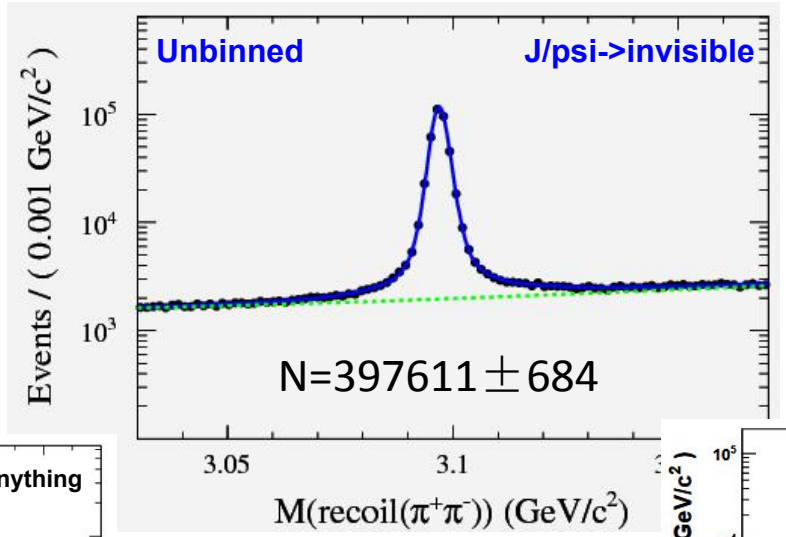
Fit results for J/psi->anything & invisible

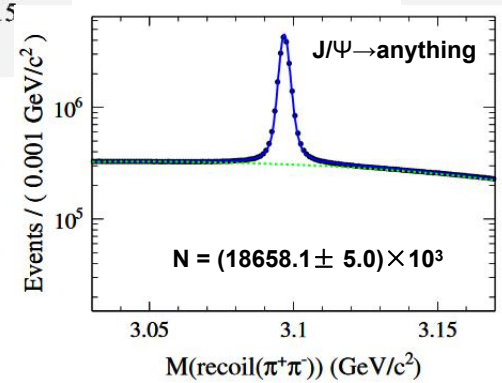
- run J/psi->ee to get signal shape
- fit to J/psi->anything and J/psi->invisible to get field

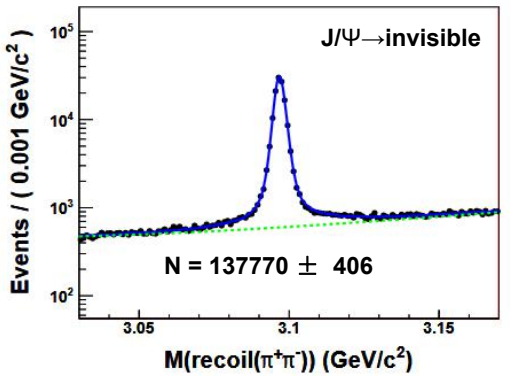
2012





2009





Expectation of peaking background events

- use ε_{2B}, ε_{trig} the same as 2009
- MC Topology J/psi->others: 16163 (given by Qian)

Channel	B_{2B}(%) checked	ε_{2B}(%)(09) need update	ε_{trig}(%)	Event number(12)	Event number(09)	Event number 12/09
J/Ψ->$\mu^+\mu^-$	5.961±0.033	5.93±0.02	99.4±0.1	217810±1429	65558±1388	3.32
J/Ψ->e^+e^-	5.971±0.032	5.93±0.02	99.4±0.1	218175±1399	65668±1405	3.32
J/Ψ->nnbar	0.209±0.016	6.09±0.02	99.4±0.1	7843±7843	2361±997	3.32
J/Ψ->ppbar	0.2020±0.0029	2.54±0.02	99.4±0.1	3161±52	999±28	3.16
Total (total/anything)				446989 (0.72%)	134586±2919 (0.72%)	3.32
N_{others} (others/peaking)				16163 (0.038)	3877 (0.029)	4.17
$N_{invisible}$				397611±684	137770	2.89

nsig = 396332 ± 686

(given by Qian)

Ψ(2S) data 12/09: 341/106=3.22

$$N(J/\Psi \to invisible) = N_{invisible} - N_{peaking} - N_{others} \times \varepsilon_{trig} = -65444(-670in2009)$$

Memo v1.1 update

- update memo v1.1 to new module
  - logo, referee committee and DocDB&Hypernews link
  - no changelog in memo
  - add contents link

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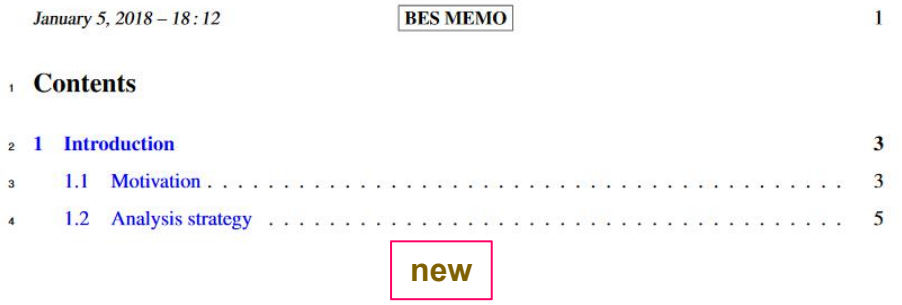
old



January 5, 2018 – 18 : 12 BES MEMO 1

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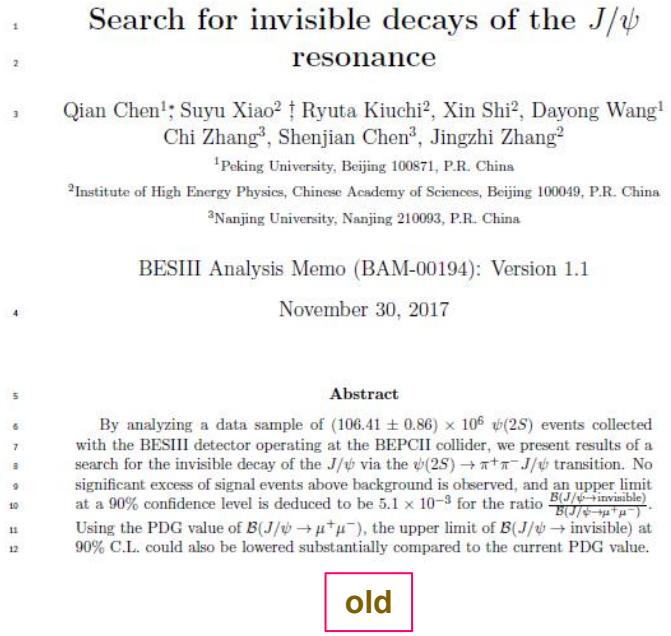

Search for invisible decays of the J/ψ resonance

Qian Chen[1], Suyu Xiao[2] †, Ryuta Kiuchi[2], Xin Shi[2], Dayong Wang[1], Chi Zhang[3], Shenjian Chen[3], Jingzhi Zhang[2]

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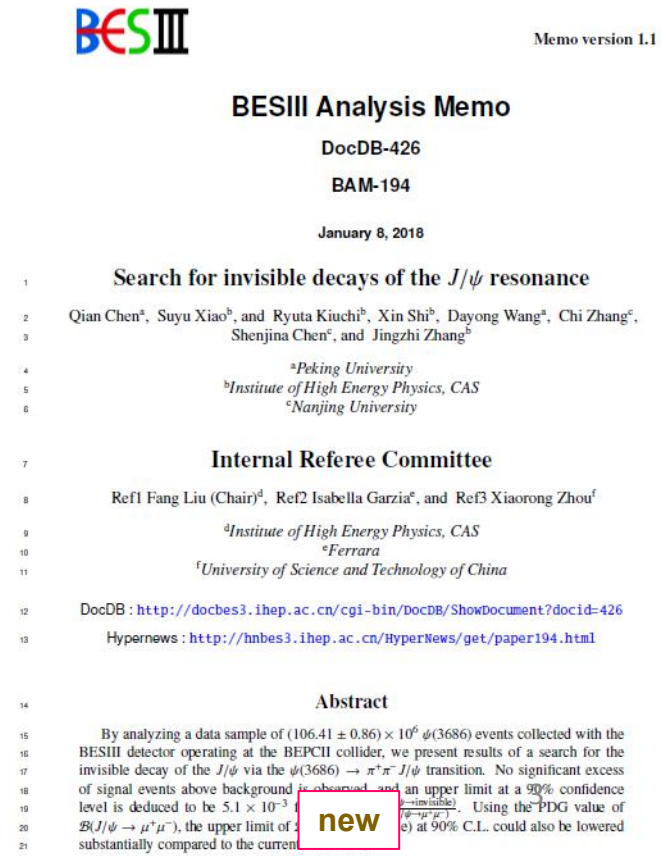
BESIII Analysis Memo (BAM-00194): Version 1.1

November 30, 2017

Abstract

By analyzing a data sample of $(106.41 \pm 0.86) \times 10^6$ $\psi(2S)$ events collected with the BESIII detector operating at the BEPCII collider, we present results of a search for the invisible decay of the J/ψ via the $\psi(2S) \to \pi^+\pi^- J/\psi$ transition. No significant excess of signal events above background is observed, and an upper limit at a 90% confidence level is deduced to be 5.1×10^{-3} for the ratio $\frac{\mathcal{B}(J/\psi \to \text{invisible})}{\mathcal{B}(J/\psi \to \mu^+\mu^-)}$. Using the PDG value of $\mathcal{B}(J/\psi \to \mu^+\mu^-)$, the upper limit of $\mathcal{B}(J/\psi \to \text{invisible})$ at 90% C.L. could also be lowered substantially compared to the current PDG value.

old



BESIII Memo version 1.1

BESIII Analysis Memo

DocDB-426

BAM-194

January 8, 2018

Search for invisible decays of the J/ψ resonance

Qian Chen[a], Suyu Xiao[b], and Ryuta Kiuchi[b], Xin Shi[b], Dayong Wang[a], Chi Zhang[c], Shenjina Chen[c], and Jingzhi Zhang[b]

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[c]*Nanjing University*

Internal Referee Committee

Ref1 Fang Liu (Chair)[d], Ref2 Isabella Garzia[e], and Ref3 Xiaorong Zhou[f]

[d]*Institute of High Energy Physics, CAS*
[e]*Ferrara*
[f]*University of Science and Technology of China*

DocDB : http://docbes3.ihep.ac.cn/cgi-bin/DocDB/ShowDocument?docid=426

Hypernews : http://hnbes3.ihep.ac.cn/HyperNews/get/paper194.html

Abstract

By analyzing a data sample of $(106.41 \pm 0.86) \times 10^6$ $\psi(3686)$ events collected with the BESIII detector operating at the BEPCII collider, we present results of a search for the invisible decay of the J/ψ via the $\psi(3686) \to \pi^+\pi^- J/\psi$ transition. No significant excess of signal events above background is observed, and an upper limit at a 90% confidence level is deduced to be 5.1×10^{-3} [illegible] $\frac{\mathcal{B}(J/\psi \to \text{invisible})}{\mathcal{B}(J/\psi \to \mu^+\mu^-)}$. Using the PDG value of $\mathcal{B}(J/\psi \to \mu^+\mu^-)$, the upper limit of [illegible] e) at 90% C.L. could also be lowered substantially compared to the curren[illegible]

new