

Reference = ABLIKIM 16B; PL B753 103  
Verifier code = BES3

*PLEASE READ NOW*



Normally we send all verifications for one experiment to one person, usually the spokesperson or data-analysis coordinator, who then distributes them to the appropriate people. Please tell us if we should send the verifications for your experiment to someone else.

Xiao-Rui Lyu

EMAIL: xiaorui@ucas.ac.cn

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July 21, 2016

Dear Colleague,

- (1) Please check the results of your experiment carefully. They are marked.
- (2) Please reply within one week.
- (3) Please reply even if everything is correct.
- (4) IMPORTANT!! Please tell WHICH papers you are verifying. We have lots of requests out.
- (5) Feel free to make comments on our treatment of any of the results (not just yours) you see.

Thank you for helping us make the Review accurate and useful.

Sincerely,

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Russian Federation

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# c $\bar{c}$ MESONS

NODE=MXXX025

## $\psi(3770)$

$$I^G(J^{PC}) = 0^-(1^{--})$$

NODE=M053

### RADIATIVE DECAYS

NODE=M053240

 $\Gamma(\gamma\chi_{c1})/\Gamma_{\text{total}}$ 
 $\Gamma_{99}/\Gamma$ 
VALUE (units  $10^{-3}$ )

EVTS

DOCUMENT ID

TECN

COMMENT

**2.48 $\pm$ 0.23 OUR AVERAGE**

YOUR DATA

1.9  $\pm$ 0.4  $\pm$ 0.6

202

38 ABLIKIM

16B

BES3

 $e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}$ 2.48 $\pm$ 0.15 $\pm$ 0.23

0.6k

ABLIKIM

15J

BES3

 $e^+e^- \rightarrow \psi(3770) \rightarrow \gamma\gamma J/\psi$ 2.4  $\pm$ 0.8  $\pm$ 0.2

39 ABLIKIM

14H

BES3

 $e^+e^- \rightarrow \psi(3770) \rightarrow K_S^0 K^\pm \pi^\mp$ 2.9  $\pm$ 0.5  $\pm$ 0.4

40 BRIERE

06

CLEO

 $e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}, \gamma\gamma J/\psi$ 

OCCUR=2

● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●

3.9  $\pm$ 1.4  $\pm$ 0.6

54

41 BRIERE

06

CLEO

 $e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}$ 2.8  $\pm$ 0.5  $\pm$ 0.4

53

37 COAN

06A

CLEO

 $e^+e^- \rightarrow \psi(3770) \rightarrow \gamma\gamma J/\psi$ 
 $\Gamma(\gamma\chi_{c0})/\Gamma_{\text{total}}$ 
 $\Gamma_{100}/\Gamma$ 
VALUE (units  $10^{-3}$ )

CL% EVTS

DOCUMENT ID

TECN

COMMENT

**7.0 $\pm$ 0.6 OUR AVERAGE**

YOUR DATA

6.9 $\pm$ 0.3 $\pm$ 0.7

2.2K

43 ABLIKIM

16B

BES3

 $e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}$ 7.3 $\pm$ 0.7 $\pm$ 0.6

274

BRIERE

06

CLEO

 $e^+e^- \rightarrow \psi(3770) \rightarrow \gamma + \text{hadrons}$ 

● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●

&lt; 44

90

37 COAN

06A

CLEO

 $e^+e^- \rightarrow \psi(3770) \rightarrow \gamma\gamma J/\psi$ 

37 Using  $\Gamma_{ee}(\psi(2S)) = (2.54 \pm 0.03 \pm 0.11)$  keV from ADAM 06 and taking  $\sigma(e^+e^- \rightarrow D\bar{D})$  from HE 05 for  $\sigma(e^+e^- \rightarrow \psi(3770))$ .

38 ABLIKIM 16B reports  $(1.94 \pm 0.42 \pm 0.64) \times 10^{-3}$  from a measurement of  $[\Gamma(\psi(3770) \rightarrow \gamma\chi_{c1})/\Gamma_{\text{total}}] / [B(\psi(2S) \rightarrow \gamma\chi_{c1}(1P))]$  assuming  $B(\psi(2S) \rightarrow \gamma\chi_{c1}(1P)) = (9.55 \pm 0.31) \times 10^{-2}$ .

39 ABLIKIM 14H reports  $[\Gamma(\psi(3770) \rightarrow \gamma\chi_{c1})/\Gamma_{\text{total}}] \times [B(\chi_{c1}(1P) \rightarrow K_S^0 K^\pm \pi^\mp)] = (8.51 \pm 2.39 \pm 1.42) \times 10^{-6}$  which we divide by our best value  $B(\chi_{c1}(1P) \rightarrow K_S^0 K^\pm \pi^\mp) = 0.00356 \pm 0.00030$ . Our first error is their experiment's error and our second error is the systematic error from using our best value. We have calculated the best value of  $B(\chi_{c1}(1P) \rightarrow K_S^0 K^\pm \pi^\mp)$  as 1/2 of  $B(\chi_{c1}(1P) \rightarrow \bar{K}^0 K^+ \pi^- + \text{c.c.}) = (7.1 \pm 0.6) \times 10^{-3}$ .

40 Averages the two measurements from COAN 06A and BRIERE 06.

41 Uses  $B(\psi(2S) \rightarrow \gamma\chi_{c1}) = 9.07 \pm 0.11 \pm 0.54\%$  from ATHAR 04,  $\psi(2S)$  mass and width from PDG 04, and  $\Gamma_{ee}(\psi(2S)) = 2.54 \pm 0.03 \pm 0.11$  keV from ADAM 06.

43 ABLIKIM 16B reports  $(6.88 \pm 0.28 \pm 0.67) \times 10^{-3}$  from a measurement of  $[\Gamma(\psi(3770) \rightarrow \gamma\chi_{c0})/\Gamma_{\text{total}}] / [B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P))]$  assuming  $B(\psi(2S) \rightarrow \gamma\chi_{c0}(1P)) = (9.99 \pm 0.27) \times 10^{-2}$ .

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NODE=M053R02;LINKAGE=BI  
NODE=M053R02;LINKAGE=BR

NODE=M053R01;LINKAGE=B

### $\psi(3770)$ REFERENCES

NODE=M053

YOUR PAPER

ABLIKIM	16B	PL B753 103	M. Ablikim <i>et al.</i>	(BES III Collab.)
ABLIKIM	15J	PR D91 092009	M. Ablikim <i>et al.</i>	(BES III Collab.)
ABLIKIM	14H	PR D89 112005	M. Ablikim <i>et al.</i>	(BES III Collab.)
ADAM	06	PRL 96 082004	N.E. Adam <i>et al.</i>	(CLEO Collab.)
BRIERE	06	PR D74 031106	R.A. Briere <i>et al.</i>	(CLEO Collab.)
COAN	06A	PRL 96 182002	T.E. Coan <i>et al.</i>	(CLEO Collab.)
HE	05	PRL 95 121801	Q. He <i>et al.</i>	(CLEO Collab.)
Also		PRL 96 199903 (errata.)	Q. He <i>et al.</i>	(CLEO Collab.)
ATHAR	04	PR D70 112002	S.B. Athar <i>et al.</i>	(CLEO Collab.)
PDG	04	PL B592 1	S. Eidelman <i>et al.</i>	(PDG Collab.)

REFID=57126  
REFID=56775  
REFID=55899  
REFID=50989  
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REFID=51155  
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REFID=51211  
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