

Reference = PAKHLOVA 08B; PRL 101 172001
Verifier code = BELLE

PLEASE READ NOW

*PLEASE
REPLY
WITHIN
ONE WEEK*

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.

Karim Trabelsi

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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,

Simon Eidelman
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RU-630090 Novosibirsk
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$c\bar{c}$ MESONS

$X(4660)$

$$J^{PC} = ?(1^{--})$$

Seen in radiative return from e^+e^- collisions at $\sqrt{s} = 9.54\text{--}10.58$ GeV by WANG 07D. Also obtained in a combined fit of WANG 07D, AUBERT 07S, and LEES 14F. See also the review under the $X(3872)$ particle listings. (See the index for the page number.)

$X(4660)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
4643± 9 OUR AVERAGE		Error includes scale factor of 1.2.		
4652±10±11	279	¹ WANG	15A BELL	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
4669±21± 3	37	² LEES	14F BABR	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
4634 ⁺ _− ⁸ _− ⁵ _− ⁸	142	³ PAKHLOVA	08B BELL	$e^+e^- \rightarrow \Lambda_c^+\Lambda_c^-$

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

4661 ⁺ _− ⁹ _− ⁸ ± 6	44	⁴ LIU	08H RVUE	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
4664±11± 5	44	WANG	07D BELL	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$

- 1 From a two-resonance fit. Supersedes WANG 07D.

2 From a two-resonance fit.

3 The $\pi^+\pi^-\psi(2S)$ and $\Lambda_c^+\Lambda_c^-$ states are not necessarily the same.

4 From a combined fit of AUBERT 07S and WANG 07D data with two resonances.

$X(4660)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
72±11 OUR AVERAGE				
68±11± 5	279	¹ WANG	15A BELL	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
104±48±10	37	² LEES	14F BABR	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
92 ⁺ _− ⁴⁰ _− ¹⁰ _− ²⁴ _− ¹⁰ _− ²¹	142	³ PAKHLOVA	08B BELL	$e^+e^- \rightarrow \Lambda_c^+\Lambda_c^-$

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

42 ⁺ _− ¹⁷ _− ¹² ± 6	44	⁴ LIU	08H RVUE	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
48±15± 3	44	WANG	07D BELL	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$

- 1 From a two-resonance fit. Supersedes WANG 07D.

2 From a two-resonance fit.

3 The $\pi^+\pi^-\psi(2S)$ and $\Lambda_c^+\Lambda_c^-$ states are not necessarily the same.

4 From a combined fit of AUBERT 07S and WANG 07D data with two resonances.

$X(4660)$ BRANCHING RATIOS

$\Gamma(\Lambda_c^+\Lambda_c^-)/\Gamma_{\text{total}} \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$				$\Gamma_7/\Gamma \times \Gamma_1/\Gamma$
VALUE (units 10 ^{−6})	EVTS	DOCUMENT ID	TECN	COMMENT
0.68⁺_−^{0.16}_−^{0.29} 0.15[−]_−^{0.30}	142	¹ PAKHLOVA	08B BELL	$e^+e^- \rightarrow \Lambda_c^+\Lambda_c^-$

- 1 The $\pi^+\pi^-\psi(2S)$ and $\Lambda_c^+\Lambda_c^-$ states are not necessarily the same.

$X(4660)$ REFERENCES

WANG	15A	PR D91 112007	X.L. Wang <i>et al.</i>	(BELLE Collab.)
LEES	14F	PR D89 111103	J.P. Lees <i>et al.</i>	(BABAR Collab.)
LIU	08H	PR D78 014032	Z.Q. Liu, X.S. Qin, C.Z. Yuan	
PAKHLOVA	08B	PRL 101 172001	C. Pakhlova <i>et al.</i>	(BELLE Collab.)
AUBERT	07S	PRL 98 212001	B. Aubert <i>et al.</i>	(BABAR Collab.)
WANG	07D	PRL 99 142002	X.L. Wang <i>et al.</i>	(BELLE Collab.)

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NODE=M189

NODE=M189M

NODE=M189M

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NODE=M189M;LINKAGE=LE
NODE=M189M;LINKAGE=PA
NODE=M189M;LINKAGE=LI

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NODE=M189W

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NODE=M189

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REFID=52596
REFID=51724
REFID=51959

YOUR DATA

YOUR NOTE

YOUR PAPER