

# X(3900)<sup>±</sup>

$$I(J^P) = ?(1^+)$$

Seen as a peak in the invariant mass distribution of the  $J/\psi\pi^\pm$  system by BES3 (ABLIKIM 13T) in  $e^+e^- \rightarrow \pi^+\pi^- J/\psi$  at c.m. energy of 4.42 GeV and by radiative return from  $e^+e^-$  collisions at  $\sqrt{s}$  from 9.46 to 10.86 GeV at BELLE (LIU 13B). Angular analysis of ABLIKIM 14A favors the  $J^P = 1^+$  assignment. Needs confirmation.

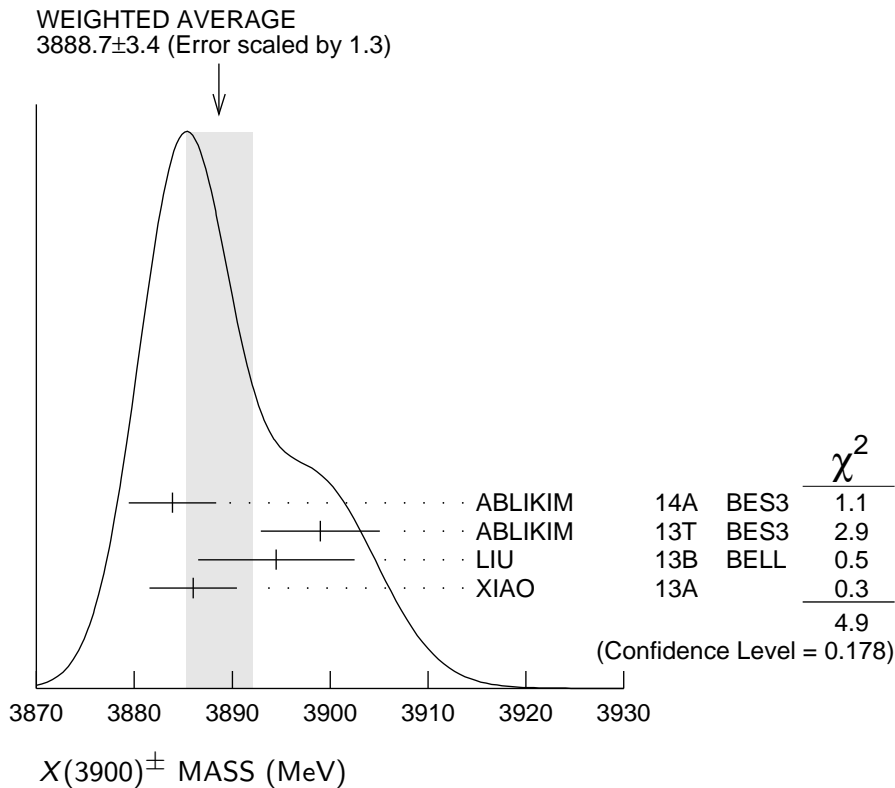
## X(3900)<sup>±</sup> MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>3888.7±3.4 OUR AVERAGE</b>		Error includes scale factor of 1.3. See the ideogram below.		
3883.9±1.5±4.2	1.2k	<sup>1,2</sup> ABLIKIM 14A	BES3	$e^+e^- \rightarrow \pi^\pm (D\bar{D}^*)^\mp$
3899.0±3.6±4.9	307 ± 48	<sup>1</sup> ABLIKIM 13T	BES3	$e^+e^- \rightarrow \pi^+\pi^- J/\psi$
3894.5±6.6±4.5	159 ± 49	<sup>1</sup> LIU 13B	BELL	$e^+e^- \rightarrow \gamma\pi^+\pi^- J/\psi$
3886 ±4 ±2	81 ± 16	<sup>3</sup> XIAO 13A		4.17 $e^+e^- \rightarrow \pi^+\pi^- J/\psi$

<sup>1</sup> Neglecting interference between the X(3900) and non-resonant continuum.

<sup>2</sup> With estimated statistical significance of more than 18  $\sigma$ .

<sup>3</sup> For  $M^2(\pi^+\pi^-) < 0.65 \text{ GeV}^2$ . Signal has 5.7 $\sigma$  significance including systematic uncertainties. Obtained by analyzing CLEO-c data but not authored by the CLEO Collaboration.



## $X(3900)^\pm$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>35 ± 7</b>	<b>OUR AVERAGE</b>			
24.8 ± 3.3 ± 11.0	1.2k	<sup>1,2</sup> ABLIKIM	14A BES3	$e^+e^- \rightarrow \pi^\pm (D\bar{D}^*)^\mp$
46 ± 10 ± 20	307 ± 48	<sup>1</sup> ABLIKIM	13T BES3	$e^+e^- \rightarrow \pi^+\pi^- J/\psi$
63 ± 24 ± 26	159 ± 49	<sup>1</sup> LIU	13B BELL	$e^+e^- \rightarrow \gamma\pi^+\pi^- J/\psi$
37 ± 4 ± 8	81 ± 16	<sup>3</sup> XIAO	13A	4.17 $e^+e^- \rightarrow \pi^+\pi^- J/\psi$

<sup>1</sup> Neglecting interference between the  $X(3900)$  and non-resonant continuum.

<sup>2</sup> With estimated statistical significance of more than 18  $\sigma$ .

<sup>3</sup> For  $M^2(\pi^+\pi^-) < 0.65 \text{ GeV}^2$ . Signal has 5.7 $\sigma$  significance including systematic uncertainties. Obtained by analyzing CLEO-c data but not authored by the CLEO Collaboration.

## $X(3900)^\pm$ DECAY MODES

Mode	Fraction ( $\Gamma_j/\Gamma$ )
$\Gamma_1$ $J/\psi\pi^\pm$	seen
$\Gamma_2$ $h_c\pi^\pm$	not seen
$\Gamma_3$ $(D\bar{D}^*)^\pm$	seen

## $X(3900)^\pm$ BRANCHING RATIOS

$\Gamma(J/\psi\pi^\pm)/\Gamma_{\text{total}}$	$\Gamma_1/\Gamma$			
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
<b>seen</b>	307 ± 48	ABLIKIM	13T BES3	$e^+e^- \rightarrow \pi^+\pi^- J/\psi$

$\Gamma(h_c\pi^\pm)/\Gamma_{\text{total}}$	$\Gamma_2/\Gamma$		
VALUE	DOCUMENT ID	TECN	COMMENT
<b>not seen</b>	ABLIKIM	13X BES3	$e^+e^- \rightarrow h_c\pi^\pm$

$\Gamma((D\bar{D}^*)^\pm)/\Gamma(J/\psi\pi^\pm)$	$\Gamma_3/\Gamma_1$			
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
<b>6.2 ± 1.1 ± 2.7</b>	1.2k	<sup>1</sup> ABLIKIM	14A BES3	$e^+e^- \rightarrow \pi^\pm (D\bar{D}^*)^\mp$

<sup>1</sup> Assuming the same origin of the  $(D\bar{D}^*)^\pm$  and  $\pi^\pm J/\psi$  decay modes.

## $X(3900)^\pm$ REFERENCES

ABLIKIM	14A	PRL 112 022001	M. Ablikim <i>et al.</i>	(BES III Collab.) JP
ABLIKIM	13T	PRL 110 252001	M. Ablikim <i>et al.</i>	(BES III Collab.)
ABLIKIM	13X	PRL 111 242001	M. Ablikim <i>et al.</i>	(BES III Collab.)
LIU	13B	PRL 110 252002	Z.Q. Liu <i>et al.</i>	(BELLE Collab.)
XIAO	13A	PL B727 366	T. Xiao <i>et al.</i>	(NWES)