$X(4660)$

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

OMITTED FROM SUMMARY TABLE

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

$X(4660)$ MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
4664±11±5	WANG	07D	BELL	10.58 $e^+e^- \rightarrow \psi(2S)\pi^+\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$4661^{+\ 9}_{-\ 8}\pm 6$	[1] LIU	08H	RVUE	10.58 $e^+e^- \rightarrow \psi(2S)\pi^+\pi^-\gamma$

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

$X(4660)$ WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
48±15±3	WANG	07D	BELL	10.58 $e^+e^- \rightarrow \psi(2S)\pi^+\pi^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$42^{+17}_{-12}\pm 6$	[2] LIU	08H	RVUE	10.58 $e^+e^- \rightarrow \psi(2S)\pi^+\pi^-\gamma$

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

$X(4660)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	e^+e^-	
Γ_2	$\psi(2S)\pi^+\pi^-$	seen
Γ_3	$D^0 D^{*-}\pi^+$	

$X(4660)$ $\Gamma(i)\Gamma(e^+e^-)/\Gamma(\text{total})$

$\Gamma(\psi(2S)\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\qquad\qquad\qquad$ $\Gamma_2\Gamma_1/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$2.2^{+0.7}_{-0.6}$	[3] LIU	08H	RVUE	10.58 $e^+e^- \rightarrow \psi(2S)\pi^+\pi^-\gamma$
5.9 ± 1.6	[4] LIU	08H	RVUE	10.58 $e^+e^- \rightarrow \psi(2S)\pi^+\pi^-\gamma$
$3.0\pm 0.9\pm 0.3$	[5] WANG	07D	BELL	10.58 $e^+e^- \rightarrow \psi(2S)\pi^+\pi^-\gamma$
$7.6\pm 1.8\pm 0.8$	[6] WANG	07D	BELL	10.58 $e^+e^- \rightarrow \psi(2S)\pi^+\pi^-\gamma$

[3] Solution I in a combined fit of AUBERT 07S and WANG 07D data with two resonances.
[4] Solution II in a combined fit of AUBERT 07S and WANG 07D data with two resonances.
[5] Solution I of two equivalent solutions in a fit using two interfering resonances.
[6] Solution II of two equivalent solutions in a fit using two interfering resonances.

X(4660) BRANCHING RATIOS

$\Gamma\left(D^0 D^{*-} \pi^+\right)/\Gamma\left(\psi(2S)\pi^+\pi^-\right)$ $\qquad$ Γ_3/Γ_2

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<10	90	PAKHLOVA 09	BELL	$e^+ e^- \to X(4660) \to$ $D^0 D^{*-} \pi^+$

$\Gamma\left(D^0 D^{*-} \pi^+\right)/\Gamma_{\textbf{total}} \times \Gamma\left(e^+ e^-\right)/\Gamma_{\textbf{total}}$ $\qquad$ $\Gamma_3/\Gamma \times \Gamma_1/\Gamma$

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.37 × 10^{-6}	90	[7] PAKHLOVA 09	BELL	$e^+ e^- \to X(4660) \to$ $D^0 D^{*-} \pi^+$

[7] Using $4664 \pm 11 \pm 5$ MeV for the mass of $X(4660)$.

X(4660) REFERENCES

PAKHLOVA	09	PR D80 091101R	G. Pakhlova *et al.*	(BELLE Collab.)
LIU	08H	PR D78 014032	Z.Q. Liu, X.S. Qin, C.Z. Yuan	
AUBERT	07S	PRL 98 212001	B. Aubert *et al.*	(BABAR Collab.)
WANG	07D	PRL 99 142002	X.L. Wang *et al.*	(BELLE Collab.)