

$\chi_{c2}(3930)$

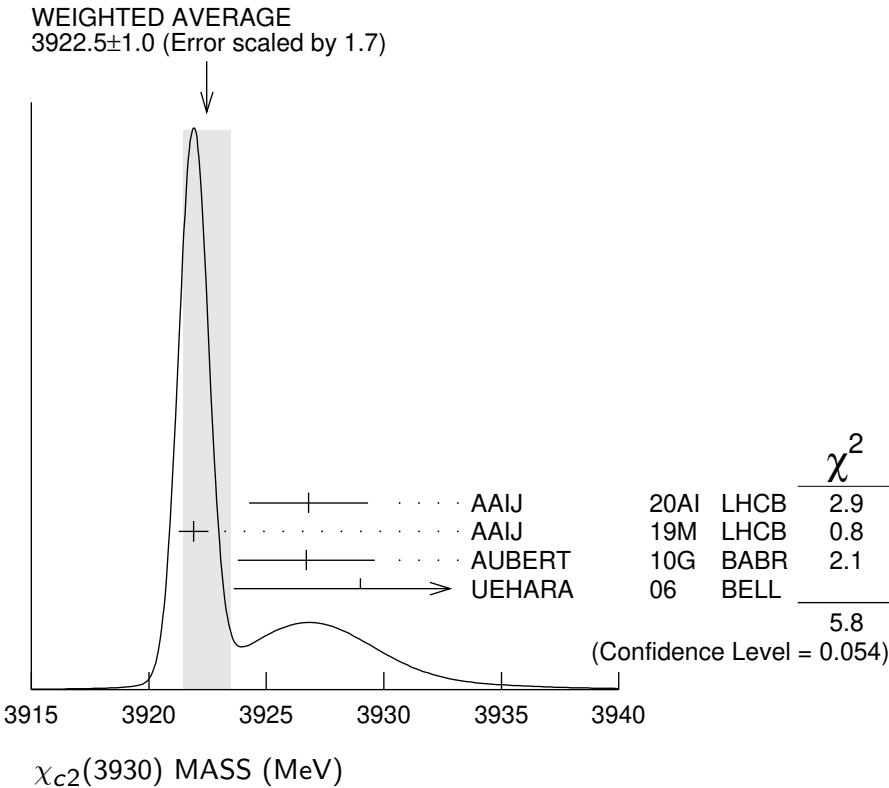
$$J^{PC} = 0^{+}(2^{++})$$

$\chi_{c2}(3930)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
3922.5±1.0 OUR AVERAGE		Error includes scale factor of 1.7. See the ideogram below.		
3926.8±2.4±0.8	1.2k	¹ AAIJ	20AI LHCb	$B^+ \rightarrow D^+ D^- K^+$
3921.9±0.6±0.2		² AAIJ	19M LHCb	$pp \rightarrow D\bar{D} + \text{anything}$
3926.7±2.7±1.1	76 ± 17	AUBERT	10G BABR	10.6 $e^+e^- \rightarrow e^+e^- D\bar{D}$
3929 ±5 ±2	64	UEHARA	06 BELL	10.6 $e^+e^- \rightarrow e^+e^- D\bar{D}$

¹ Obtained from the full amplitude analysis. Parameterized with the relativistic Breit-Wigner line shape. Previous measurements assumed a single state in this region. This analysis revealed the presence of $\chi_{c0}(3930)$ with the same mass.

² Measured in prompt hadroproduction.



$\chi_{c2}(3930)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
35.2± 2.2 OUR AVERAGE		Error includes scale factor of 1.2.		
34.2± 6.6±1.1	1.2k	¹ AAIJ	20AI LHCb	$B^+ \rightarrow D^+ D^- K^+$
36.6± 1.9±0.9		² AAIJ	19M LHCb	$pp \rightarrow D\bar{D} + \text{anything}$
21.3± 6.8±3.6	76 ± 17	AUBERT	10G BABR	10.6 $e^+e^- \rightarrow e^+e^- D\bar{D}$
29 ±10 ±2	64	UEHARA	06 BELL	10.6 $e^+e^- \rightarrow e^+e^- D\bar{D}$

¹Obtained from the full amplitude analysis. Parameterized with the relativistic Breit-Wigner line shape. Previous measurements assumed a single state in this region. This analysis revealed the presence of $\chi_{c0}(3930)$ with the same mass.

²Measured in prompt hadroproduction.

$\chi_{c2}(3930)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \gamma\gamma$	seen
$\Gamma_2 \quad K\bar{K}\pi$	not seen
$\Gamma_3 \quad K^+K^-\pi^+\pi^-\pi^0$	not seen
$\Gamma_4 \quad D\bar{D}$	seen
$\Gamma_5 \quad D^+D^-$	seen
$\Gamma_6 \quad D^0\bar{D}^0$	seen
$\Gamma_7 \quad \pi^+\pi^-\eta_c(1S)$	not seen
$\Gamma_8 \quad K\bar{K}$	not seen

$\chi_{c2}(3930)$ PARTIAL WIDTHS

$\chi_{c2}(3930) \Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(K\bar{K}\pi) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$		$\Gamma_2\Gamma_1/\Gamma$		
VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
<2.1	90	DEL-AMO-SA...11M	BABR	$\gamma\gamma \rightarrow K_S^0 K^\pm \pi^\mp$

$\Gamma(K^+K^-\pi^+\pi^-\pi^0) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$		$\Gamma_3\Gamma_1/\Gamma$		
VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
<3.4	90	DEL-AMO-SA...11M	BABR	$\gamma\gamma \rightarrow K^+K^-\pi^+\pi^-\pi^0$

$\Gamma(D\bar{D}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$		$\Gamma_4\Gamma_1/\Gamma$		
VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.21±0.04 OUR AVERAGE				
0.24±0.05±0.04	76 ± 17	AUBERT	10G	BABR 10.6 $e^+e^- \rightarrow e^+e^- D\bar{D}$
0.18±0.05±0.03	64	¹ UEHARA	06	BELL 10.6 $e^+e^- \rightarrow e^+e^- D\bar{D}$

¹ Assuming $B(D^+D^-) = 0.89 B(D^0\bar{D}^0)$.

$\Gamma(\pi^+\pi^-\eta_c(1S)) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$		$\Gamma_7\Gamma_1/\Gamma$		
VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
<18	90	LEES	12AE	BABR $e^+e^- \rightarrow e^+e^-\pi^+\pi^-\eta_c$

$\Gamma(K\bar{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$		$\Gamma_8\Gamma_1/\Gamma$		
VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
<0.256	90	UEHARA	13	BELL $\gamma\gamma \rightarrow K_S^0 K_S^0$

$\chi_{c2}(3930)$ BRANCHING RATIOS

$\Gamma(D^+ D^-)/\Gamma(D^0 \overline{D}^0)$						Γ_5/Γ_6
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT		
$0.74 \pm 0.43 \pm 0.16$	64	UEHARA	06	BELL	$10.6\ e^+e^- \rightarrow e^+e^- D\overline{D}$	

$\chi_{c2}(3930)$ REFERENCES

AAIJ	20AI	PR D102 112003	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ	19M	JHEP 1907 035	R. Aaij <i>et al.</i>	(LHCb Collab.)
UEHARA	13	PTEP 2013 123C01	S. Uehara <i>et al.</i>	(BELLE Collab.)
LEES	12AE	PR D86 092005	J.P. Lees <i>et al.</i>	(BABAR Collab.)
DEL-AMO-SA...	11M	PR D84 012004	P. del Amo Sanchez <i>et al.</i>	(BABAR Collab.)
AUBERT	10G	PR D81 092003	B. Aubert <i>et al.</i>	(BABAR Collab.)
UEHARA	06	PRL 96 082003	S. Uehara <i>et al.</i>	(BELLE Collab.)