

$\chi_{c2}(3930)$

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

NODE=M050

 $\chi_{c2}(3930)$ MASS

NODE=M050M

NODE=M050M

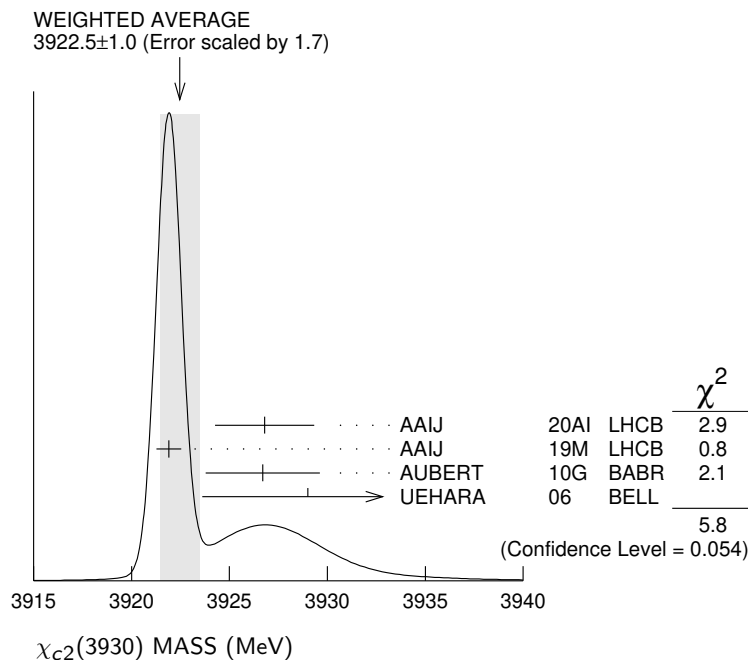
VALUE (MeV)	EVTs	DOCUMENT ID	TECN	COMMENT
3922.5±1.0 OUR AVERAGE		Error includes scale factor of 1.7. See the ideogram below.		
3926.8±2.4±0.8	1.2k	¹ AAIJ	20AI LHCb	$B^+ \rightarrow D^+ D^- K^+$
3921.9±0.6±0.2		² AAIJ	19M LHCb	$pp \rightarrow D\bar{D} + \text{anything}$
3926.7±2.7±1.1	76 ± 17	AUBERT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

NODE=M050M;LINKAGE=B

NODE=M050M;LINKAGE=A

 $\chi_{c2}(3930)$ WIDTH

NODE=M050W

NODE=M050W

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 $e^+e^- \rightarrow e^+e^- D\bar{D}$

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.

NODE=M050W;LINKAGE=B

NODE=M050W;LINKAGE=A

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

NODE=M050215;NODE=M050

Mode	Fraction (Γ_i/Γ)
Γ_1 $\gamma\gamma$	seen
Γ_2 $K\bar{K}\pi$	not seen
Γ_3 $K^+K^-\pi^+\pi^-\pi^0$	not seen
Γ_4 $D\bar{D}$	seen
Γ_5 D^+D^-	seen
Γ_6 $D^0\bar{D}^0$	seen
Γ_7 $\pi^+\pi^-\eta_c(1S)$	not seen
Γ_8 $K\bar{K}$	not seen

DESIG=1;OUR EVAL;→ UNCHECKED ←
 DESIG=5;OUR EVAL;→ UNCHECKED ←
 DESIG=6;OUR EVAL;→ UNCHECKED ←
 DESIG=2;OUR EVAL;→ UNCHECKED ←
 DESIG=3;OUR EVAL;→ UNCHECKED ←
 DESIG=4;OUR EVAL;→ UNCHECKED ←
 DESIG=7;OUR EVAL;→ UNCHECKED ←
 DESIG=8;OUR EVAL;→ UNCHECKED ←

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

NODE=M050220

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

NODE=M050222

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

NODE=M050G01
NODE=M050G01

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

NODE=M050G02
NODE=M050G02

$\Gamma(D\bar{D}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$		$\Gamma_4\Gamma_1/\Gamma$		
VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.21±0.04 OUR AVERAGE				

NODE=M050G1
NODE=M050G1

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

NODE=M050G1;LINKAGE=UE

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

NODE=M050G03
NODE=M050G03

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

NODE=M050G04
NODE=M050G04 $\chi_{c2}(3930)$ BRANCHING RATIOS

NODE=M050225

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

NODE=M050R01
NODE=M050R01 $\chi_{c2}(3930)$ REFERENCES

NODE=M050

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.)

REFID=60739
REFID=59697
REFID=55592
REFID=54752
REFID=16751
REFID=53357
REFID=51039