

$\chi_{c2}(2P)$

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

$\chi_{c2}(2P)$ MASS

| <u>VALUE (MeV)</u> | <u>EVTS</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |
|---------------------------------|-------------|--------------------|-------------|---|
| 3927.2 ± 2.6 OUR AVERAGE | | | | |
| 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 $e^+e^- \rightarrow e^+e^- D\bar{D}$ |

$\chi_{c2}(2P)$ WIDTH

| <u>VALUE (MeV)</u> | <u>EVTS</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |
|---------------------------|-------------|--------------------|-------------|---|
| 24 ± 6 OUR AVERAGE | | | | |
| 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 $e^+e^- \rightarrow e^+e^- D\bar{D}$ |

$\chi_{c2}(2P)$ DECAY MODES

| Mode | Fraction (Γ_i/Γ) |
|------------------------------------|--------------------------------|
| Γ_1 $\gamma\gamma$ | seen |
| Γ_2 $K\bar{K}\pi$ | |
| Γ_3 $K^+K^-\pi^+\pi^-\pi^0$ | |
| 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 |

$\chi_{c2}(2P)$ PARTIAL WIDTHS

———— $\chi_{c2}(2P) \Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$ ————

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

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

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

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

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

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

$\chi_{c2}(2P)$ BRANCHING RATIOS

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

$\chi_{c2}(2P)$ REFERENCES

| | | | | |
|---------------|------|------------------|----------------------------------|-----------------|
| 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.) |