$$D^*_{s0}(2317)^\pm$$

$I(J^P) = 0(0^+)$
$J$, $P$ need confirmation.

AUBERT 06P does not observe neutral and doubly charged partners of the $D^*_{s0}(2317)^+$.

## $D^*_{s0}(2317)^\pm$ MASS

The fit includes $D^\pm$, $D^0$, $D^\pm_s$, $D^{*\pm}$, $D^{*0}$, $D^{*\pm}_s$, $D_1(2420)^0$, $D^*_2(2460)^0$, and $D_{s1}(2536)^\pm$ mass and mass difference measurements.

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|---|---|---|---|
| **2317.8±0.6 OUR FIT** | Error includes scale factor of 1.1. | | | |
| **2318.0±1.0 OUR AVERAGE** | Error includes scale factor of 1.4. | | | |
| 2319.6±0.2±1.4 | 3180 | AUBERT | 06P BABR | 10.6 $e^+e^- \to D^+_s \pi^0 X$ |
| 2317.3±0.4±0.8 | 1022 | [1] AUBERT | 04E BABR | 10.6 $e^+e^-$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 2317.2±1.3 | 88 | [2] AUBERT,B | 04S BABR | $B \to D^{(*)}_{s0}(2317)^+ \overline{D}^{(*)}$ |
| 2317.2±0.5±0.9 | 761 | [3] MIKAMI | 04 BELL | 10.6 $e^+e^-$ |
| 2316.8±0.4±3.0 | 1267 ± 53 | [3,4] AUBERT | 03G BABR | 10.6 $e^+e^-$ |
| 2317.6±1.3 | 273 ± 33 | [3,5] AUBERT | 03G BABR | 10.6 $e^+e^-$ |
| 2319.8±2.1±2.0 | 24 | [3] KROKOVNY | 03B BELL | 10.6 $e^+e^-$ |

[1] Supersedes AUBERT 03G.
[2] Systematic errors not evaluated.
[3] Not independent of the corresponding $m_{D^*_{s0}(2317)} - m_{D_s}$.

[4] From $D^+_s \to K^+K^-\pi^+$ decay.
[5] From $D^+_s \to K^+K^-\pi^+\pi^0$ decay.

## $m_{D^*_{s0}(2317)^\pm} - m_{D^\pm_s}$

The fit includes $D^\pm$, $D^0$, $D^\pm_s$, $D^{*\pm}$, $D^{*0}$, $D^{*\pm}_s$, $D_1(2420)^0$, $D^*_2(2460)^0$, and $D_{s1}(2536)^\pm$ mass and mass difference measurements.

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|---|---|---|---|
| **349.3±0.6 OUR FIT** | Error includes scale factor of 1.1. | | | |
| **349.2±0.7 OUR AVERAGE** | | | | |
| 348.7±0.5±0.7 | 761 | MIKAMI | 04 BELL | 10.6 $e^+e^-$ |
| 350.0±1.2±1.0 | 135 | BESSON | 03 CLE2 | 10.6 $e^+e^-$ |
| 351.3±2.1±1.9 | 24 | [6] KROKOVNY | 03B BELL | 10.6 $e^+e^-$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 349.6±0.4±3.0 | 1267 | [7,8] AUBERT | 03G BABR | 10.6 $e^+e^-$ |
| 350.2±1.3 | 273 | [9,10] AUBERT | 03G BABR | 10.6 $e^+e^-$ |

[6] Recalculated by us using $m_{D_s^+} = 1968.5 \pm 0.6$ MeV.

[7] From $D_s^+ \to K^+ K^- \pi^+$ decay.

[8] Recalculated by us using $m_{D_s^+} = 1967.20 \pm 0.03$ MeV.

[9] From $D_s^+ \to K^+ K^- \pi^+ \pi^0$ decay.

[10] Recalculated by us using $m_{D_s^+} = 1967.4 \pm 0.2$ MeV. Systematic errors not estimated.

## $D_{s0}^*(2317)^\pm$ WIDTH

| VALUE (MeV) | CL% | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|---|
| **< 3.8** | 95 | 3180 | AUBERT | 06P | BABR | 10.6 $e^+ e^- \to D_s^+ \pi^0 X$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | | |
| < 4.6 | 90 | 761 | MIKAMI | 04 | BELL | 10.6 $e^+ e^-$ |
| <10 | | | AUBERT | 03G | BABR | 10.6 $e^+ e^-$ |
| < 7 | 90 | 135 | BESSON | 03 | CLE2 | 10.6 $e^+ e^-$ |

## $D_{s0}^*(2317)^\pm$ DECAY MODES

$D_{s0}^*(2317)^-$ modes are charge conjugates of modes below.

| | Mode | Fraction ($\Gamma_i/\Gamma$) |
|---|---|---|
| $\Gamma_1$ | $D_s^+ \pi^0$ | seen |
| $\Gamma_2$ | $D_s^+ \gamma$ | |
| $\Gamma_3$ | $D_s^*(2112)^+ \gamma$ | |
| $\Gamma_4$ | $D_s^+ \gamma \gamma$ | |
| $\Gamma_5$ | $D_s^*(2112)^+ \pi^0$ | |
| $\Gamma_6$ | $D_s^+ \pi^+ \pi^-$ | |
| $\Gamma_7$ | $D_s^+ \pi^0 \pi^0$ | not seen |

## $D_{s0}^*(2317)^\pm$ BRANCHING RATIOS

$\Gamma(D_s^+ \pi^0)/\Gamma_{\text{total}}$      $\Gamma_1/\Gamma$

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **seen** | $1540 \pm 62$ | AUBERT | 03G | BABR | 10.6 $e^+ e^-$ |

$\Gamma(D_s^+ \gamma)/\Gamma(D_s^+ \pi^0)$      $\Gamma_2/\Gamma_1$

| VALUE | CL% | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **<0.05** | 90 | MIKAMI | 04 | BELL | 10.6 $e^+ e^-$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| <0.14 | 95 | AUBERT | 06P | BABR | 10.6 $e^+ e^-$ |
| <0.052 | 90 | BESSON | 03 | CLE2 | 10.6 $e^+ e^-$ |

## $\Gamma(D_s^*(2112)^+ \gamma)/\Gamma(D_s^+ \pi^0)$      $\Gamma_3/\Gamma_1$

| VALUE | CL% | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **<0.059** | 90 | BESSON | 03 | CLE2 | 10.6 $e^+ e^-$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| <0.16 | 95 | AUBERT | 06P | BABR | 10.6 $e^+ e^-$ |
| <0.18 | 90 | MIKAMI | 04 | BELL | 10.6 $e^+ e^-$ |

## $\Gamma(D_s^+ \gamma\gamma)/\Gamma(D_s^+ \pi^0)$      $\Gamma_4/\Gamma_1$

| VALUE | CL% | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **<0.18** | 95 | AUBERT | 06P | BABR | 10.6 $e^+ e^-$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| not seen | | AUBERT | 03G | BABR | 10.6 $e^+ e^-$ |

## $\Gamma(D_s^*(2112)^+ \pi^0)/\Gamma(D_s^+ \pi^0)$      $\Gamma_5/\Gamma_1$

| VALUE | CL% | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **<0.11** | 90 | BESSON | 03 | CLE2 | 10.6 $e^+ e^-$ |

## $\Gamma(D_s^+ \pi^+ \pi^-)/\Gamma(D_s^+ \pi^0)$      $\Gamma_6/\Gamma_1$

| VALUE | CL% | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **<0.004** | 90 | MIKAMI | 04 | BELL | 10.6 $e^+ e^-$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| <0.005 | 95 | AUBERT | 06P | BABR | 10.6 $e^+ e^-$ |
| <0.019 | 90 | BESSON | 03 | CLE2 | 10.6 $e^+ e^-$ |

## $\Gamma(D_s^+ \pi^0 \pi^0)/\Gamma(D_s^+ \pi^0)$      $\Gamma_7/\Gamma_1$

| VALUE | CL% | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **<0.25** | 95 | AUBERT | 06P | BABR | 10.6 $e^+ e^-$ |

## $D_{s0}^*(2317)^\pm$ REFERENCES

| AUBERT | 06P | PR D74 032007 | B. Aubert *et al.* | (BABAR Collab.) |
|---|---|---|---|---|
| AUBERT | 04E | PR D69 031101R | B. Aubert *et al.* | (BABAR Collab.) |
| AUBERT,B | 04S | PRL 93 181801 | B. Aubert *et al.* | (BABAR Collab.) |
| MIKAMI | 04 | PRL 92 012002 | Y. Mikami *et al.* | (BELLE Collab.) |
| AUBERT | 03G | PRL 90 242001 | B. Aubert *et al.* | (BaBar Collab.) |
| BESSON | 03 | PR D68 032002 | D. Besson *et al.* | (CLEO Collab.) |
| KROKOVNY | 03B | PRL 91 262002 | P. Krokovny *et al.* | (BELLE Collab.) |