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

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

$J^P$ is natural, low mass and decay angular distribution consistent with $0^+$.

## $D_{sJ}^*(2317)^\pm$ MASS

| VALUE (MeV) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **2317.4±0.9 OUR FIT** Error includes scale factor of 1.1. | | | | | |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 2317.2±0.5±0.9 | 761 | [1] MIKAMI | 04 | BELL | 10.6 $e^+e^-$ |
| 2316.8±0.4±3.0 | 1267±53 | [1,2] AUBERT | 03G | BABR | 10.6 $e^+e^-$ |
| 2317.6±1.3 | 273±33 | [1,3] AUBERT | 03G | BABR | 10.6 $e^+e^-$ |
| 2319.8±2.1±2.0 | 24 | [1] KROKOVNY | 03B | BELL | 10.6 $e^+e^-$ |

[1] Not independent of the corresponding $m_{D_{sJ}^*(2317)} - m_{D_s}$.
[2] From $D_s^+ \to K^+K^-\pi^+$ decay.
[3] From $D_s^+ \to K^+K^-\pi^+\pi^0$ decay.

## $m_{D_{sJ}^*(2317)^\pm} - m_{D_s^\pm}$

| VALUE (MeV) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **349.2±0.7 OUR FIT** | | | | | |
| **349.2±0.7 OUR AVERAGE** | | | | | |
| 348.7±0.5±0.7 | 761 | MIKAMI | 04 | BELL | 10.6 $e^+e^-$ |
| 349.6±0.4±3.0 | 1267 | [4,5] AUBERT | 03G | BABR | 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. • • • | | | | | |
| 350.2±1.3 | 273 | [7,8] AUBERT | 03G | BABR | 10.6 $e^+e^-$ |

[4] From $D_s^+ \to K^+K^-\pi^+$ decay.
[5] Recalculated by us using $m_{D_s^+} = 1967.20 \pm 0.03$ MeV.
[6] Recalculated by us using $m_{D_s^+} = 1968.5 \pm 0.6$ MeV.
[7] From $D_s^+ \to K^+K^-\pi^+\pi^0$ decay.
[8] Recalculated by us using $m_{D_s^+} = 1967.4 \pm 0.2$ MeV. Systematic errors not estimated.

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

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

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

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

| | Mode |
|---|---|
| $\Gamma_1$ | $D_s^+ \pi^0$ |
| $\Gamma_2$ | $D_s^+ \gamma$ |
| $\Gamma_3$ | $D_s^*(2112)^+ \gamma$ |
| $\Gamma_4$ | $D_s^+ \gamma\gamma$ |
| $\Gamma_5$ | $D_s^*(2112)^+ \pi^0$ |
| $\Gamma_6$ | $D_s^+ \pi^+ \pi^-$ |

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

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

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| seen | 1540 ± 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. • • • | | | | | |
| <0.052 | 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. • • • | | | | | |
| <0.18 | 90 | MIKAMI | 04 | BELL | 10.6 $e^+ e^-$ |

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

| VALUE | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| • • • 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. • • • | | | | | |
| <0.019 | 90 | BESSON | 03 | CLE2 | 10.6 $e^+ e^-$ |

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


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


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