

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

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

AUBERT 06P does not observe neutral and doubly charged partners of the  $D_{s0}^*(2317)^\pm$ .

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

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

<sup>1</sup> Supersedes AUBERT 03G.

<sup>2</sup> Systematic errors not evaluated.

<sup>3</sup> Not independent of the corresponding  $m_{D_{s0}^*(2317)} - m_{D_s}$ .

<sup>4</sup> From  $D_s^+ \rightarrow K^+ K^- \pi^+$  decay.

<sup>5</sup> From  $D_s^+ \rightarrow K^+ K^- \pi^+ \pi^0$  decay.

### $m_{D_{s0}^*(2317)^\pm} - m_{D_s^\pm}$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>349.3±0.6 OUR FIT</b>	Error	includes scale factor of 1.1.		
<b>349.2±0.7 OUR AVERAGE</b>				
348.7±0.5±0.7	761	MIKAMI	04 BELL	10.6 $e^+e^-$
350.0±1.2±1.0	135	BESSION	03 CLE2	10.6 $e^+e^-$
351.3±2.1±1.9	24	<sup>6</sup> 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	<sup>7,8</sup> AUBERT	03G BABR	10.6 $e^+e^-$
350.2±1.3	273	<sup>9,10</sup> AUBERT	03G BABR	10.6 $e^+e^-$

<sup>6</sup> Recalculated by us using  $m_{D_s^+} = 1968.5 \pm 0.6$  MeV.

<sup>7</sup> From  $D_s^+ \rightarrow K^+ K^- \pi^+$  decay.

<sup>8</sup> Recalculated by us using  $m_{D_s^+} = 1967.20 \pm 0.03$  MeV.

<sup>9</sup> From  $D_s^+ \rightarrow K^+ K^- \pi^+ \pi^0$  decay.

<sup>10</sup> Recalculated by us using  $m_{D_s^+} = 1967.4 \pm 0.2$  MeV. Systematic errors not estimated.

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

<u>VALUE (MeV)</u>	<u>CL%</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
< <b>3.8</b>	95	3180	AUBERT	06P BABR	$10.6 e^+ e^- \rightarrow D_s^+ \pi^0 X$
● ● ● 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	BESSION	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**

$\Gamma(D_s^+ \pi^0)/\Gamma_{\text{total}}$					$\Gamma_1/\Gamma$
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>seen</b>	$1540 \pm 62$	AUBERT	03G BABR	$10.6 e^+ e^-$	

$\Gamma(D_s^+ \gamma)/\Gamma(D_s^+ \pi^0)$					$\Gamma_2/\Gamma_1$
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
< <b>0.05</b>	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	BESSION	03 CLE2	$10.6 e^+ e^-$	

$\Gamma(D_s^*(2112)^+ \gamma)/\Gamma(D_s^+ \pi^0)$					$\Gamma_3/\Gamma_1$
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
< <b>0.059</b>	90	BESSION	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	$10.6 e^+ e^-$	

$\Gamma(D_s^+ \gamma\gamma)/\Gamma(D_s^+ \pi^0)$					$\Gamma_4/\Gamma_1$
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;0.18</b>	95	AUBERT	06P BABR	10.6 e <sup>+</sup> e <sup>-</sup>	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
not seen		AUBERT	03G BABR	10.6 e <sup>+</sup> e <sup>-</sup>	
$\Gamma(D_s^*(2112)^+ \pi^0)/\Gamma(D_s^+ \pi^0)$					$\Gamma_5/\Gamma_1$
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;0.11</b>	90	BESSION	03 CLE2	10.6 e <sup>+</sup> e <sup>-</sup>	
$\Gamma(D_s^+ \pi^+ \pi^-)/\Gamma(D_s^+ \pi^0)$					$\Gamma_6/\Gamma_1$
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;0.004</b>	90	MIKAMI	04 BELL	10.6 e <sup>+</sup> e <sup>-</sup>	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.005	95	AUBERT	06P BABR	10.6 e <sup>+</sup> e <sup>-</sup>	
<0.019	90	BESSION	03 CLE2	10.6 e <sup>+</sup> e <sup>-</sup>	
$\Gamma(D_s^+ \pi^0 \pi^0)/\Gamma(D_s^+ \pi^0)$					$\Gamma_7/\Gamma_1$
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>&lt;0.25</b>	95	AUBERT	06P BABR	10.6 e <sup>+</sup> e <sup>-</sup>	

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

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