



$$I(J^P) = 0(?)^?$$

J^P is natural, width and decay modes consistent with 1^- .

$D_s^{*\pm}$ MASS

The fit includes $D^\pm$, D^0 , $D_s^\pm$, $D^{*\pm}$, D^{*0} , D_s^{*0} , $D_1(2420)^0$, $D_2^*(2460)^0$, and $D_{s1}(2536)^\pm$ mass and mass difference measurements.

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
2112.1 ± 0.4 OUR FIT			
2106.6 ± 2.1 ± 2.7	¹ BLAYLOCK	87	MRK3 $e^+e^- \rightarrow D_s^\pm \gamma X$
¹ Assuming $D_s^\pm$ mass = 1968.7 ± 0.9 MeV.			

$m_{D_s^{*\pm}} - m_{D_s^\pm}$

The fit includes $D^\pm$, D^0 , $D_s^\pm$, $D^{*\pm}$, D^{*0} , D_s^{*0} , $D_1(2420)^0$, $D_2^*(2460)^0$, and $D_{s1}(2536)^\pm$ mass and mass difference measurements.

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
143.8 ± 0.4 OUR FIT				
143.9 ± 0.4 OUR AVERAGE				
143.76 ± 0.39 ± 0.40		GRONBERG	95	CLE2 e^+e^-
144.22 ± 0.47 ± 0.37		BROWN	94	CLE2 e^+e^-
142.5 ± 0.8 ± 1.5		² ALBRECHT	88	ARG $e^+e^- \rightarrow D_s^\pm \gamma X$
139.5 ± 8.3 ± 9.7	60	AIHARA	84D	TPC $e^+e^- \rightarrow$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •				
143.0 ± 18.0	8	ASRATYAN	85	HLBC FNAL 15-ft, ν - ² H
110 ± 46		BRANDELIK	79	DASP $e^+e^- \rightarrow D_s^\pm \gamma X$

² Result includes data of ALBRECHT 84B.

$D_s^{*\pm}$ WIDTH

VALUE (MeV)	CL%	DOCUMENT ID	TECN	COMMENT
< 1.9	90	GRONBERG	95	CLE2 e^+e^-
< 4.5	90	ALBRECHT	88	ARG $E_{\text{cm}}^{ee} = 10.2$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 4.9	90	BROWN	94	CLE2 e^+e^-
< 22	90	BLAYLOCK	87	MRK3 $e^+e^- \rightarrow D_s^\pm \gamma X$

D_s^{*+} DECAY MODES

D_s^{*-} modes are charge conjugates of the modes below.

	Mode	Fraction (Γ_i/Γ)
Γ_1	$D_s^+ \gamma$	$(93.5 \pm 0.7) \%$
Γ_2	$D_s^+ \pi^0$	$(5.8 \pm 0.7) \%$
Γ_3	$D_s^+ e^+ e^-$	$(6.7 \pm 1.6) \times 10^{-3}$

CONSTRAINED FIT INFORMATION

An overall fit to 2 branching ratios uses 3 measurements and one constraint to determine 3 parameters. The overall fit has a $\chi^2 = 0.0$ for 1 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\langle \delta x_i \delta x_j \rangle / (\delta x_i \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i/\Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

x_2		-97	
x_3		-19	-4
		x_1	x_2

 D_s^{*+} BRANCHING RATIOS

$\Gamma(D_s^+ \gamma)/\Gamma_{\text{total}}$				Γ_1/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	

0.935 ± 0.007 OUR FIT

• • • We do not use the following data for averages, fits, limits, etc. • • •

seen	ASRATYAN	91	HLBC	$\bar{\nu}_\mu \text{Ne}$
seen	ALBRECHT	88	ARG	$e^+ e^- \rightarrow D_s^\pm \gamma X$
seen	AIHARA	84D		
seen	ALBRECHT	84B		
seen	BRANDELIK	79		

$\Gamma(D_s^+ \pi^0)/\Gamma(D_s^+ \gamma)$				Γ_2/Γ_1
VALUE	DOCUMENT ID	TECN	COMMENT	

0.062 ± 0.008 OUR FIT

0.062 ± 0.008 OUR AVERAGE

$0.062 \pm 0.005 \pm 0.006$	AUBERT,BE	05G	BABR	$10.6 e^+ e^- \rightarrow \text{hadrons}$
$0.062^{+0.020}_{-0.018} \pm 0.022$	GRONBERG	95	CLE2	$e^+ e^-$

$\Gamma(D_s^+ e^+ e^-)/\Gamma(D_s^+ \gamma)$		Γ_3/Γ_1		
VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
7.2$\pm$1.7 OUR FIT				
7.2$^{+1.5}_{-1.3}$$\pm$1.0	38	CRONIN-HEN..12	CLEO	4.17 $e^+ e^- \rightarrow$ hadrons

$D_s^{*\pm}$ REFERENCES

CRONIN-HEN... 12	PR D86 072005	D. Cronin-Hennessey <i>et al.</i>	(CLEO Collab.)
AUBERT,BE 05G	PR D72 091101	B. Aubert <i>et al.</i>	(BABAR Collab.)
GRONBERG 95	PRL 75 3232	J. Gronberg <i>et al.</i>	(CLEO Collab.)
BROWN 94	PR D50 1884	D. Brown <i>et al.</i>	(CLEO Collab.)
ASRATYAN 91	PL B257 525	A.E. Asratyan <i>et al.</i>	(ITEP, BELG, SACL+)
ALBRECHT 88	PL B207 349	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
BLAYLOCK 87	PRL 58 2171	G.T. Blaylock <i>et al.</i>	(Mark III Collab.)
ASRATYAN 85	PL 156B 441	A.E. Asratyan <i>et al.</i>	(ITEP, SERP)
AIHARA 84D	PRL 53 2465	H. Aihara <i>et al.</i>	(TPC Collab.)
ALBRECHT 84B	PL 146B 111	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
BRANDELIK 79	PL 80B 412	R. Brandelik <i>et al.</i>	(DASP Collab.)