$D_s^{*\pm}$ $\quad\quad\quad\quad I(J^P) = 0(?^?)$

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}, $D_s^{*\pm}$, $D_1(2420)^0$, $D_2^*(2460)^0$, 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	$e^+e^- \to D_s^\pm \gamma X$

[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}, $D_s^{*\pm}$, $D_1(2420)^0$, $D_2^*(2460)^0$, 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	$e^+e^- \to D_s^\pm \gamma X$
139.5 ± 8.3 ±9.7	60	AIHARA 84D	TPC	$e^+e^- \to$ 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	$e^+e^- \to D_s^\pm \gamma X$

[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	$E_{cm}^{ee} = 10.2$ 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	$e^+e^- \to D_s^\pm \gamma X$

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 ± 0.7) %
Γ_2	$D_s^+ \pi^0$	(5.8 ± 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 $\left\langle \delta x_i \delta x_j \right\rangle / (\delta x_i \cdot \delta x_j)$, 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	$\overline{\nu}_\mu$ Ne
seen	ALBRECHT 88	ARG	$e^+ e^- \to D_s^\pm \gamma X$
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 $e^+ e^- \to$ 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±1.7 OUR FIT				
$\mathbf{7.2^{+1.5}_{-1.3}\pm1.0}$	38	CRONIN-HEN..12	CLEO	4.17 $e^+ e^- \to$ hadrons

$D_s^{*\pm}$ REFERENCES

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