$$D_s^{*\pm} \qquad\qquad I(J^P) = 0(1^-)$$

$J^P = 1^-$ established by ABLIKIM 23AZ.

$D_s^{*\pm}$ 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
2112.2±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 $= 1968.7 \pm 0.9$ 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	$D_s^+ \gamma$	$(93.6 \pm 0.4\ )\ \%$
Γ_2	$D_s^+ \pi^0$	$(\ 5.77 \pm 0.35)\ \%$
Γ_3	$D_s^+ e^+ e^-$	$(\ 6.7 \pm 1.6\ ) \times 10^{-3}$
Γ_4	$e^+ \nu_e$	$(\ 2.1\ ^{+1.2}_{-0.9}\ ) \times 10^{-5}$

CONSTRAINED FIT INFORMATION

An overall fit to 2 branching ratios uses 4 measurements and one constraint to determine 3 parameters. The overall fit has a $\chi^2 = 0.0$ for 2 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.

$$
\begin{array}{c|cc}
x_2 & -91 & \\
x_3 & -38 & -4 \\
\hline
 & x_1 & x_2
\end{array}
$$

D_s^{*+} BRANCHING RATIOS

$\Gamma(D_s^+ \gamma)/\Gamma_{\text{total}}$ $\qquad\qquad$ Γ_1/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$\bullet\ \bullet\ \bullet$ We do not use the following data for averages, fits, limits, etc. $\bullet\ \bullet\ \bullet$				
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		

$\Gamma(D_s^+ \pi^0)/\Gamma(D_s^+ \gamma)$ $\qquad\qquad$ Γ_2/Γ_1

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
6.2 ±0.4 OUR FIT				
6.2 ±0.4 OUR AVERAGE				
$6.16 \pm 0.43 \pm 0.18$	ABLIKIM	23P	BES3	$e^+ e^-$
$6.2 \pm 0.5 \pm 0.6$	AUBERT,BE	05G	BABR	10.6 $e^+ e^- \to$ hadrons
$6.2\ ^{+2.0}_{-1.8} \pm 2.2$	GRONBERG	95	CLE2	$e^+ e^-$

$\Gamma(D_s^+ e^+ e^-)/\Gamma(D_s^+ \gamma)$ $\qquad$ Γ_3/Γ_1

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
7.2±1.7 OUR FIT				
$7.2^{+1.5}_{-1.3}\pm1.0$	38	CRONIN-HEN..12	CLEO	4.17 $e^+ e^- \to$ hadrons

$\Gamma(e^+ \nu_e)/\Gamma_{total}$ $\qquad$ Γ_4/Γ

VALUE (units 10^{-5})	DOCUMENT ID	TECN	COMMENT
$2.1^{+1.2}_{-0.9}\pm0.2$	ABLIKIM 23BF	BES3	$e^+ e^- \to D_s^- D_s^{*+}$

$D_s^{*\pm}$ REFERENCES

ABLIKIM	23AZ	PL B846 138245	M. Ablikim *et al.*	(BESIII Collab.) JP
ABLIKIM	23BF	PRL 131 141802	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	23P	PR D107 032011	M. Ablikim *et al.*	(BESIII Collab.)
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.)