



$$I(J^P) = 0(1^-)$$

$J^P = 1^-$ 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 $e^+e^- \rightarrow D_s^\pm \gamma X$
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} , $D_s^{*\pm}$, $D_1(2420)^0$, $D_2^*(2460)^0$, 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 $e^+e^- \rightarrow D_s^\pm \gamma X$
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)
$\Gamma_1 \quad D_s^+ \gamma$	$(93.6 \pm 0.4) \%$
$\Gamma_2 \quad D_s^+ \pi^0$	$(5.77 \pm 0.35) \%$
$\Gamma_3 \quad D_s^+ e^+ e^-$	$(6.7 \pm 1.6) \times 10^{-3}$
$\Gamma_4 \quad e^+ \nu_e$	$(2.1^{+1.2}_{-0.9}) \times 10^{-5}$

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 $\langle \delta x_i \delta x_j \rangle / (\delta x_i \delta x_j)$, 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	-91	
x_3	-38	-4
	x_1	x_2

D_s^{*+} BRANCHING RATIOS

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

$\Gamma(D_s^+ \pi^0) / \Gamma(D_s^+ \gamma)$	DOCUMENT ID	TECN	COMMENT	Γ_2/Γ_1
VALUE (units 10^{-2})				
6.2 ± 0.4 OUR FIT				
6.2 ± 0.4 OUR AVERAGE				
6.16 ± 0.43 ± 0.18	ABLIKIM	23P	BES3 $e^+ e^-$	
6.2 ± 0.5 ± 0.6	AUBERT, BE	05G	BABR $10.6 e^+ e^- \rightarrow \text{hadrons}$	
6.2 $^{+2.0}_{-1.8}$ ± 2.2	GRONBERG	95	CLE2 $e^+ e^-$	

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

$\Gamma(e^+ \nu_e)/\Gamma_{\text{total}}$					Γ_4/Γ
<u>VALUE (units 10^{-5})</u>		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2.1^{+1.2}_{-0.9}±0.2		ABLIKIM	23BF BES3	$e^+ e^- \rightarrow D_s^- D_s^{*+}$	

$D_s^{*\pm}$ REFERENCES

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