$D_{s1}(2536)^{\pm}$

$I(J^P) = 0(1^+)$
J, P need confirmation.

Seen in $D^*(2010)^+ K^0$, $D^*(2007)^0 K^+$, and $D_s^+ \pi^+ \pi^-$. Not seen in $D^+ K^0$ or $D^0 K^+$. $J^P = 1^+$ assignment strongly favored.

$D_{s1}(2536)^{\pm}$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2535.35± 0.34±0.5 OUR EVALUATION					
2535.12± 0.25 OUR AVERAGE					
2534.78± 0.31±0.40	182	AUBERT	08B	BABR	$B \to \overline{D}^{(*)} D^* K$
2534.6 ± 0.3 ±0.7	193	AUBERT	06P	BABR	10.6 $e^+ e^- \to D_s^+ \pi^+ \pi^- X$
2535.3 ± 0.7	92	[1] HEISTER	02B	ALEP	$e^+ e^- \to D^{*+} K^0 X$, $D^{*0} K^+ X$
2534.2 ± 1.2	9	ASRATYAN	94	BEBC	$\nu N \to D^* K^0 X, D^{*0} K^{\pm} X$
2535 ± 0.6 ±1	75	FRABETTI	94B	E687	γBe $\to D^{*+} K^0 X$, $D^{*0} K^+ X$
2535.3 ± 0.2 ±0.5	134	ALEXANDER	93	CLE2	$e^+ e^- \to D^{*0} K^+ X$
2534.8 ± 0.6 ±0.6	44	ALEXANDER	93	CLE2	$e^+ e^- \to D^{*+} K^0 X$
2535.2 ± 0.5 ±1.5	28	ALBRECHT	92R	ARG	10.4 $e^+ e^- \to D^{*0} K^+ X$
2536.6 ± 0.7 ±0.4		AVERY	90	CLEO	$e^+ e^- \to D^{*+} K^0 X$
2535.9 ± 0.6 ±2.0		ALBRECHT	89E	ARG	$D_{s1}^* \to D^*(2010) K^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2535 ±28		[2] ASRATYAN	88	HLBC	$\nu N \to D_s \gamma\gamma X$

[1] Calculated using $m_{D^*(2010)^{\pm}} = 2010.0 \pm 0.5$ MeV, $m_{D^*(2007)^0} = 2006.7 \pm 0.5$ MeV, and the mass difference below.
[2] Not seen in $D^* K$.

$m_{D_{s1}(2536)^{\pm}} - m_{D_s^*(2111)}$

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
424±28	ASRATYAN	88	HLBC	$D_s^{*\pm} \gamma$

$m_{D_{s1}(2536)^{\pm}} - m_{D^*(2010)^{\pm}}$

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
525.3±0.6±0.1	41	HEISTER	02B	ALEP	$e^+ e^- \to D^{*+} K^0 X$

$m_{D_{s1}(2536)^{\pm}} - m_{D^*(2007)^0}$

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
528.1±1.5 OUR AVERAGE					
528.7±1.9±0.5	51	HEISTER	02B	ALEP	$e^+ e^- \to D^{*0} K^+ X$
527.3±2.2	29	ACKERSTAFF	97W	OPAL	$e^+ e^- \to D^{*0} K^+ X$

$D_{s1}(2536)^{\pm}$ WIDTH

VALUE (MeV)	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<2.3	90		ALEXANDER	93	CLEO	$e^+e^- \to D^{*0}K^+X$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<2.5	95	193	AUBERT	06P	BABR	10.6 $e^+e^- \to D_s^+\pi^+\pi^-X$
<3.2	90	75	FRABETTI	94B	E687	γBe $\to D^{*+}K^0X$, $D^{*0}K^+X$
<3.9	90		ALBRECHT	92R	ARG	10.4 $e^+e^- \to D^{*0}K^+X$
<5.44	90		AVERY	90	CLEO	$e^+e^- \to D^{*+}K^0X$
<4.6	90		ALBRECHT	89E	ARG	$D_{s1}^* \to D^*(2010)K^0$

$D_{s1}(2536)^+$ DECAY MODES

$D_{s1}(2536)^-$ modes are charge conjugates of the modes below.

	Mode	Fraction (Γ_i/Γ)
Γ_1	$D^*(2010)^+K^0$	seen
Γ_2	$(D^*(2010)^+K^0)_{S-wave}$	
Γ_3	$(D^*(2010)^+K^0)_{D-wave}$	
Γ_4	$D^+\pi^-K^+$	
Γ_5	$D^*(2007)^0K^+$	seen
Γ_6	D^+K^0	not seen
Γ_7	D^0K^+	not seen
Γ_8	$D_s^{*+}\gamma$	possibly seen
Γ_9	$D_s^+\pi^+\pi^-$	seen

$D_{s1}(2536)^+$ BRANCHING RATIOS

$\Gamma(D^*(2007)^0K^+)/\Gamma(D^*(2010)^+K^0)$ Γ_5/Γ_1

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.27±0.21 OUR AVERAGE					
1.32±0.47±0.23	92	[3] HEISTER	02B	ALEP	$e^+e^- \to D^{*+}K^0X$, $D^{*0}K^+X$
1.9 $^{+1.1}_{-0.9}$ ±0.4	35	[3] ACKERSTAFF	97W	OPAL	$e^+e^- \to D^{*0}K^+X$, $D^{*+}K^0X$
1.1 ±0.3		ALEXANDER	93	CLEO	$e^+e^- \to D^{*0}K^+X, D^{*+}K^0X$
1.4 ±0.3 ±0.2		[4] ALBRECHT	92R	ARG	10.4 $e^+e^- \to D^{*0}K^+X, D^{*+}K^0X$

[3] Ratio of the production rates measured in Z^0 decays.
[4] Evaluated by us from published inclusive cross-sections.

$\Gamma((D^*(2010)^+K^0)_{S-wave})/\Gamma(D^*(2010)^+K^0)$ Γ_2/Γ_1

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.72±0.05±0.01	5485	BALAGURA	08	BELL	10.6 $e^+e^- \to D^{*+}K^0X$

$\Gamma(D^+\pi^-K^+)/\Gamma(D^*(2010)^+K^0)$ Γ_4/Γ_1

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.27±0.18±0.37	1264	BALAGURA	08	BELL	10.6 $e^+e^- \to D^+\pi^-K^+X$

$\Gamma(D^+K^0)/\Gamma(D^*(2010)^+K^0)$ Γ_6/Γ_1

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.40	90	ALEXANDER	93	CLEO	$e^+e^- \to D^{*+}K^0X$
<0.43	90	ALBRECHT	89E	ARG	$D^*_{s1} \to D^*(2010)K^0$

$\Gamma(D^0K^+)/\Gamma(D^*(2007)^0K^+)$ Γ_7/Γ_5

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.12	90	ALEXANDER	93	CLEO	$e^+e^- \to D^{*0}K^+X$

$\Gamma(D_s^{*+}\gamma)/\Gamma_{\text{total}}$ Γ_8/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
possibly seen	ASRATYAN	88	HLBC	$\nu N \to D_s\gamma\gamma X$

$\Gamma(D_s^{*+}\gamma)/\Gamma(D^*(2007)^0K^+)$ Γ_8/Γ_5

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.42	90	ALEXANDER	93	CLEO	$e^+e^- \to D^{*0}K^+X$

$\Gamma(D_s^+\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_9/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	AUBERT	06P	BABR	10.6 $e^+e^- \to D_s^+\pi^+\pi^-X$

$D_{s1}(2536)^\pm$ REFERENCES

AUBERT	08B	PR D77 011102R	B. Aubert *et al.*	(BABAR Collab.)
BALAGURA	08	PR D77 032001	V. Balagura *et al.*	(BELLE Collab.)
AUBERT	06P	PR D74 032007	B. Aubert *et al.*	(BABAR Collab.)
HEISTER	02B	PL B526 34	A. Heister *et al.*	(ALEPH Collab.)
ACKERSTAFF	97W	ZPHY C76 425	K. Ackerstaff *et al.*	(OPAL Collab.)
ASRATYAN	94	ZPHY C61 563	A.E. Asratyan *et al.*	(BIRM, BELG, CERN+)
FRABETTI	94B	PRL 72 324	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
ALEXANDER	93	PL B303 377	J. Alexander *et al.*	(CLEO Collab.)
ALBRECHT	92R	PL B297 425	H. Albrecht *et al.*	(ARGUS Collab.)
AVERY	90	PR D41 774	P. Avery, D. Besson	(CLEO Collab.)
ALBRECHT	89E	PL B230 162	H. Albrecht *et al.*	(ARGUS Collab.)
ASRATYAN	88	ZPHY C40 483	A.E. Asratyan *et al.*	(ITEP, SERP)

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YAMADA	05	PR C72 065202	Y. Yamada *et al.*	
SEMENOV	99	SPU 42 847	S.V. Semenov	

Translated from UFN 42 937.