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

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

Seen in $D^*(2010)^+ K^0$. 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					
2535.34± 0.31 OUR AVERAGE					
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	γ Be $\to D^{*+} K^0 X$, $D^{*0} K^+ X$
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	$e^+ e^- \rightarrow D^{*0} K^+ X$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<3.2	90	75	FRABETTI	94B	E687	γ Be $\rightarrow D^{*+} K^0 X$, $D^{*0} K^+ X$
<3.9	90		ALBRECHT	92R	ARG	10.4 $e^+ e^- \rightarrow D^{*0} K^+ X$
<5.44	90		AVERY	90	CLEO	$e^+ e^- \rightarrow D^{*+} K^0 X$
<4.6	90		ALBRECHT	89E	ARG	$D^*_{s1} \rightarrow D^*(2010) K^0$

$D_{s1}(2536)^+$ 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	$D^*(2007)^0 K^+$	seen
Γ_3	$D^+ K^0$	not seen
Γ_4	$D^0 K^+$	not seen
Γ_5	$D_s^{*+} \gamma$	possibly seen

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

$\Gamma(D^+ K^0)/\Gamma(D^*(2010)^+ K^0)$ Γ_3/Γ_1

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

$\Gamma(D_s^{*+} \gamma)/\Gamma_{total}$ Γ_5/Γ

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

$\Gamma(D^0 K^+)/\Gamma(D^*(2007)^0 K^+)$ Γ_4/Γ_2

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

$\Gamma(D_s^{*+} \gamma)/\Gamma(D^*(2007)^0 K^+)$ Γ_5/Γ_2

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

$\Gamma(D^*(2007)^0 K^+)/\Gamma(D^*(2010)^+ K^0)$ Γ_2/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	$e^+e^- \to D^{*+}K^0X$, $D^{*0}K^+X$
$1.9\ {}^{+1.1}_{-0.9}\ \pm0.4$	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.

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

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 C 61 563	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)

OTHER RELATED PAPERS

SEMENOV	99	SPU 42 847 Translated from UFN 42 937.	S.V. Semenov