

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

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

Seen in $D^*(2010)^+ K^0$ 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
2535.24 ± 0.29				OUR AVERAGE
2534.6 ± 0.3 ± 0.7	193	AUBERT	06P BABR	10.6 $e^+ e^- \rightarrow D_s^+ \pi^+ \pi^- X$
2535.3 ± 0.7	92	¹ HEISTER	02B ALEP	$e^+ e^- \rightarrow D^{*+} K^0 X, D^{*0} K^+ X$
2534.2 ± 1.2	9	ASRATYAN	94 BEBC	$\nu N \rightarrow D^* K^0 X, D^{*0} K^\pm X$
2535 ± 0.6 ± 1	75	FRABETTI	94B E687	$\gamma Be \rightarrow D^{*+} K^0 X, D^{*0} K^+ X$
2535.3 ± 0.2 ± 0.5	134	ALEXANDER	93 CLE2	$e^+ e^- \rightarrow D^{*0} K^+ X$
2534.8 ± 0.6 ± 0.6	44	ALEXANDER	93 CLE2	$e^+ e^- \rightarrow D^{*+} K^0 X$
2535.2 ± 0.5 ± 1.5	28	ALBRECHT	92R ARG	10.4 $e^+ e^- \rightarrow D^{*0} K^+ X$
2536.6 ± 0.7 ± 0.4		AVERY	90 CLEO	$e^+ e^- \rightarrow D^{*+} K^0 X$
2535.9 ± 0.6 ± 2.0		ALBRECHT	89E ARG	$D_{s1}^* \rightarrow D^*(2010) K^0$

• • • We do not use the following data for averages, fits, limits, etc. • • •

2535 ± 28		² ASRATYAN	88 HLBC	$\nu N \rightarrow D_s \gamma \gamma X$
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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	$e^+ e^- \rightarrow D^{*+} K^0 X$

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

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

$D_{s1}(2536)^\pm$ 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. ● ● ●					
<2.5	95	193	AUBERT	06P BABR	$10.6 e^+e^- \rightarrow D_s^+ \pi^+ \pi^- X$
<3.2	90	75	FRABETTI	94B E687	$\gamma Be \rightarrow D^{*+}K^0X, D^{*0}K^+X$
<3.9	90		ALBRECHT	92R ARG	$10.4 e^+e^- \rightarrow D^{*0}K^+X$
<5.44	90		AVERY	90 CLEO	$e^+e^- \rightarrow D^{*+}K^0X$
<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 $D^*(2007)^0K^+$	seen
Γ_3 D^+K^0	not seen
Γ_4 D^0K^+	not seen
Γ_5 $D_s^{*+}\gamma$	possibly seen
Γ_6 $D_s^+\pi^+\pi^-$	seen

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

$\Gamma(D^*(2007)^0K^+)/\Gamma(D^*(2010)^+K^0)$					Γ_2/Γ_1
VALUE	CL%	DOCUMENT ID	TECN	COMMENT	
1.27 ± 0.21 OUR AVERAGE					
$1.32 \pm 0.47 \pm 0.23$	92	³ HEISTER	02B ALEP	$e^+e^- \rightarrow D^{*+}K^0X, D^{*0}K^+X$	
$1.9 \begin{smallmatrix} +1.1 \\ -0.9 \end{smallmatrix} \pm 0.4$	35	³ ACKERSTAFF	97W OPAL	$e^+e^- \rightarrow D^{*0}K^+X, D^{*+}K^0X$	
1.1 ± 0.3		ALEXANDER	93 CLEO	$e^+e^- \rightarrow D^{*0}K^+X, D^{*+}K^0X$	
$1.4 \pm 0.3 \pm 0.2$		⁴ ALBRECHT	92R ARG	$10.4 e^+e^- \rightarrow D^{*0}K^+X, D^{*+}K^0X$	

³ Ratio of the production rates measured in Z^0 decays.

⁴ Evaluated by us from published inclusive cross-sections.

$\Gamma(D^+K^0)/\Gamma(D^*(2010)^+K^0)$					Γ_3/Γ_1
VALUE	CL%	DOCUMENT ID	TECN	COMMENT	
<0.40	90	ALEXANDER	93 CLEO	$e^+e^- \rightarrow D^{*+}K^0X$	
<0.43	90	ALBRECHT	89E ARG	$D_{s1}^* \rightarrow D^*(2010)K^0$	

$\Gamma(D^0K^+)/\Gamma(D^*(2007)^0K^+)$					Γ_4/Γ_2
VALUE	CL%	DOCUMENT ID	TECN	COMMENT	
<0.12	90	ALEXANDER	93 CLEO	$e^+e^- \rightarrow D^{*0}K^+X$	

$\Gamma(D_s^{*+} \gamma) / \Gamma_{\text{total}}$					Γ_5 / Γ
<u>VALUE</u>		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
possibly seen		ASRATYAN	88	HLBC	$\nu N \rightarrow D_s \gamma \gamma X$

$\Gamma(D_s^{*+} \gamma) / \Gamma(D^{*(2007)^0} K^+)$					Γ_5 / Γ_2
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<0.42	90	ALEXANDER	93	CLEO	$e^+ e^- \rightarrow D^{*0} K^+ X$

$\Gamma(D_s^+ \pi^+ \pi^-) / \Gamma_{\text{total}}$					Γ_6 / Γ
<u>VALUE</u>		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
seen		AUBERT	06P	BABR	$10.6 e^+ e^- \rightarrow D_s^+ \pi^+ \pi^- X$

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

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

OTHER RELATED PAPERS

COLANGELO	06	PL B642 48	P. Colangelo <i>et al.</i>	
VIJANDE	06	PR D73 034002	J. Vijande, F. Fernandez, A. Valcarce	
CLOSE	05C	PR D72 094004	F.E. Close, E.S. Swanson	(OXFTP)
YAMADA	05	PR C72 065202	Y. Yamada <i>et al.</i>	
SEMENOV	99	SPU 42 847	S.V. Semenov	
Translated from UFN 42 937.				