

$D_{s3}^*(2860)^\pm$

$$I(J^P) = 0(3^-)^\pm$$

J^P consistent with 3^- from angular analysis of AAIJ 14AW. Observed by AUBERT, BE 06E and AUBERT 09AR in inclusive production of DK and D^*K in e^+e^- annihilation.

 $D_{s3}^*(2860)^+$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2860.5 ± 2.6 ± 6.5		¹ AAIJ	14AW LHCB	$B_s^0 \rightarrow \bar{D}^0 K^- \pi^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2867.1 ± 4.3 ± 1.9	3.1k	AAIJ	16AW LHCB	$pp \rightarrow D^{*+} K_S^0 X$ at 7, 8 TeV
2866.1 ± 1.0 ± 6.3	36k	^{2,3} AAIJ	12AU LHCB	$pp \rightarrow (DK)^+ X$ at 7 TeV
2862 ± 2 ± 5 -2	3122	^{2,4} AUBERT	09AR BABR	$e^+e^- \rightarrow D^{(*)} K X$
2856.6 ± 1.5 ± 5.0		⁵ AUBERT, BE 06E	BABR	$e^+e^- \rightarrow DKX$

¹ Separated from the spin-1 component $D_{s1}^*(2860)^-$ by a fit of the helicity angle of the $\bar{D}^0 K^-$ system, with a statistical significance of the spin-3 and spin-1 components in excess of 10σ .

² Possible contribution from the $D_{s1}^*(2860)$ state.

³ From the combined fit of the $D^+ K_S^0$ and $D^0 K^+$ modes in the model including the $D_{s2}^*(2573)^+$, $D_{s1}^*(2700)^+$ and spin-0 $D_{sJ}^*(2860)^+$.

⁴ From simultaneous fits to the two DK mass spectra and to the total D^*K mass spectrum.

⁵ Superseded by AUBERT 09AR.

 $D_{s3}^*(2860)^+$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
53 ± 7 ± 7		¹ AAIJ	14AW LHCB	$B_s^0 \rightarrow \bar{D}^0 K^- \pi^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
50 ± 11 ± 13	3.1k	AAIJ	16AW LHCB	$pp \rightarrow D^{*+} K_S^0 X$ at 7, 8 TeV
69.9 ± 3.2 ± 6.6	36k	^{2,3} AAIJ	12AU LHCB	$pp \rightarrow (DK)^+ X$ at 7 TeV
48 ± 3 ± 6	3122	^{2,4} AUBERT	09AR BABR	$e^+e^- \rightarrow D^{(*)} K X$
47 ± 7 ± 10		⁵ AUBERT, BE 06E	BABR	$e^+e^- \rightarrow DKX$

¹ Separated from the spin-1 component $D_{s1}^*(2860)^-$ by a fit of the helicity angle of the $\bar{D}^0 K^-$ system, with a statistical significance of the spin-3 and spin-1 components in excess of 10σ .

² Possible contribution from the $D_{s1}^*(2860)$ state.

³ From the combined fit of the $D^+ K_S^0$ and $D^0 K^+$ modes in the model including the $D_{s2}^*(2573)^+$, $D_{s1}^*(2700)^+$ and spin-0 $D_{sJ}^*(2860)^+$.

⁴ From simultaneous fits to the two DK mass spectra and to the total D^*K mass spectrum.

⁵ Superseded by AUBERT 09AR.

$D_{s3}^*(2860)^\pm$ DECAY MODES

Mode		Fraction (Γ_i/Γ)
Γ_1	DK	
Γ_2	$D^0 K^+$	seen
Γ_3	$D^+ K_S^0$	seen
Γ_4	$D^* K$	
Γ_5	$D^{*0} K^+$	seen
Γ_6	$D^{*+} K_S^0$	seen

$D_{s3}^*(2860)^\pm$ BRANCHING RATIOS

$\Gamma(D^* K)/\Gamma(DK)$					Γ_4/Γ_1
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
1.10±0.15±0.19	3122	¹ AUBERT	09AR BABR	$e^+ e^- \rightarrow D^{(*)} K X$	
¹ From the average of the corresponding ratios with $D^{(*)0} K^+$ and $D^{(*)+} K_S^0$.					

$\Gamma(D^{*0} K^+)/\Gamma(D^0 K^+)$					Γ_5/Γ_2
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
1.04±0.17±0.20	2241	¹ AUBERT	09AR BABR	$e^+ e^- \rightarrow D^{(*)} K X$	
¹ From the $D^{*0} K^+$ and $D^0 K^+$, where $D^{*0} \rightarrow D^0 \pi^0$.					

$\Gamma(D^{*+} K_S^0)/\Gamma(D^+ K_S^0)$					Γ_6/Γ_3
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
1.38±0.35±0.49	881	¹ AUBERT	09AR BABR	$e^+ e^- \rightarrow D^{(*)} K X$	
¹ From the $D^{*+} K_S^0$ and $D^+ K_S^0$, where $D^{*+} \rightarrow D^+ \pi^0$.					

$D_{s3}^*(2860)^\pm$ REFERENCES

AAIJ	16AW JHEP 1602 133	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ	14AW PRL 113 162001	R. Aaij <i>et al.</i>	(LHCb Collab.) JP
AAIJ	12AU JHEP 1210 151	R. Aaij <i>et al.</i>	(LHCb Collab.)
AUBERT	09AR PR D80 092003	B. Aubert <i>et al.</i>	(BABAR Collab.)
AUBERT,BE	06E PRL 97 222001	B. Aubert <i>et al.</i>	(BABAR Collab.)