

$D_2^*(2460)^\pm$

$$I(J^P) = \frac{1}{2}(2^+)$$

 $J^P = 2^+$ assignment strongly favored(ALBRECHT 89B).

$D_2^*(2460)^\pm$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2465.4±1.3 OUR AVERAGE		Error	includes scale factor of 3.1.	See the ideogram below.
2465.6±1.8±1.3		¹ AAIJ	15X LHCB	$B^0 \rightarrow \bar{D}^0 K^+ \pi^-$
2468.6±0.6±0.3		² AAIJ	15Y LHCB	$B^0 \rightarrow \bar{D}^0 \pi^+ \pi^-$
2463.1±0.2±0.6	342k	AAIJ	13CC LHCB	$p p \rightarrow D^0 \pi^+ X$
2460.6±4.4 ^{+3.6} _{-0.8}	1371	³ ABRAMOWICZ13	ZEUS	$e^\pm p \rightarrow D^{(*)0} \pi^+ X$
2465.4±0.2±1.1	111k	⁴ DEL-AMO-SA..10P	BABR	$e^+ e^- \rightarrow D^0 \pi^+ X$
2465.7±1.8 ^{+1.4} _{-4.8}	2909	KUZMIN	07 BELL	$e^+ e^- \rightarrow \text{hadrons}$
2463 ±3 ±3	310	BERGFELD	94B CLE2	$e^+ e^- \rightarrow D^0 \pi^+ X$
2453 ±3 ±2	185	FRABETTI	94B E687	$\gamma \text{Be} \rightarrow D^0 \pi^+ X$
2469 ±4 ±6		ALBRECHT	89F ARG	$e^+ e^- \rightarrow D^0 \pi^+ X$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
2468.1±0.6±0.5		⁵ AAIJ	15Y LHCB	$B^0 \rightarrow \bar{D}^0 \pi^+ \pi^-$
2467.6±1.5±0.8	3.5k	⁶ LINK	04A FOCS	γA

¹ From the Dalitz plot analysis including various K^* and D^{**} mesons as well as broad structures in the $K\pi$ S -wave and the $D\pi$ S - and P -waves.

² Modeling the $\pi^+ \pi^-$ S -wave with the Isobar formalism.

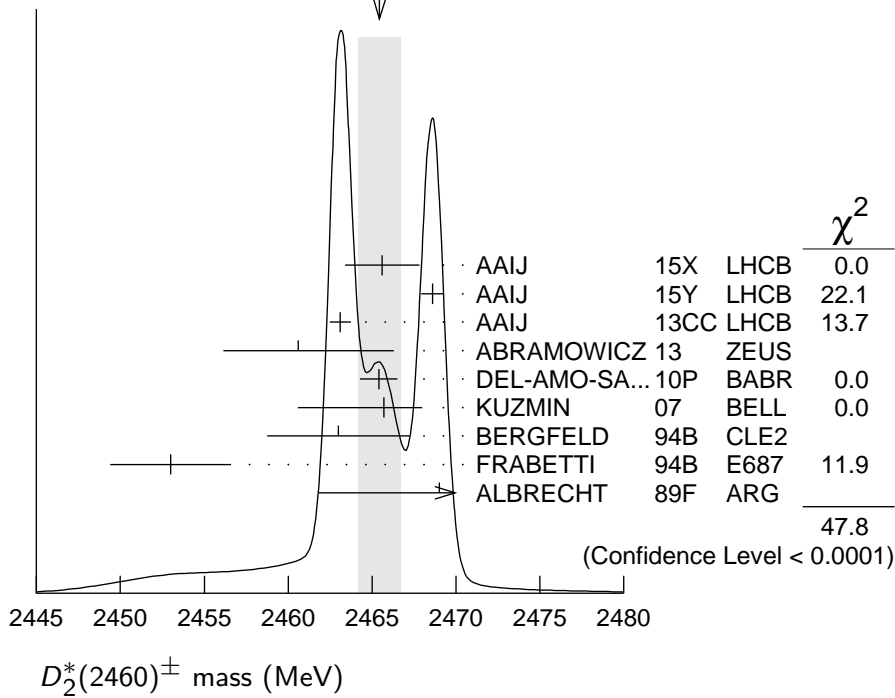
³ From the fit of the $M(D^0 \pi^+)$ distribution. The widths of the D_1^+ and D_2^{*+} are fixed to 25 MeV and 37 MeV, and A_{D_1} and A_{D_2} are fixed to the theoretical predictions of 3 and -1 , respectively.

⁴ At a fixed width of 50.5 MeV.

⁵ Modeling the $\pi^+ \pi^-$ S -wave with the K-matrix formalism.

⁶ Fit includes the contribution from $D_0^*(2400)^\pm$. Not independent of the corresponding mass difference measurement, $(m_{D_2^*(2460)^\pm}) - (m_{D_2^*(2460)^0})$.

WEIGHTED AVERAGE
 2465.4 ± 1.3 (Error scaled by 3.1)



$m_{D_2^*(2460)^\pm} - m_{D_2^*(2460)^0}$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
2.4 ± 1.7 OUR AVERAGE			
$3.1 \pm 1.9 \pm 0.9$	LINK	04A	FOCS γ A
$-2 \pm 4 \pm 4$	BERGFELD	94B	CLE2 $e^+e^- \rightarrow$ hadrons
0 ± 4	FRABETTI	94B	E687 γ Be $\rightarrow D\pi X$
$14 \pm 5 \pm 8$	ALBRECHT	89F	ARG $e^+e^- \rightarrow D^0\pi^+ X$

$D_2^*(2460)^\pm$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
46.7 ± 1.2 OUR AVERAGE				
$46.0 \pm 3.4 \pm 3.2$		¹ AAIJ	15X	LHCB $B^0 \rightarrow \bar{D}^0 K^+ \pi^-$
$47.3 \pm 1.5 \pm 0.7$		² AAIJ	15Y	LHCB $B^0 \rightarrow \bar{D}^0 \pi^+ \pi^-$
$48.6 \pm 1.3 \pm 1.9$	342k	AAIJ	13CC	LHCB $pp \rightarrow D^0 \pi^+ X$
$49.7 \pm 3.8 \pm 6.4$	2909	KUZMIN	07	BELL $e^+e^- \rightarrow$ hadrons
$34.1 \pm 6.5 \pm 4.2$	3.5k	³ LINK	04A	FOCS γ A
$27 \begin{smallmatrix} +11 \\ -8 \end{smallmatrix} \pm 5$	310	BERGFELD	94B	CLE2 $e^+e^- \rightarrow D^0 \pi^+ X$
$23 \pm 9 \pm 5$	185	FRABETTI	94B	E687 γ Be $\rightarrow D^0 \pi^+ X$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
$46.0 \pm 1.4 \pm 1.8$		⁴ AAIJ	15Y	LHCB $B^0 \rightarrow \bar{D}^0 \pi^+ \pi^-$

- ¹ From the Dalitz plot analysis including various K^* and D^{**} mesons as well as broad structures in the $K\pi$ S -wave and the $D\pi$ S - and P -waves.
² Modeling the $\pi^+\pi^-$ S -wave with the Isobar formalism.
³ Fit includes the contribution from $D_0^*(2400)^\pm$.
⁴ Modeling the $\pi^+\pi^-$ S -wave with the K-matrix formalism.

$D_2^*(2460)^\pm$ DECAY MODES

$D_2^*(2460)^-$ modes are charge conjugates of modes below.

Mode	Fraction (Γ_i/Γ)
Γ_1 $D^0\pi^+$	seen
Γ_2 $D^{*0}\pi^+$	seen
Γ_3 $D^+\pi^+\pi^-$	not seen
Γ_4 $D^{*+}\pi^+\pi^-$	not seen

$D_2^*(2460)^\pm$ BRANCHING RATIOS

$\Gamma(D^0\pi^+)/\Gamma_{\text{total}}$				Γ_1/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
seen	ALBRECHT	89F	ARG	$e^+e^- \rightarrow D^0\pi^+X$

$\Gamma(D^0\pi^+)/\Gamma(D^{*0}\pi^+)$				Γ_1/Γ_2
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1.2 ± 0.4 OUR AVERAGE				
$1.1 \pm 0.4^{+0.3}_{-0.2}$	1371	¹ ABRAMOWICZ13	ZEUS	$e^\pm p \rightarrow D^{(*)0}\pi^+X$
$1.9 \pm 1.1 \pm 0.3$		BERGFELD	94B CLE2	$e^+e^- \rightarrow \text{hadrons}$

¹ From the fit of the $M(D^0\pi^+)$ distribution. The widths of the D_1^+ and D_2^{*+} are fixed to 25 MeV and 37 MeV, and A_{D_1} and A_{D_2} are fixed to the theoretical predictions of 3 and -1 , respectively.

$\Gamma(D^0\pi^+)/[\Gamma(D^0\pi^+) + \Gamma(D^{*0}\pi^+)]$				$\Gamma_1/(\Gamma_1+\Gamma_2)$
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>

- • • We do not use the following data for averages, fits, limits, etc. • • •
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|--------------------------|------|---------------------|----------|--|
| $0.62 \pm 0.03 \pm 0.02$ | 3361 | ¹ AUBERT | 09Y BABR | $\bar{B}^0 \rightarrow D_2^{*+}\ell^-\nu_\ell$ |
|--------------------------|------|---------------------|----------|--|
- ¹ Assuming $\Gamma(\Upsilon(4S) \rightarrow B^+B^-) / \Gamma(\Upsilon(4S) \rightarrow B^0\bar{B}^0) = 1.065 \pm 0.026$ and equal partial widths for charged and neutral D_2^* mesons.

$D_2^*(2460)^\pm$ REFERENCES

AAIJ	15X	PR D92 012012	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ	15Y	PR D92 032002	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ	13CC	JHEP 1309 145	R. Aaij <i>et al.</i>	(LHCb Collab.)
ABRAMOWICZ	13	NP B866 229	H. Abramowicz <i>et al.</i>	(ZEUS Collab.)
DEL-AMO-SA...	10P	PR D82 111101	P. del Amo Sanchez <i>et al.</i>	(BABAR Collab.)
AUBERT	09Y	PRL 103 051803	B. Aubert <i>et al.</i>	(BABAR Collab.)
KUZMIN	07	PR D76 012006	A. Kuzmin <i>et al.</i>	(BELLE Collab.)
LINK	04A	PL B586 11	J.M. Link <i>et al.</i>	(FOCUS Collab.)
BERGFELD	94B	PL B340 194	T. Bergfeld <i>et al.</i>	(CLEO Collab.)
FRABETTI	94B	PRL 72 324	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
ALBRECHT	89B	PL B221 422	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ALBRECHT	89F	PL B231 208	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
