

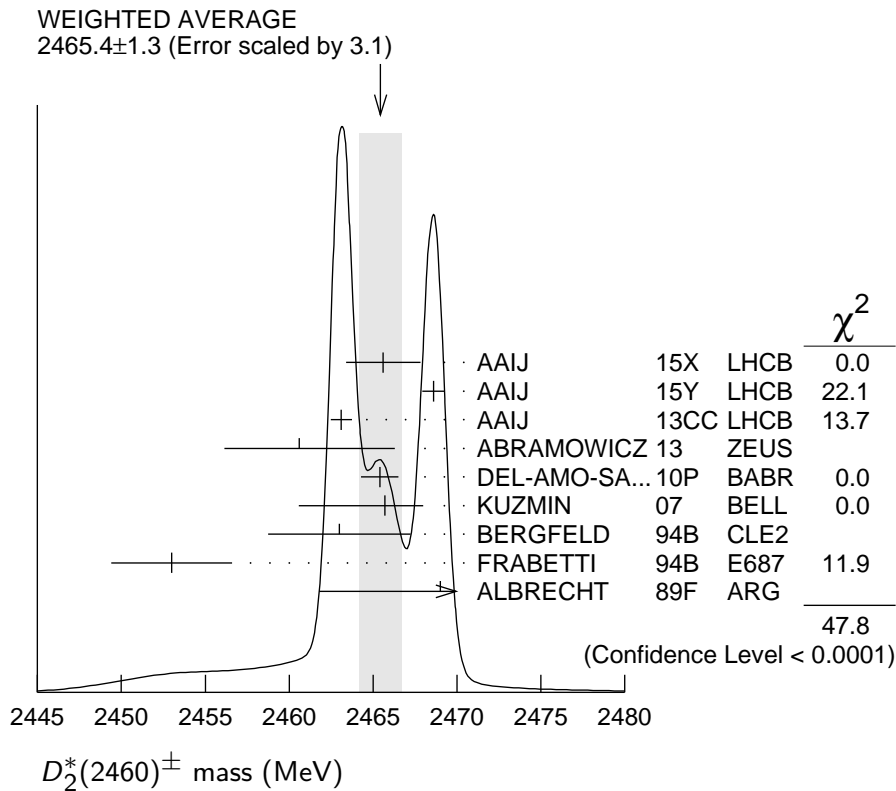
$$D_2^*(2460)^\pm$$

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

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

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

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>2465.4 ± 1.3 OUR AVERAGE</b>		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	$\gamma A$



- <sup>1</sup> 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.  
<sup>2</sup> Modeling the  $\pi^+\pi^-$   $S$ -wave with the Isobar formalism.  
<sup>3</sup> 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.  
<sup>4</sup> At a fixed width of 50.5 MeV.  
<sup>5</sup> Modeling the  $\pi^+\pi^-$   $S$ -wave with the K-matrix formalism.  
<sup>6</sup> Fit includes the contribution from  $D_0^*(2400)^\pm$ . Not independent of the corresponding mass difference measurement,  $(m_{D_2^*(2460)^\pm}) - (m_{D_2^*(2460)^0})$ .

$m_{D_2^*(2460)^\pm} - m_{D_2^*(2460)^0}$				
VALUE (MeV)	DOCUMENT ID	TECN	COMMENT	
<b>2.4 ± 1.7 OUR AVERAGE</b>				
3.1 ± 1.9 ± 0.9	LINK	04A	FOCS	$\gamma$ A
− 2 ± 4 ± 4	BERGFELD	94B	CLE2	$e^+e^- \rightarrow$ hadrons
0 ± 4	FRABETTI	94B	E687	$\gamma$ Be $\rightarrow$ $D\pi X$
14 ± 5 ± 8	ALBRECHT	89F	ARG	$e^+e^- \rightarrow D^0\pi^+X$

$D_2^*(2460)^\pm$ WIDTH				
VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>46.7 ± 1.2 OUR AVERAGE</b>				
46.0 ± 3.4 ± 3.2		<sup>1</sup> AAIJ	15X	LHCB $B^0 \rightarrow \bar{D}^0 K^+ \pi^-$
47.3 ± 1.5 ± 0.7		<sup>2</sup> AAIJ	15Y	LHCB $B^0 \rightarrow \bar{D}^0 \pi^+ \pi^-$
48.6 ± 1.3 ± 1.9	342k	AAIJ	13CC	LHCB $pp \rightarrow D^0 \pi^+ X$
49.7 ± 3.8 ± 6.4	2909	KUZMIN	07	BELL $e^+e^- \rightarrow$ hadrons
34.1 ± 6.5 ± 4.2	3.5k	<sup>3</sup> LINK	04A	FOCS $\gamma$ A
27 $^{+11}_{-8}$ ± 5	310	BERGFELD	94B	CLE2 $e^+e^- \rightarrow D^0 \pi^+ X$
23 ± 9 ± 5	185	FRABETTI	94B	E687 $\gamma$ Be $\rightarrow D^0 \pi^+ X$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
46.0 ± 1.4 ± 1.8		<sup>4</sup> AAIJ	15Y	LHCB $B^0 \rightarrow \bar{D}^0 \pi^+ \pi^-$

- <sup>1</sup> 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.  
<sup>2</sup> Modeling the  $\pi^+\pi^-$   $S$ -wave with the Isobar formalism.  
<sup>3</sup> Fit includes the contribution from  $D_0^*(2400)^\pm$ .  
<sup>4</sup> 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 ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $D^0 \pi^+$	seen
$\Gamma_2$ $D^{*0} \pi^+$	seen
$\Gamma_3$ $D^+ \pi^+ \pi^-$	not seen
$\Gamma_4$ $D^{*+} \pi^+ \pi^-$	not seen

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

$\Gamma(D^0\pi^+)/\Gamma_{\text{total}}$				$\Gamma_1/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>seen</b>	ALBRECHT	89F ARG	$e^+e^- \rightarrow D^0\pi^+X$	

$\Gamma(D^0\pi^+)/\Gamma(D^{*0}\pi^+)$				$\Gamma_1/\Gamma_2$
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>1.2±0.4 OUR AVERAGE</b>				

1.1±0.4 <sup>+0.3</sup> <sub>-0.2</sub>	1371	<sup>1</sup> ABRAMOWICZ13	ZEUS	$e^\pm p \rightarrow D^{(*)0}\pi^+X$
1.9±1.1±0.3		BERGFELD	94B CLE2	$e^+e^- \rightarrow \text{hadrons}$

<sup>1</sup>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. • • •

0.62±0.03±0.02	3361	<sup>1</sup> AUBERT	09Y BABR	$\bar{B}^0 \rightarrow D_2^{*+}\ell^-\nu_\ell$
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<sup>1</sup>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.)