

$D_1(2420)^0$

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

I, J, P need confirmation.

Seen in $D^*(2010)^+ \pi^-$. $J^P = 1^+$ according to ALBRECHT 89H.

$D_1(2420)^0$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2422.3 ± 1.3 OUR AVERAGE		Error includes scale factor of 1.2.		
2426 ± 3 ± 1	151	ABE	05A BELL	$B^- \rightarrow D^0 \pi^+ \pi^- \pi^-$
2421.4 ± 1.5 ± 0.9		¹ ABE	04D BELL	$B^- \rightarrow D^{*+} \pi^- \pi^-$
2421 $\begin{smallmatrix} +1 \\ -2 \end{smallmatrix}$ ± 2	286	AVERY	94C CLE2	$e^+ e^- \rightarrow D^{*+} \pi^- X$
2422 ± 2 ± 2	51	FRABETTI	94B E687	$\gamma \text{Be} \rightarrow D^{*+} \pi^- X$
2428 ± 3 ± 2	279	AVERY	90 CLEO	$e^+ e^- \rightarrow D^{*+} \pi^- X$
2414 ± 2 ± 5	171	ALBRECHT	89H ARG	$e^+ e^- \rightarrow D^{*+} \pi^- X$
2428 ± 8 ± 5	171	ANJOS	89C TPS	$\gamma N \rightarrow D^{*+} \pi^- X$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
2421.7 ± 0.7 ± 0.6	7.5k	ABULENCIA	06A CDF	1900 $p\bar{p} \rightarrow D^{*+} \pi^- X$
2425 ± 3	235	² ABREU	98M DLPH	$e^+ e^-$
¹ Fit includes the contribution from $D_1^*(2430)^0$.				
² No systematic error given.				

$m_{D_1^0} - m_{D^{*+}}$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
411.7 ± 0.7 ± 0.4	7.5k	ABULENCIA	06A CDF	1900 $p\bar{p} \rightarrow D^{*+} \pi^- X$

$D_1(2420)^0$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
20.4 ± 1.7 OUR AVERAGE				
20.0 ± 1.7 ± 1.3	7.5k	ABULENCIA	06A CDF	1900 $p\bar{p} \rightarrow D^{*+} \pi^- X$
24 ± 7 ± 8	151	ABE	05A BELL	$B^- \rightarrow D^0 \pi^+ \pi^- \pi^-$
23.7 ± 2.7 ± 4.0		³ ABE	04D BELL	$B^- \rightarrow D^{*+} \pi^- \pi^-$
20 $\begin{smallmatrix} +6 \\ -5 \end{smallmatrix}$ ± 3	286	AVERY	94C CLE2	$e^+ e^- \rightarrow D^{*+} \pi^- X$
15 ± 8 ± 4	51	FRABETTI	94B E687	$\gamma \text{Be} \rightarrow D^{*+} \pi^- X$
23 $\begin{smallmatrix} +8 & +10 \\ -6 & -3 \end{smallmatrix}$	279	AVERY	90 CLEO	$e^+ e^- \rightarrow D^{*+} \pi^- X$
13 ± 6 $\begin{smallmatrix} +10 \\ -5 \end{smallmatrix}$	171	ALBRECHT	89H ARG	$e^+ e^- \rightarrow D^{*+} \pi^- X$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
58 ± 14 ± 10	171	ANJOS	89C TPS	$\gamma N \rightarrow D^{*+} \pi^- X$
³ Fit includes the contribution from $D_1^*(2430)^0$.				

$D_1(2420)^0$ DECAY MODES $\bar{D}_1(2420)^0$ modes are charge conjugates of modes below.

Mode	Fraction (Γ_i/Γ)
Γ_1 $D^*(2010)^+ \pi^-$	seen
Γ_2 $D^0 \pi^+ \pi^-$	seen
Γ_3 $D^0 \rho^0$	
Γ_4 $D^0 f_0(600)$	
Γ_5 $D_0^*(2400)^+ \pi^-$	
Γ_6 $D^+ \pi^-$	not seen
Γ_7 $D^{*0} \pi^+ \pi^-$	not seen

 $D_1(2420)^0$ BRANCHING RATIOS

$\Gamma(D^*(2010)^+ \pi^-)/\Gamma_{\text{total}}$				Γ_1/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
seen	ACKERSTAFF	97W OPAL	$e^+ e^- \rightarrow D^{*+} \pi^- X$	
seen	AVERY	90 CLEO	$e^+ e^- \rightarrow D^{*+} \pi^- X$	
seen	ALBRECHT	89H ARG	$e^+ e^- \rightarrow D^* \pi^- X$	
seen	ANJOS	89C TPS	$\gamma N \rightarrow D^{*+} \pi^- X$	

$\Gamma(D^+ \pi^-)/\Gamma(D^*(2010)^+ \pi^-)$				Γ_6/Γ_1
VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.24	90	AVERY	90 CLEO	$e^+ e^- \rightarrow D^+ \pi^- X$

 $D_1(2420)^0$ REFERENCES

ABULENCIA	06A	PR D73 051104	A. Abulencia <i>et al.</i>	(CDF Collab.)
ABE	05A	PRL 94 221805	K. Abe <i>et al.</i>	(BELLE Collab.)
ABE	04D	PR D69 112002	K. Abe <i>et al.</i>	(BELLE Collab.)
ABREU	98M	PL B426 231	P. Abreu <i>et al.</i>	(DELPHI Collab.)
ACKERSTAFF	97W	ZPHY C76 425	K. Ackerstaff <i>et al.</i>	(OPAL Collab.)
AVERY	94C	PL B331 236	P. Avery <i>et al.</i>	(CLEO Collab.)
FRABETTI	94B	PRL 72 324	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
AVERY	90	PR D41 774	P. Avery, D. Besson	(CLEO Collab.)
ALBRECHT	89H	PL B232 398	H. Albrecht <i>et al.</i>	(ARGUS Collab.) JP
ANJOS	89C	PRL 62 1717	J.C. Anjos <i>et al.</i>	(FNAL E691 Collab.)

OTHER RELATED PAPERS

ABAZOV	05O	PRL 95 171803	V.M. Abazov <i>et al.</i>	(D0 Collab.)
ACOSTA	05F	PR D71 051103R	D. Acosta <i>et al.</i>	(CDF Collab.)
CLOSE	05C	PR D72 094004	F.E. Close, E.S. Swanson	(OXFTP)
SEMENOV	99	SPU 42 847	S.V. Semenov	
		Translated from UFN 42 937.		