

$D_1(2420)^0$

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

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
2421.8 ± 1.3 OUR AVERAGE Error includes scale factor of 1.1.				
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	$\gamma Be \rightarrow D^{*+} \pi^- X$
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. • • •				
2425 ± 3	235	² ABREU	98M DLPH	$e^+ e^-$

¹ Fit includes the contribution from $D_1^*(2430)^0$.

² No systematic error given.

$D_1(2420)^0$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
20.8 $\begin{smallmatrix} + \\ - \end{smallmatrix}$ $\begin{smallmatrix} 3.3 \\ 2.8 \end{smallmatrix}$ OUR AVERAGE				
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	$\gamma Be \rightarrow D^{*+} \pi^- X$
23 $\begin{smallmatrix} +8 \\ -6 \end{smallmatrix}$ $\begin{smallmatrix} +10 \\ -3 \end{smallmatrix}$	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 $D^+ \pi^-$	not seen

$D_1(2420)^0$ BRANCHING RATIOS

$\Gamma(D^*(2010)^+ \pi^-) / \Gamma_{\text{total}}$				Γ_1 / Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
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_2 / Γ_1
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.24	90	AVERY	90 CLEO	$e^+ e^- \rightarrow D^+ \pi^- X$

$D_1(2420)^0$ REFERENCES

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

SEMENOV	99	SPU 42 847	S.V. Semenov
		Translated from UFN 42 937.	