

$D_1(2420)^0$

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

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
2422.2 ± 1.8 OUR AVERAGE Error includes scale factor of 1.2.				
2421 $\begin{smallmatrix} +1 \\ -2 \end{smallmatrix} \pm 2$	286	AVERY	94C CLE2	$e^+ e^- \rightarrow D^{*+} \pi^- X$
2422 $\pm 2 \pm 2$	51	FRABETTI	94B E687	$\gamma \text{Be} \rightarrow D^{*+} \pi^- X$
2428 $\pm 3 \pm 2$	279	AVERY	90 CLEO	$e^+ e^- \rightarrow D^{*+} \pi^- X$
2414 $\pm 2 \pm 5$	171	ALBRECHT	89H ARG	$e^+ e^- \rightarrow D^{*+} \pi^- X$
2428 $\pm 8 \pm 5$	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	¹ ABREU	98M DLPH	$e^+ e^-$
¹ No systematic error given.				

$D_1(2420)^0$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
18.9⁺₋ 4.6⁺_{3.5} OUR AVERAGE				
20 $\begin{smallmatrix} +6 \\ -5 \end{smallmatrix} \pm 3$	286	AVERY	94C CLE2	$e^+ e^- \rightarrow D^{*+} \pi^- X$
15 $\pm 8 \pm 4$	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 $\pm 6 \begin{smallmatrix} +10 \\ -5 \end{smallmatrix}$	171	ALBRECHT	89H ARG	$e^+ e^- \rightarrow D^{*+} \pi^- X$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
58 $\pm 14 \pm 10$	171	ANJOS	89C TPS	$\gamma N \rightarrow D^{*+} \pi^- X$

$D_1(2420)^0$ 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

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.	