$D_1(2420)^0$

$I(J^P) = \frac{1}{2}(1^+)$
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	$B^- \to D^0\pi^+\pi^-\pi^-$
2421.4±1.5±0.9		[1] ABE	04D	BELL	$B^- \to D^{*+}\pi^-\pi^-$
2421 $^{+1}_{-2}$ ±2	286	AVERY	94C	CLE2	$e^+e^- \to D^{*+}\pi^-X$
2422 ±2 ±2	51	FRABETTI	94B	E687	$\gamma\,\mathrm{Be} \to D^{*+}\pi^-X$
2428 ±3 ±2	279	AVERY	90	CLEO	$e^+e^- \to D^{*+}\pi^-X$
2414 ±2 ±5	171	ALBRECHT	89H	ARG	$e^+e^- \to D^{*+}\pi^-X$
2428 ±8 ±5	171	ANJOS	89C	TPS	$\gamma N \to D^{*+}\pi^-X$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2421.7±0.7±0.6	7.5k	ABULENCIA	06A	CDF	1900 $p\overline{p} \to D^{*+}\pi^-X$
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 $p\overline{p} \to D^{*+}\pi^-X$

$D_1(2420)^0$ 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 $p\overline{p} \to D^{*+}\pi^-X$
24 ± 7 ± 8	151	ABE	05A	BELL	$B^- \to D^0\pi^+\pi^-\pi^-$
23.7± 2.7± 4.0		[3] ABE	04D	BELL	$B^- \to D^{*+}\pi^-\pi^-$
20 $^{+6}_{-5}$ ± 3	286	AVERY	94C	CLE2	$e^+e^- \to D^{*+}\pi^-X$
15 ± 8 ± 4	51	FRABETTI	94B	E687	$\gamma\,\mathrm{Be} \to D^{*+}\pi^-X$
23 $^{+8}_{-6}$ $^{+10}_{-3}$	279	AVERY	90	CLEO	$e^+e^- \to D^{*+}\pi^-X$
13 ± 6 $^{+10}_{-5}$	171	ALBRECHT	89H	ARG	$e^+e^- \to D^{*+}\pi^-X$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
58 ±14 ±10	171	ANJOS	89C	TPS	$\gamma N \to D^{*+}\pi^-X$

[3] Fit includes the contribution from $D_1^*(2430)^0$.

$D_1(2420)^0$ DECAY MODES

$\overline{D}_1(2420)^0$ 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

$\Gamma(D^*(2010)^+\pi^-)/\Gamma_{total}$ — 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 et al.	(CDF Collab.)
ABE	05A	PRL 94 221805	K. Abe et al.	(BELLE Collab.)
ABE	04D	PR D69 112002	K. Abe et al.	(BELLE Collab.)
ABREU	98M	PL B426 231	P. Abreu et al.	(DELPHI Collab.)
ACKERSTAFF	97W	ZPHY C76 425	K. Ackerstaff et al.	(OPAL Collab.)
AVERY	94C	PL B331 236	P. Avery et al.	(CLEO Collab.)
FRABETTI	94B	PRL 72 324	P.L. Frabetti et al.	(FNAL E687 Collab.)
AVERY	90	PR D41 774	P. Avery, D. Besson	(CLEO Collab.)
ALBRECHT	89H	PL B232 398	H. Albrecht et al.	(ARGUS Collab.) JP
ANJOS	89C	PRL 62 1717	J.C. Anjos et al.	(FNAL E691 Collab.)

OTHER RELATED PAPERS

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