$D_1(2420)^0$

$I(J^P) = \frac{1}{2}(1^+)$
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	γBe $\to D^{*+}\pi^-$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	γBe $\to D^{*+}\pi^-$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	$e^+e^- \to D^{*+}\pi^-X$
seen	AVERY	90	CLEO	$e^+e^- \to D^{*+}\pi^-X$
seen	ALBRECHT	89H	ARG	$e^+e^- \to D^*\pi^-X$
seen	ANJOS	89C	TPS	$\gamma N \to D^{*+}\pi^-X$

$\Gamma(D^+\pi^-)/\Gamma(D^*(2010)^+\pi^-)$ Γ_6/Γ_1

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.24	90	AVERY	90	CLEO	$e^+e^- \to D^+\pi^-X$

$D_1(2420)^0$ 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

AUBERT	06L	PR D74 012001	B. Aubert *et al.*	(BABAR Collab.)
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	S.V. Semenov	
		Translated from UFN 42 937.		