$D_0(2550)^0$

$I(J^P) = \frac{1}{2}(0^-)$
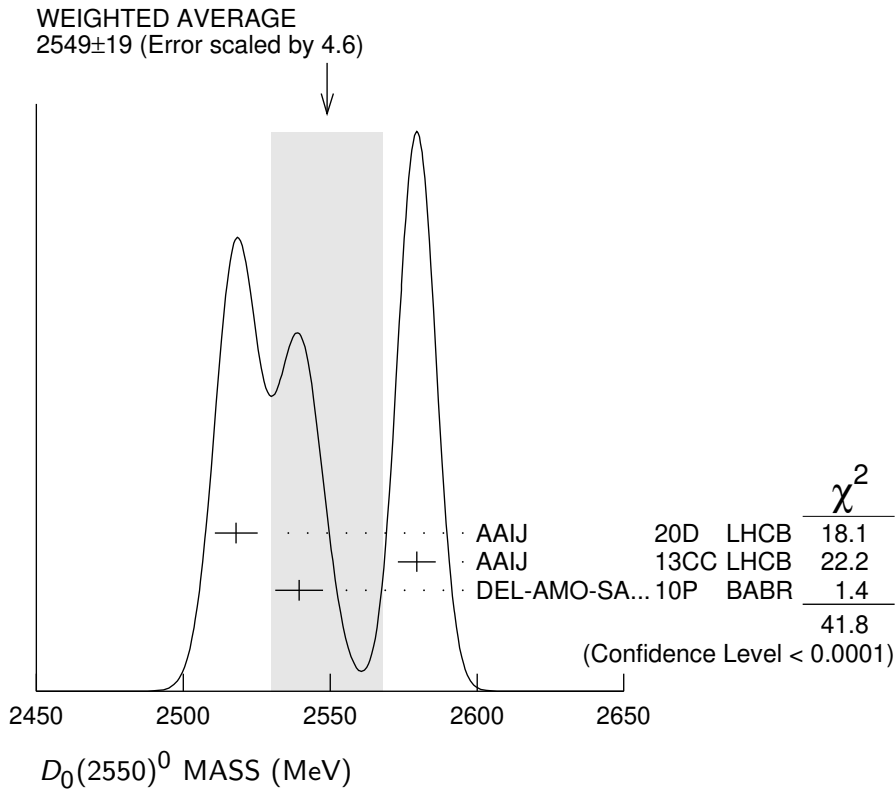
OMITTED FROM SUMMARY TABLE
$J^P = 0^-$ determined by AAIJ 20D.

$D_0(2550)^0$ MASS

VALUE (MeV)		EVTS	DOCUMENT ID		TECN	COMMENT
2549 ±19	**OUR AVERAGE**		Error includes scale factor of 4.6. See the ideogram below.			
2518 ± 2 ±7		79k	[1] AAIJ	20D	LHCB	$B^- \to D^{*+}\pi^-\pi^-$
2579.5± 3.4±5.5		60k	AAIJ	13CC	LHCB	$pp \to D^{*+}\pi^- X$
2539.4± 4.5±6.8		34k	DEL-AMO-SA..10P		BABR	$e^+ e^- \to D^{*+}\pi^- X$

[1] From a full four-body amplitude analysis of the $B^- \to D^{*+}\pi^-\pi^-$ decay.

WEIGHTED AVERAGE
2549±19 (Error scaled by 4.6)

			χ^2
AAIJ	20D	LHCB	18.1
AAIJ	13CC	LHCB	22.2
DEL-AMO-SA... 10P	BABR		1.4
			41.8

(Confidence Level < 0.0001)

$D_0(2550)^0$ MASS (MeV)

$D_0(2550)^0$ WIDTH

VALUE (MeV)		EVTS	DOCUMENT ID		TECN	COMMENT
165 ±24	**OUR AVERAGE**		Error includes scale factor of 2.0. See the ideogram below.			
199 ± 5 ±17		79k	[1] AAIJ	20D	LHCB	$B^- \to D^{*+}\pi^-\pi^-$
177.5±17.8±46.0		60k	AAIJ	13CC	LHCB	$pp \to D^{*+}\pi^- X$
130 ±12 ±13		34k	DEL-AMO-SA..10P		BABR	$e^+ e^- \to D^{*+}\pi^- X$

[1] From a full four-body amplitude analysis of the $B^- \to D^{*+} \pi^- \pi^-$ decay.

WEIGHTED AVERAGE
165±24 (Error scaled by 2.0)

				χ^2
AAIJ	20D	LHCB		3.6
AAIJ	13CC	LHCB		0.1
DEL-AMO-SA...	10P	BABR		4.0
				7.7

(Confidence Level = 0.022)

50   100   150   200   250   300   350

$D_0(2550)^0$ WIDTH (MeV)
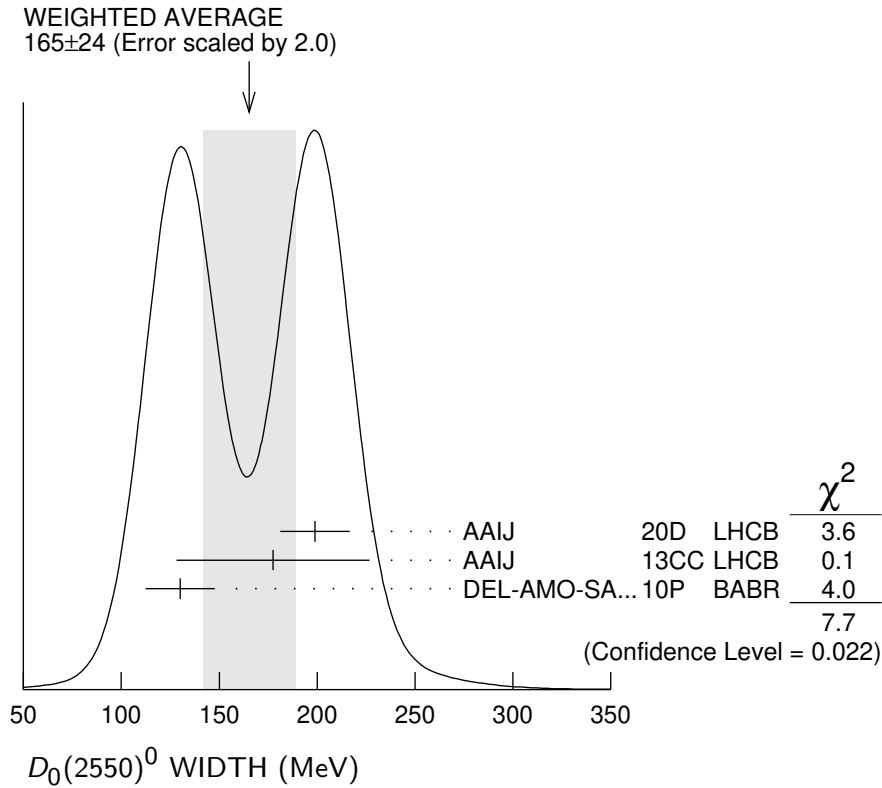
$D_0(2550)^0$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$D^{*+}\pi^-$	seen

$D_0(2550)^0$ POLARIZATION AMPLITUDE A_{D_J}

A polarization amplitude A_{D_J} is a parameter that depends on the initial polarization of the D_J. For D_J decays the helicity angle, θ_H, distribution varies like $1 + A_{D_J} \cos^2(\theta_H)$, where θ_H is the angle in the D_J rest frame between the two pions emitted in the $D_J \to D^* \pi$ and $D^* \to D\pi$ decays.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4.2±1.3	60k	[1] AAIJ	13CC LHCB	$pp \to D^{*+}\pi^- X$

[1] Systematic uncertainty not estimated.

$D_0(2550)^0$ REFERENCES

AAIJ	20D	PR D101 032005	R. Aaij *et al.*	(LHCb Collab.) JP
AAIJ	13CC	JHEP 1309 145	R. Aaij *et al.*	(LHCb Collab.)
DEL-AMO-SA...	10P	PR D82 111101	P. del Amo Sanchez *et al.*	(BABAR Collab.)