

$D_2^*(3000)^0$

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

OMITTED FROM SUMMARY TABLE

 $D_2^*(3000)^0$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
3214 ±29 ±49	28k	¹ AAIJ	16AH LHCB	$B^- \rightarrow D^+ \pi^- \pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2971.8 ± 8.7	9.5k	^{2,3} AAIJ	13CC LHCB	$pp \rightarrow D^{*+} \pi^- X$
3008.1 ± 4.0	17.6k	^{2,4} AAIJ	13CC LHCB	$pp \rightarrow D^+ \pi^- X$

¹ From the amplitude analysis in the model describing the $D^+ \pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances.

² Systematic uncertainty not estimated.

³ Unnatural parity preferred.

⁴ Natural parity state. A state $D(3000)^+$ is possibly seen in $D^0 \pi^+$ final state.

NODE=M229M

NODE=M229M

OCCUR=2

NODE=M229M;LINKAGE=D

NODE=M229M;LINKAGE=A

NODE=M229M;LINKAGE=B

NODE=M229M;LINKAGE=C

 $D_2^*(3000)^0$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
186 ±38 ±72	28k	¹ AAIJ	16AH LHCB	$B^- \rightarrow D^+ \pi^- \pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
188.1 ±44.8	9.5k	^{2,3} AAIJ	13CC LHCB	$pp \rightarrow D^{*+} \pi^- X$
110.5 ±11.5	17.6k	^{2,4} AAIJ	13CC LHCB	$pp \rightarrow D^+ \pi^- X$

¹ From the amplitude analysis in the model describing the $D^+ \pi^-$ wave together with virtual contributions from the $D^*(2007)^0$ and B^{*0} states, and components corresponding to the $D_2^*(2460)^0$, $D_1^*(2680)^0$, $D_3^*(2760)^0$, and $D_2^*(3000)^0$ resonances.

² Systematic uncertainty not estimated.

³ Unnatural parity preferred.

⁴ Natural parity state. A state $D(3000)^+$ is possibly seen in $D^0 \pi^+$ final state.

NODE=M229W

NODE=M229W

OCCUR=2

NODE=M229W;LINKAGE=D

NODE=M229W;LINKAGE=A

NODE=M229W;LINKAGE=C

NODE=M229W;LINKAGE=B

 $D_2^*(3000)^0$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad D^{*+} \pi^-$	seen

NODE=M229215;NODE=M229

DESIG=1;OUR EVAL;→ UNCHECKED ←

 $D_2^*(3000)^0$ 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 $D_J \rightarrow D^* \pi$ and $D^* \rightarrow D \pi$ decays.

NODE=M229PAM

NODE=M229PAM

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.5 ±0.9	9.5k	¹ AAIJ	13CC LHCB	$pp \rightarrow D^{*+} \pi^- X$

¹ Systematic uncertainty not estimated.

NODE=M229PAM

NODE=M229PAM;LINKAGE=A

 $D_2^*(3000)^0$ REFERENCES

AAIJ	16AH PR D94 072001	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ	13CC JHEP 1309 145	R. Aaij <i>et al.</i>	(LHCb Collab.)

NODE=M229

REFID=57518

REFID=55581