

$D(3000)^0$

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

OMITTED FROM SUMMARY TABLE

Both natural- and unnatural-parity components observed depending on the decay mode (AAIJ 13CC).

 $D(3000)^0$ 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	$pp \rightarrow D^+ \pi^- X$

¹From 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.

²Systematic uncertainty not estimated.

³Unnatural parity preferred.

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

 $D(3000)^0$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
186 ±38 ±72	28k	⁵ 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	^{6,7} AAIJ	13CC LHCB	$pp \rightarrow D^{*+} \pi^- X$
110.5 ±11.5	17.6k	^{6,8} AAIJ	13CC LHCB	$pp \rightarrow D^+ \pi^- X$

⁵From 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.

⁶Systematic uncertainty not estimated.

⁷Unnatural parity preferred.

⁸Natural parity state. A state $D(3000)^+$ is possibly seen in $D^0 \pi^+$ final state.

 $D(3000)^0$ DECAY MODES

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

 $D(3000)^0$ 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.

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1.5 ± 0.9	9.5k	⁹ AAIJ	13CC LHCB	$pp \rightarrow D^{*+} \pi^- X$
⁹ Systematic uncertainty not estimated.				

$D(3000)^0$ 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.)