

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_j/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.) |