# $P_c(4450)^+$

Status: *

A resonance seen in $\Lambda_b^0 \to P_c^+ K^-$, then $P_c \to J/\psi p$, with a significance of 12 standard deviations. The $J/\psi p$ quark content is $uudc\overline{c}$, a pentaquark. See also the $P_c(4380)^+$. In the best amplitude fit, the two states have opposite parity, one having $J = 3/2$, the other $J = 5/2$.

Extraction of the pentaquark signals requires some understanding of the dominant $K^- p$ background. AAIJ 15P used a model-dependent approach. AAIJ 16AG reanalyzed the data making minimal assumptions about the $K^- p$ background, and thus confirmed the strong significance of the pentaquark signals.

## $P_c(4450)^+$ MASS

| *VALUE* (MeV) | *DOCUMENT ID* | | *TECN* | *COMMENT* |
|---|---|---|---|---|
| **4449.8±1.7±2.5** | AAIJ | 15P | LHCB | $pp$ at 7, 8 TeV |

## $P_c(4450)^+$ WIDTH

| *VALUE* (MeV) | *DOCUMENT ID* | | *TECN* | *COMMENT* |
|---|---|---|---|---|
| **39±5±19** | AAIJ | 15P | LHCB | $pp$ at 7, 8 TeV |

| | Mode | Fraction ($\Gamma_i/\Gamma$) |
|---|---|---|
| $\Gamma_1$ | $J/\psi p$ | seen |

## $P_c(4450)^+$ BRANCHING RATIOS

**$\Gamma(J/\psi p)/\Gamma_{total}$** **$\Gamma_1/\Gamma$**

| *VALUE* | *DOCUMENT ID* | | *TECN* | *COMMENT* |
|---|---|---|---|---|
| **seen** | AAIJ | 15P | LHCB | $pp$ at 7, 8 TeV |


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|---|---|---|---|---|
| AAIJ | 16AG | PRL 117 082002 | R. Aaij *et al.* | (LHCb Collab.) |
| AAIJ | 15P | PRL 115 072001 | R. Aaij *et al.* | (LHCb Collab.) |