

$P_c(4450)^+$

Status: *

A resonance seen in $\Lambda_b^0 \rightarrow P_c^+ K^-$, then $P_c \rightarrow J/\psi p$, with a significance of 12 standard deviations. The $J/\psi p$ quark content is $uudc\bar{c}$, 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

 $P_c(4450)^+$ DECAY MODES

Mode	Fraction (Γ_j/Γ)
Γ_1 $J/\psi p$	seen

 $P_c(4450)^+$ BRANCHING RATIOS

$\Gamma(J/\psi p)/\Gamma_{\text{total}}$				Γ_1/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
seen	AAIJ	15P	LHCB pp at 7, 8 TeV	

 $P_c(4450)^+$ REFERENCES

AAIJ	16AG PRL 117 082002	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ	15P PRL 115 072001	R. Aaij <i>et al.</i>	(LHCb Collab.)