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Title:	First measurement of the $\Lambda c^+ \rightarrow p\eta'$ decay
Authors:	Bhardwaj, Vishal (/jspui/browse?type=author&value=Bhardwaj%2C+Vishal) Patra, Sourav (/jspui/browse?type=author&value=Patra%2C+Sourav)
Keywords:	measurement $\Lambda c^+ \rightarrow p\eta'$ decay
Issue Date:	2022
Publisher:	Springer Nature
Citation:	Journal of High Energy Physics, 2022(3), 90.
Abstract:	We present the first measurement of the branching fraction of the singly Cabibbo-suppressed (SCS) decay $\Lambda c^+ \rightarrow p\eta'$ with $\eta' \rightarrow \eta\pi^+\pi^-$, using a data sample corresponding to an integrated luminosity of 981 fb^{-1} , collected by the Belle detector at the KEKB e^+e^- asymmetric-energy collider. A significant $\Lambda c^+ \rightarrow p\eta'$ signal is observed for the first time with a signal significance of 5.4σ . The relative branching fraction with respect to the normalization mode $\Lambda c^+ \rightarrow pK^-\pi^+$ is measured to be $B(\Lambda c^+ \rightarrow p\eta')B(\Lambda c^+ \rightarrow pK^-\pi^+) = (7.54 \pm 1.32 \pm 0.73) \times 10^{-3}$, where the uncertainties are statistical and systematic, respectively. Using the world-average value of $B(\Lambda c^+ \rightarrow pK^-\pi^+) = (6.28 \pm 0.32) \times 10^{-2}$, we obtain $B(\Lambda c^+ \rightarrow p\eta') = (4.73 \pm 0.82 \pm 0.46 \pm 0.24) \times 10^{-4}$, where the uncertainties are statistical, systematic, and from $B(\Lambda c^+ \rightarrow pK^-\pi^+)$, respectively.
Description:	Only IISER Mohali authors are available in the record.
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